Exxon Valdez Oil Spill
Restoration Project Final Report

Sound Waste Management Plan
Environmental Operations and Used Oil Management System

Restoration Project 97115
Final Report

Volume I

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Sound Waste Management Plan
Environmental Operations and Used Oil Management System

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Study History: During Phase I of this project the *Sound Waste Management Plan* (SWMP), February 1996 was completed to identify both the nature of wastes generated, and potential solutions to manage those wastes(a copy of the Phase I report is contained in Appendix A). Phase II of the SWMP, presented herein, concerns the sound waste management plan environmental operations and used oil management system.

Abstract: This project constitutes Phase II of the Sound Waste Management Plan and created waste oil collection and disposal facilities, bilge water collection and disposal facilities, recycling storage, and household hazardous waste collection and storage facilities in Prince William Sound. A wide range of waste streams are generated within communities in the Sound including used oil generated from vehicles and vessels, and hazardous wastes generated by households. This project helped to prevent marine pollution that is generated from land-based sources. This project included the design and construction of Environmental Operations Stations buildings in Valdez, Cordova, Whittier, Chenega Bay and Tatitlek to improve the overall management of oily wastes. They will house new equipment to facilitate oily waste collection, treatment and disposal operations. The collected oil will be used for energy recovery for heating buildings. The new buildings and equipment will be owned and operated by the five respective communities. Oily wastes treated in the new facilities include used oil and oily bilge water. The facilities began operation in the summer of 1998. This project also included completion of used oil management manuals. The Prince William Sound Economic Development Council managed the project.

Key Words

bilge water	land-based waste	Tatitlek
Chenega Bay	new buildings	Valdez
Cordova	used oil	Whittier
energy recovery	PWSEDC	

Project Data: Project data such as soils information, survey information, equipment and supplier names and building materials is presented in the appendices attached to this report. For further project or design data, contact Matt Stephl at Stephl Engineers, 907-562-1468 or Daryl Sorenson at USKH, 907-276-4245.

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Section 1 Executive Summary

In 1995 and 1996, the communities of Prince William Sound worked together to prepare a Sound Waste Management Plan to identify both the nature of wastes generated, and potential solutions to manage those wastes. The plan recommended that a comprehensive used oil management system be instituted in each of the communities in the Sound. Phase II of the Sound Waste Management Plan is presented in this report. During Phase II, waste oil collection and disposal facilities, bilge water collection and disposal facilities, recycling storage, and household hazardous waste collection and storage facilities were constructed in Prince William Sound. In 1996, the *Exxon Valdez* Oil Spill Trustee Council approved $1,167,900 for new buildings and equipment for Cordova, Tatitlek, Valdez, Whittier and Chenega Bay. The new facilities will be owned and operated by the communities. There was extensive public involvement in the development and design of this project. The Prince William Sound Economic Development Council provided design and construction management and inspection of the new facilities.

Before this project was implemented, the lack of good facilities was increasing the likelihood that spills and leaks would occur and that used oil might be disposed of illegally. In Tatitlek and Chenega, used oil was being stored in old drums and tanks. Cordova, Valdez and Whittier were constantly facing a shortage of capacity to recover energy from all of the used oil they received. In all five communities, there were no permanent facilities to collect oily bilge water. Approximately 45,000 gallons of used oil is collected in the Sound each year.

During early 1997, permits for the project were secured and requirements showing that the project met the National Environmental Policy Act was completed. In May 1997, the United States Forest Service issued a Finding Of No Significant Impact for the project.

Community agreements and resolutions confirming the communities commitment to owning and operating the new facilities were secured before construction was started.

Construction of the new buildings was accomplished by private contractors. The Prince William Sound Economic Development Council was responsible for ordering the new equipment that was placed in the new facilities.

Each community received a new building and new equipment to handle used oil and oily bilge water. The purpose of the new buildings is to provide a sheltered, heated and secure area for handling used oil and bilge water. The buildings enclose used oil tanks, used oil heaters, bilge water treatment equipment, oil/water separators and other miscellaneous equipment such as oily material burners, collection drums, pumps, etc. Each building is constructed with a floor that doubles as a spill containment area. The communities requested that the buildings be durable and be capable of withstanding heavy abuse. The Valdez structure is a 20-foot by 40-foot concrete block building. Cordova is receiving a 20-foot by 60-foot poured concrete wall structure. Whittier's 16-foot by 30-foot building is a steel framed structure on a steel skid foundation. Whittier wanted a building they could relocate as their harbor goes through a number of expansions in the future.

Chenega and Tatitlek have received prefabricated 8-foot by 24-foot metal buildings on skids.

In the larger communities, the used oil collection systems will basically remain the same. In Chenega and Tatitlek, where there is no existing permanent oil collection area, the new buildings will be the collection points. In all five communities, the oil collection areas have some type of spill containment around the oil drop off areas. Periodically the collected used oil will be tested to confirm that it is "ON-SPEC" oil. The new facilities have been provided with electrically driven portable pumps to be used for transferring the oil from the collection drums to the permanent tanks located inside the building.

Once the oil is transferred to the tanks inside the buildings, it will be allowed to settle. The warm temperatures in the building will improve stratification of the heavier water and water oil mixture (rag layer) and stratification of the lighter emulsified (soap/oil/antifreeze mixture) from the good quality used oil. Water collected in the tanks will be treated in the oil/water separator.

In Cordova, Valdez and Whittier, oily bilge water will be collected with a trailer mounted vacuum pump and 500 gallon tank. A vacuum system is preferred for bilge water pumping. It will not create excessive foam in the liquid as compared to a gear or centrifugal pump. Operators in Chenega and Tatitlek will use a portable 30 gallon container and hand pump to collect and transport oily bilge water.

In Cordova, Valdez and Whittier the bilge water treatment equipment is located inside the new buildings. The equipment is capable of operating year-round in the enclosed and heated buildings. In Cordova and Valdez, the treated water will be disposed of into the City's domestic sewer system. In Whittier the treated water will be discharged into the small boat harbor. In both cases, periodic sampling and analysis of the discharge effluent will be performed. Bilge water treatment in Chenega and Tatitlek will be performed with a mobile wheel mounted oil/water separator unit. The treated water will be discharged into the marine waters near the harbors. Periodic sampling and analysis of the discharge will be performed.

Some of the communities are currently operating their new facilities. All five communities plan to be fully operational by mid-summer, 1998. With construction of the new buildings there has been an increased awareness in the communities to improve their waste oil programs. All the communities have been preparing themselves for the new operations. Cordova, Valdez and Whittier all currently have or plan to improve their existing waste oil and household hazardous waste collection programs. All of the communities are enthused about improving their waste handling operations.

The project has resulted in reducing the amount of oil entering Prince William Sound and is helping to restore the resources and services injured during the 1989 Oil Spill.

Section 2 Introduction

In 1995 and 1996, the communities of PWS worked together to prepare a Sound Waste

Management Plan (SWMP) to identify both the nature of wastes generated, and potential solutions to manage those wastes. A copy of the SWMP is contained in Appendix A. The SWMP plan recommended that a comprehensive used oil management system be instituted in each of the communities in PWS. A committee consisting of leaders from the five communities, agency representatives, private industry representatives and other local activists was involved in completion of the study. The SWMP plan found that there were inadequate facilities to manage used oil in the communities.

This project constitutes Phase II of the SWMP and created waste oil collection and disposal facilities, bilge water collection and disposal facility, recycling storage, and household hazardous waste collection and storage facility in PWS. On August 29, 1996, the *Exxon Valdez* Oil Spill Trustee Council approved $1,167,900 for Project 97115/Implementation of the SWMP II: Environmental Operations and Used Oil Management System (see Appendix B). In 1997 and 1998 new buildings were designed and constructed in Cordova, Tatitlek, Valdez, Whittier and Chenega Bay for collecting used oil, oily bilge water, household hazardous waste and recyclable products.

The purpose of the project is to reduce the amount of oil entering Prince William Sound and to help restore the resources and services injured during the 1989 Oil Spill. The new facilities will be owned and operated by the Cities. They will be responsible for seeing that the collection, containment, energy recovery and storing of used oil and the collection and disposal of household hazardous waste is performed in an approved manner. There was extensive public involvement in the development and design of this project.

One method of helping to restore the resources and services injured by the 1989 *Exxon Valdez* Spill is to protect the injured resources and services from further stress. While protective actions themselves do not accelerate recovery, they help to ensure that natural recovery will proceed with a minimum of interference.

A wide range of waste streams are generated within PWS communities. These include used oil generated from vehicles and vessels, and hazardous wastes generated by households. Communities previously faced serious problems with managing these wastes, including inadequate facilities to properly manage used oil and hazardous household wastes disposed of in community landfills, where they may leach into surrounding land and water. As a result of these problems, pollution from these sources was entering PWS on an ongoing basis. At present, federal and state law requires that oil and other hazardous waste be disposed of in an environmentally safe manner. Most of the towns in the spill area lacked waste facilities capable of properly and efficiently handling waste oil. Most of these were unlikely to receive these facilities without government funding.

The waste streams generated within communities and which are entering PWS on an ongoing basis are affecting fish, wildlife, and human uses injured by the spill, including disruption of important habitat. Any decrease in local pollution would have the effect of decreasing the stress on injured fish and wildlife that rely on clean water. The fish and wildlife likely to benefit the most are those that feed in the intertidal or near-shore waters

in the vicinity of community waterfronts and small boat harbors. The services most likely to benefit are subsistence and recreation, both of which are adversely affected by marine pollution and would benefit from pollution reduction.

Chronic pollution from community sources is believed to have significant adverse effects on the marine environment; refined petroleum products are very toxic to fish and wildlife,
and the cumulative effects of chronic marine pollution can substantially increase the stress on fish and wildlife resources. With regard to the mortality of seabirds, chronic marine pollution is believed to be at least as important as large-scale spills.

Implementation of the project helped to assure that marine-generated oil pollution produced in PWS does not further degrade the marine habitat of PWS. By assuring that wastes are properly handled and do not contaminate the marine environment, natural recovery of the resources and services can be enhanced.

Before this project was implemented, the lack of good facilities was increasing the likelihood that spills and leaks would occur and that used oil might be disposed of illegally. In Tatitlek and Chenega, used oil was being stored in old drums and tanks. Cordova, Valdez and Whittier were constantly facing a shortage of capacity to recycle all of the used oil they received. In all five communities, there were no permanent facilities to collect oily bilge water.

Approximately 45,000 gallons of used oil are collected in Prince William Sound each year. The following table shows the estimated amount collected in each community.

USED OIL COLLECTED	
Community	Gallons Per Year
Cordova	18,000
Valdez	15,000
Whittier	10,000
Chenega	1,000
Tatitlek	1,000
Total	45,000

In Cordova, used oil is currently collected in a 300 gallon tank. The oil is transferred to a larger long term storage tank. These are both located behind the harbor office within a concrete diked area. Useable waste oil is transported to various locations in the community for energy recovery in used oil furnaces. The existing collection facility is not housed inside a warm building. Separation of water and emulsified product from the collected oil is inefficient in the outdoor setting. The new building will provided a heated area for oil treatment. Oil that is unsuitable for use in local heat recovery furnaces is stored in Cordova and eventually shipped out of town to a certified disposer. The City collects approximately 18,000 gallons of used oil per year. Before this project, the City did not have any facilities for collecting and treating oily bilge water. The City uses a truck-mounted tank to transfer oil from the collection tank to the other storage tanks in the community. Used oil is burned in the electric company shop building, some

canneries and in some City buildings.

In Valdez, used oil is now collected across from the harbor office. Oil is also collected at the City's solid waste baler building which is located 3 miles from the harbor. The harbor facility includes a 300 gallon collection tank located within a roof structure. The structure is unheated. The collection building contains a concrete slab and curb to contain spills. Prior to this project the City did not have any facilities for collecting and treating oily bilge water. Used oil is burned in a number of City, State and private warehouse and shop buildings. Contaminated and emulsified oil is collected and stored in drums during the year. Normally, once per year, these products are shipped to Anchorage for disposal.

Approximately 10,000 gallons of used oil are collected in Whittier each year. The oil is collected in a single 300 gallon tank located near the harbor office. Used oil is burned in local buildings. Before this project was implemented the City did not have any facilities for collecting and treating oily bilge water. Contaminated and emulsified used oil is collected and stored in drums during the year. These products are shipped to Anchorage for disposal.

Prior to this project, Chenega and Tatitlek did not have used oil or bilge water collection and disposal facilities. There were no used oil burners in Chenega or Tatitlek. This project purchased one new used oil furnace for each village. They plan to install the new heaters in one of their public buildings.

Section 3 Objectives

There are two objectives: 1) to decrease pollution that is entering PWS from solid waste sites, mishandling of the wastes (e.g. spills) and illegal dumping of solid, hazardous and oily wastes and 2) to decrease the flow of used oil into PWS from vessels, boats, vehicles and other community-based sources due to the lack of sufficient management and equipment.

Section 4 Methods

Final community ownership and operation of the new EVOS Station facilities was the culmination of a project that began with a conceptual design and ended with construction of the new facilities. A conceptual report completed on January 20, 1997 (see Appendix C) described the general requirements and recommendations for the new buildings. The SWMP committee met shortly after the report was complete to provide input and confirmation of the project direction.

On March 7, 1997, preliminary designs (see Appendix D, E, F, G and H) for all five EVOS stations were completed and presented to the SWMP committee for review and comments. During the meeting, construction and equipment budgets for each community were evaluated, and with input from the community representatives, each facility was tailored to suit the individual communities needs.

During early 1997, permits for the project were secured and requirements showing that the project met the National Environmental Policy Act (NEPA) were completed. Appendices I, J, K, L and M contain the Environmental Assessments completed to meet the requirements of NEPA. During May 1997, the United States Forest Service issued a Finding Of No Significant Impact (FONSI) for the project. The following approvals and permits were required during the project.

- Local building permits
- Local planning commission approval
- State Coastal Management Program Questionnaire
- State Fire Marshal permit
- Alaska Department of Environmental Conservation plan review
- The EVOS Trustee Council funded the project and required that an Environmental Assessment be completed for each of the five locations.

Community agreements and resolutions confirming the communities commitment to owning and operating the new facilities were secured before construction of the new buildings was started. The resolutions generally required that the communities be prepared to accept responsibility of operating the new facilities. Prior to receiving ADEC authorization to proceed with construction of the new facilities, each community provided a legally binding, notarized Letter of Agreement. The agreement was signed by an executive officer of the community. The Agreement contained, at a minimum, the following conditions; 1)The community will obtain all titles, easements and permits necessary to provide clear title and authority to construct and maintain the proposed projects, 2) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management and maintenance of the EVOS facility. Accidental discharge of waste products from the facilities is the sole responsibility of the community, 3) Construction contractors may enter onto the communities property to construct the project and 4) The location, construction, and management of the building will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream or body of water.

Construction of the new buildings was accomplished by private contractors selected through a bidding process. This occurred during the spring of 1997. Contractor selection was based on the lowest price. The Prince William Sound Economic Development Council (PWSEDC) provided construction management and inspection of the new buildings. The PWSEDC was responsible for ordering the new equipment that was placed in the new facilities. Equipment vendors were solicited for quotes of the specified equipment. Equipment selection was based on the lowest price. At least three price quotes were received for each piece of equipment. Appendix N contains a detailed description of the costs of the new buildings and cost of the equipment purchased for each community.

Each community received a new building and new equipment to handle used oil and oily bilge water. A list of the buildings and equipment is provided in the following table.

BUILDING AND EQUIPMENT LIST					
Item	Cordova	Valdez	Whittier	Chenega	Tatitlek
Buildings					
1200 sf permanent building	X				
800 sf permanent building		X			
480 sf permanent building			X		
198 sf permanent building				X	X
Used Oil Collection/Storage					
500 gallon oil tank and fittings	X	X	X		
470 gallon oil tank and fittings				X	X
400 gallon oil tank and fittings	X	X			
explosion proof oil transfer pump	X	X	X	X	
combustibility meter	X	X	X	X	X
Bilge Water Collection					
mobile vacuum pump and 500 gallon tank	X	X	X		
portable bilge pump and tank				X	X
Bilge Water Treatment and Disposal					
500 gallon oily/water settling tank	X	X	X		
coalescing plate oil/water separator	X	X	X		
absorbent oil/water separator	X	X	X		
portable oil/water separator				X	X
Miscellaneous Equipment					
oily material burner	X	X			

The purpose of the new buildings is to provide a sheltered, heated and secure area for handling used oil and bilge water. Tanks for processing and storing used oil are located inside the new buildings. The key reason for constructing the enclosed buildings was to provide a warm area for processing the used oil. At warm temperatures it is much quicker and easier to produce clean used oil. The warm temperatures will help to better separate the water, rag layer and emulsified product from the oil. Burning cleaner used oil will considerably reduce the amount of maintenance of the used oil burners. In Cordova, Valdez and Whittier, the new buildings are heated with 125,000 BTU used oil burners. The village buildings are smaller and are kept warm with wall mounted electric heaters.

The buildings enclose the used oil tanks, used oil heaters, bilge water treatment equipment, oil/water separators and other miscellaneous equipment such as oily material burners, collection drums, pumps, etc.

Because of the flammable and combustible nature of the materials in the buildings, each new building contains a fire suppression system. This is required by code. In addition, code required that a certain amount of ventilation be provided to continually exhaust combustible fumes out of the building. The used oil tanks, used oil burner tank, bilge water tank and oil/water separator are all connected to vents that run outside the building.

Each building is constructed with a floor that doubles as a spill containment area. The floors are surrounded with curbs that will contain a spill that may occur from one of the used oil storage tanks inside the new buildings. The dual containment area has a volume of least 110 percent of the capacity of the largest storage tank inside the building.

The communities requested that the buildings be durable and be capable of withstanding heavy abuse. The Valdez structure is a 20-foot by 40-foot concrete block building. Cordova is receiving a 20-foot by 60-foot poured concrete wall structure. Whittier's 16-foot by 30-foot building is a steel framed structure on a steel skid foundation. Whittier wanted a building they could relocate as their harbor goes through a number of expansions in the future. Chenega and Tatitlek will receive prefabricated 8-foot by 24-foot metal buildings on skids. The village buildings were prefabricated in the lower 48 by a manufacturer that specializes in hazardous materials structures. The prefabricated buildings were modified to withstand increased Alaska snow loads.

Construction and equipment procurement was completed in the spring of 1998. Appendices O, P, Q, R, and S contain asbuilt drawings and photographs of the completed structures and equipment.

In the larger communities, the used oil collection systems will basically remain the same. The majority of the oil in Valdez, Cordova and Whittier will be collected at the boat harbors. In Chenega and Tatitlek, where there is no existing permanent oil collection area, the new buildings will be the collection points. The new premanufactured buildings in these two smaller communities contain a separate room that is designated for oil collection. In all five communities, the oil collection areas have some type of spill containment around the oil drop off areas.

Oil contained in the collection drums or tanks is transferred to a permanent tank that is located inside the new EVOS Stations buildings. Periodically, the used oil will be tested to confirm that it is "ON-SPEC" oil. Each facility has been provided with a portable combustibility meter that will be used to verify the flash point of the material contained in the collection drum. If there is a concern that a large quantity of gasoline or other highly flammable product may be in the material, the operators will have the ability to measure the flash point prior to transferring the material into a larger storage tank. Knowing the flash point is important. Most used oil collected from the public falls in the range of a 160 to 180 degrees F flash point. New oil has a flash point of over approximately 200 degrees F. The new buildings are allowed to contain an almost unlimited quantity of material with a flash point over 200 degrees F. In Cordova, Valdez and Whittier storage of used oil with a flash point less that 200 degrees F is limited. In these three buildings no more than 660 gallons of Class III-A (140 to 200 degree flash point) material can be stored at one time. Checking the flash point will also confirm if

material falls into the "non-spec oil" range of less than 100 degrees F. Gasoline typically has a flash point of less than 73 degrees F.

The new facilities have been provided with electrically driven portable pumps to be used for transferring the oil from the collection drums to the permanent tanks. For added safety, the pumps have explosion-proof electric motors. These pumps will also be used for transferring oil between tanks in the building, pumping out the building floor sumps and pumping oil into other storage tanks in the community.

Steel tanks located inside the building will be used to store the used oil. Each has a standard vent, emergency vent, discharge and drain pipes, a liquid level gauge, an observation hatch and a fill device that automatically closes when full to prevent overfilling. The number and size of the tanks inside the new buildings are shown on the following table.

USED OIL TANKS INSIDE EVOS STATIONS				
Community	400 Gallon Tank	500 Gallon Tank	470 Gallon Tank	250 Gallon Tank on Heater
Cordova	X	X		X
Valdez	X	X		X
Whittier	X			X
Chenega			X	
Tatitlek			X	

Cordova, Valdez and Whittier will place large (1000 to 5000 gallon size) long term used oil storage tanks outside and adjacent to their new EVOS Station buildings.

Once the oil is transferred to the tanks inside the buildings, it is allowed to settle. The warm temperatures in the building will improve stratification of the heavier water and water oil mixture (rag layer) and stratification of the lighter emulsified oil (soap/oil/antifreeze mixture) from the good quality used oil. The tanks have a discharge fitting located at the very bottom of the tank and one at approximately 8-inches up from the bottom. The better quality oil is drawn from the higher discharge fitting and transferred to the 250 gallon heater fuel tank or to a larger long term tank located elsewhere. Oil transfer is performed with the portable explosion proof pump and flexible hoses.

Water collected in the tanks is treated in the oil/water separator. The oil/water separator system is not be capable of removing all the oil from the rag layer and emulsified layer materials. Unsuitable materials will be stored in drums and eventually shipped to one of the hazardous materials treatment facilities in Anchorage. Good quality used oil will be used for energy recovery to heat the new EVOS Station or other buildings in the communities.

In Cordova, Valdez and Whittier, oily bilge water will be collected with a trailer mounted vacuum pump and 500 gallon tank. The vacuum pump has the capacity to pump

approximately 15 gallons per minute when a boat is 20 feet below the pump elevation. The maximum height the vacuum pump can draw from is approximately 25 feet.

A vacuum system is preferred for bilge water pumping. It will not create excessive foam in the liquid as compared to a gear or centrifugal pump. Limiting the volume of foam and emulsified product in the bilge water will improve oil/water separation treatment. In addition, the vacuum pump can pass large solids, debris, tools, machinery parts, etc., that are commonly found in boat bilge water.

The trailer mounted bilge pumping unit is totally self-contained. A gas engine powers the vacuum pump. The vacuum pump can be reversed to act as a pressure pump so that the tank contents can be discharged into the storage tank in the EVOS Station. The trailer mounted unit is mobile and can be legally towed on the highway. In Cordova, Valdez and Whittier, the trailer will be towed to the EVOS Station building to dispose of the portable tank contents in a permanent tank located in the building. The vacuum pump and tank trailer is also capable of transporting used oil and can be used to evacuate collection tanks or transferring used oil to other storage tanks in the community.

Operators in Chenega and Tatitlek will use a portable 30 gallon container and hand pump to collect and transport oily bilge water. The tank and a hand operated diaphragm pump are mounted on a small dolly. The villages will also have a mobile oil/water separator treatment unit and may elect to forego the transfer stage and treat the oily bilge water right at the dock.

In Cordova, Valdez and Whittier the bilge water treatment equipment is located inside the new EVOS Station buildings. The equipment is capable of operating year-round in the enclosed and heated buildings. In these communities, the bilge water is collected in the portable vacuum and tank units and transferred into a stationary 500 gallon steel tank located inside the new buildings. The 500 gallon tank will be used as a detention tank to allow the liquid to settle and improve separation of oil and water. The 500 gallon tank is mounted on an elevated steel stand and includes an emergency vent, discharge and drain pipes, observation hatch, sight glass gauge to determine the liquid level and a fill device that automatically closes when full.

Separation of the water from the oil will be accomplished with a coalescing plate separator followed by a sorbent filter used for polishing the effluent. Oily water will flow from the elevated 500 gallon tank through the coalescing plate separator and through a plastic container of sorbent material. A discharge of less than 10 ppm (parts per million) of oil is anticipated from this treatment equipment. The entire system will operate without pumping and without electricity. A treatment flow rate of 5 gpm is expected. By eliminating pumping, there is a reduced chance of extra mixing of the bilge water and a reduced chance of creating more emulsified material. The treatment system is not capable of removing oil from the emulsified oil products.

Oil product collected in the separator will be transferred to the used oil storage tanks and eventually used for energy recovery. Rag layer and emulsified product will be removed and stored and eventually sent to a processor/disposer. The sorbent material used in the

final phase of treatment has a limited capacity. After it has reached the end of its useful life, it will be replaced with new material.

In Cordova and Valdez, the treated water will be disposed of into the City's domestic sewer system. In Whittier the treated water will be discharged into the small boat harbor. In both cases, periodic sampling and analysis of the discharge effluent will be performed. Whittier will monitor the discharge area and terminate the treatment process if an oil sheen appears on the water surface.

Bilge water treatment in Chenega and Tatitlek will be performed with a mobile wheel mounted oil/water separator unit. The device includes a separator tank, two primary spin-on type filters, two polishing spin-on type filters, a 1 micron bag filter, a suction pump and control panel. The self-contained unit has the capacity to treat at a flow rate of 2 gpm and produce a discharge of less than 1 ppm of hydrocarbons. This treatment system is not capable of sufficiently treating emulsified oil material. The treated water will be discharged into the marine waters near the harbors. Periodic sampling and analysis of the discharge will be performed. The communities will monitor the discharge area and terminate the treatment process if an oil sheen appears on the water surface.

Two of the communities have purchased a "Smart Ash" burner to help dispose of sorbent materials, oil filter cartridges and oily sludge. The electrically powered burners portable.

The five Prince William Sound EVOS Station facilities described in the preceding paragraphs were designed and constructed for $1.132 million dollars. The total cost of each facility is shown below:

COST PER FACILITY			
Community	Gallons of Oil Collected per Year	Population (est.)	Engineering and Construction Cost
Cordova	18,000	3000	$340,000
Valdez	15,000	4500	$350,000
Whittier	10,000	300	$238,000
Chenega	1,000	80	$102,000
Tatitlek	1,000	80	$102,000
Total	45,000		$1,132,000

Section 5 Results

As of June 1998, the Whittier and Cordova are storing oil in their buildings and Whittier is successfully operating their oily water separator equipment. Tatitlek and Chenega Bay have set up their facilities and have identified a person in the village who will operate them. They plan to start collecting and processing oil in the summer of 1998. In Valdez, they are in the process of moving their oil storage and processing program into the new building. Valdez has relocated a 5000 gallon used oil storage tank next to the EVOS station and will start placing oil inside the building as their used oil supply is replenished.

Valdez, Cordova and Whittier will likely not operate their new used oil furnaces full-time until the cooler fall and winter months approach.

Section 6 Discussion

The change in the amount of waste oil and bilge water collected and processed in the new facilities has not been measured since the facilities were constructed. However, with construction of the new buildings there has been an increased awareness by the communities to improve their waste oil programs. All the communities have been preparing themselves for the new operations. Cordova, Valdez and Whittier all have or plan to improve their existing waste oil and household hazardous waste collection programs. Chenega Bay and Tatitlek have identified buildings where they will install their new waste oil burners (purchased with funds from this project). In all the communities they are enthused about improving their waste handling operations.

Section 7 Conclusions

The new facilities are functional and the communities are beginning to improved their waste oil collection and disposal practices and bilge water collection and disposal practices. The project has resulted in reducing the amount of oil entering Prince William Sound and is helping to restore the resources and services injured during the 1989 Oil Spill.

Section 8 Acknowledgments

We would like to acknowledge the following persons who were involved in the completion of this project:

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Section 9 Literature Cited

None

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APPENDIX A

Sound Waste Management Plan, 1996

SOUND WASTE MANAGEMENT PLAN

CHENEGA BAY

CORDOVA

TATITLEK

VALDEZ

WHITTIER

Working together to better manage solid waste and prevent marine pollution

Prepared for the Communities of Chenega Bay, Cordova, Tatitlek, Valdez and Whittier by the Prince William Sound Economic Development Council. February 1996

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Chuck Totemoff, Chenega Corporation

Mark Stahl, Chugach Alaska Corporation

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SOUND WASTE MANAGEMENT PLAN EXECUTIVE SUMMARY

Prince William Sound communities face serious environmental management issues. In most communities:

- landfills are filling up or are located in areas of possible ground-water and surface-water contamination;
- inadequate facilities exist to manage used oil, increasing the potential for spills and illegal dumping;
- hazardous household wastes are disposed of in community landfills where they may leach out into surrounding land and water; and
- communities are out of compliance with state environmental regulations.

The **Sound Waste Management Plan** was developed to find solutions to these and other environmental management problems in the communities in order to prevent environmental contamination, safeguard public health, and promote economic development.

The **Sound Waste Management Plan** is the first collaborative planning effort among the communities of Chenega Bay, Cordova, Tatitlek, Valdez, and Whittier and, if implemented, will result in significant changes and improvements in communities' solid and oily waste management practices, including producing less waste, increasing waste recycling, and assuring safe waste disposal.

The **Sound Waste Management Plan** recommends the following five major improvements in waste management practices.

Recommendation #1: Create a comprehensive used oil management system in each community. Facilities and equipment should be upgraded or purchased as needed to enable communities to safely manage used oil of all types (engine oil, oily bilge water, and oil-contaminated materials) at all stages of management, including collection, storage, transportation, and recycling the used oil by burning it for energy recovery.

Recommendation #2: Establish a regional household hazardous waste collection and training program. Communities should work together and in coordination with the Alaska Department of Environmental Conservation (DEC) to establish a Prince William Sound Household Hazardous Waste Management Program. The regional program would ensure that household hazardous wastes (paints, lead-acid batteries, solvents, etc.) are routinely collected and disposed of properly, and that costs to communities are greatly reduced through training and technical assistance provided by DEC.

Recommendation #3: Institute community-sponsored drop-off recycling programs for cardboard and aluminum. Communities should move from their current sporadic, volunteer-led recycling efforts to institution of community-sponsored recycling programs. To maximize revenues, the programs should focus initially on collecting the highest market-value materials—cardboard and aluminum—and expand to other materials as feasible. To minimize program costs, priority should be given to collecting recyclable materials during the summer months, when businesses and residents generate the largest volume of materials.

Recommendation #4: Construct EnVironmental Operation Stations in each community. EnVironmental Operation Stations (EVOS) should be constructed in each community to centralize and integrate recycling, household hazardous waste, and used oil management operations. An EVOS is a 20' by 20' building which would provide the physical, sheltered space necessary to collect and store materials. An EVOS would provide a convenient "one-stop" drop-off location within each community to maximize recycling and proper waste disposal by residents and businesses.

Recommendation #5: Determine how and where municipal solid waste will be disposed of over the long term. Each community should initiate discussions with its city/village councils and residents to determine how best to manage municipal solid waste over the next five to twenty years. Most communities are facing this decision with some urgency, either due to a lack of compliance with regulations or upcoming expiration of their disposal permits. The decision-making process should be built on the comparative analysis of seven waste disposal alternatives which is contained in the Sound Waste Management Plan.

Implementation of these five recommendations will significantly and cost-effectively improve the way waste is managed within Prince William Sound communities. The recommended actions will maximize health and environmental protection by decreasing reliance on disposal of wastes; minimize costs through coordinating as a region and obtaining partial funding from outside sources for the recommendations; and create a practical waste management system that can be sustained over time.

The total capital costs to implement the first four recommendations are approximately $1,000,000 for the region. The annual costs total approximately $200,000 for the region. The estimated costs to implement the fifth recommendation (construction and annual operation of a solid waste disposal site) range from $9,000,000 to $20,000,000 for the region over a twenty year period, depending on the disposal site option chosen by each community.

Communities plan to undertake a public review process in the Spring and Summer of 1996 to discuss the recommendations among city/village councils and residents. Once the review process is complete, funding will be pursued with implementation of the recommendations to be completed by mid-1997. Potential funding sources include the communities, *Exxon Valdez* Oil Spill Trustee Council, the Alaska Department of Environmental Conservation, the Legislature, and private businesses. (The attached table shows the Sound Waste Management Plan recommendations, associated costs and potential funding sources).

The Sound Waste Management Plan was developed through a regional planning process coordinated by the Prince William Sound Economic Development Council. The *Exxon Valdez* Oil Spill Trustee Council funded the planning process, based on the importance of protecting Prince William Sound from on-going land-based sources of marine pollution. Public officials and private sector representatives from each of the communities met monthly over the course of a year to develop the Sound Waste Management Plan.

Many improvements in waste management practices have already been made as a result of the cooperative planning process and many more are anticipated. Communication among communities has also been enhanced, helping to make positive changes in the communities possible. Prince William Sound communities plan to continue working together as a region to successfully and creatively address environmental management issues.

SOUND WASTE MANAGEMENT PLAN RECOMMENDATIONS

What environmental issues do communities face?	*What are the solutions?*	*What is the cost?*	*Who will provide funding?*	*What is the start date?*
Used Oil Lack of adequate management facilities, which increases risk of spills and illegal dumping	1. **Create a Comprehensive Used Oil Management System**	$336,000 (c) $50,000 (a)	Exxon Valdez Oil Spill Trustee Council Communities	Fall 1996
Household Hazardous Waste Current disposal in community landfills unsafe due to potential to leach out into land and water	2. ***Establish a Regional* Household Hazardous Waste System**	$60,000 (a)	Communities, Dept. of Environmental Conservation, *Private Sector*	Spring 1996
Solid Waste Recycling Communities are not recycling despite *potential for revenue and resource* conservation	3. **Institute Drop-Off Recycling Programs**	$60,000 (c&a) ($77,000 revenues)	Communities	Summer 1996
Operation of Waste Management System Current operations are inefficient due to lack of centralization	4. **Construct EnVironmental Operation Stations**	$610,000 (c) $150,000 (c) $75,000 (a)	Exxon Valdez Oil Spill Trustee Council Communities Communities	Summer 1997
Solid Waste Disposal *Communities need to make landfill siting* decisions because landfills are filling up and/or permits are expiring	5. **Choose Solid Waste Disposal Sites and Methods**	$9-$20 million (c&a) depending on option selected	Communities, State/Federal Grant or Settlement Monies	Summer 1997 (for selection of options)

The communities are: Chenega Bay, Cordova, Tatitlek, Valdez, and Whittier

(c) capital costs; (a) annual costs

I. INTRODUCTION: SETTING THE STAGE

The communities of Prince William Sound face an increasingly large and complex set of environmental problems. Used oil, garbage, sewage, hazardous waste, scrap metal, and fish wastes are only a few of the commonly generated wastes which communities must manage carefully to prevent contamination of the environment and to safeguard public health.

Proper waste management is also increasingly recognized as important for economic development: a community must offer a good "quality of life" to attract new businesses and residents—which includes having the infrastructure necessary to maintain a clean environment.

Prince William Sound communities face some pressing environmental management problems. In most communities:

- landfills are filling up or are located in areas of possible ground- and surface-water contamination;
- inadequate facilities exist to manage used oil;
- hazardous household wastes are disposed of in community landfills where they may leach out into surrounding land and water; and
- communities are out of compliance with state environmental regulations.

Each community has tried to address these and other problems independently, but has been stymied in its efforts by the high cost of proper waste management and by local conditions—geology, climate, and infrastructure—which limit the effectiveness of conventional solutions.

What is the Sound Waste Management Plan?

The ***Sound Waste Management Plan*** is an **action plan** for how Prince William Sound communities can improve their waste management practices, through producing less waste, recycling waste, and assuring safe disposal of the waste. The primary objective of the plan is to achieve practical results in improving waste management.

The **Sound Waste Management Plan** takes an **innovative approach** to waste management. It is based on the premise that by working together as a region, Prince William Sound communities can improve waste management practices at a lower cost, and through a greater variety of means, than if each tried to make changes independently.

In coming together to develop the Sound Waste Management Plan, communities needed answers to many critical questions:

- *what are the major sources of pollution in our communities?*
- which of these should be addressed first?
- what are the most feasible waste management alternatives and how much will they cost?
- given rising landfill disposal costs and new, tougher disposal regulations, can we cost-effectively increase the use of alternative management techniques (e.g., recycling)?
- how can we improve our local infrastructure--such as providing training to staff and upgrading our facilities--to improve our waste management capability?

- how can we pay for the desired alternatives–are there a variety of funding sources (community, state, private sector) that can be used to minimize the burden on any one source?
- what will the environmental and other benefits be of making waste management improvements?

The Sound Waste Management Plan was designed to answer these and other questions, and to engage communities in a proactive approach to environmental management. Many improvements in waste management practices have already occurred as a result of the cooperative planning process and many more are anticipated. Communities have also enhanced their communication with each other and gained an appreciation for the similarities and differences in environmental management issues facing each of them.

The Sound Waste Management Plan was funded by the *Exxon Valdez* Oil Spill Trustee Council. The Trustee Council administers funds dedicated to restoring the resources and services injured by the 1989 *Exxon Valdez* oil spill. The Trustee Council funded the Sound Waste Management Plan in part to assure that marine pollution from communities or other sources do not further degrade the marine habitat of Prince William Sound. By assuring that wastes are properly handled and do not contaminate the marine environment, the Trustee Council hopes to ensure that the natural recovery of the resources and services will continue without interference.

Developing the Sound Waste Management Plan

Grass roots participation. A committee comprised of representatives from each of the five Prince William Sound communities—Chenega Bay, Cordova, Tatitlek, Valdez, and Whittier—developed the Plan. Committee representatives included city/village council members, city department directors, state environmental agency officials, and private business representatives. The committee met monthly over the course of a year to identify mutual goals, set project direction, review alternative solutions, and make decisions. A technical consultant provided information and analytic support to the committee. The Prince William Sound Economic Development Council coordinated the overall effort.

Analysis. The recommendations contained in the plan are based on a solid foundation of community-specific information. An inventory was conducted in each community to collect up-to-date information about waste generation, waste management, and community needs and priorities. (The inventory is contained in Appendix B.) The Exxon Valdez Oil Spill Trustee Council provided funding for a contractor to gather the information and to develop and analyze alternative waste management solutions.

Action. In developing the Plan, emphasis has been placed on achieving practical results. The plan prioritizes and targets for action three waste streams deemed to be of the greatest concern based on the waste management inventory—used oil, household hazardous waste, and solid waste. The Plan recommends actions and funding strategies for improving management of those waste streams, and for improving communities' waste management systems as a whole.

In the Remainder of This Report....

The remainder of this report contains three sections: key findings, plan recommendations, and a brief conclusion.

- The Key Findings section identifies current pollution and waste management issues in the communities.
- The Plan Recommendations section presents the recommended waste management improvements, and estimates their costs and potential funding sources.
- The Conclusion section describes implementation timeframes and describes the next phase of the Sound Waste Management Plan.

Appendices to this report contain additional information and detailed analyses used to develop the Plan:

- Appendix A contains local council resolutions endorsing the Plan;
- Appendix B contains the waste management inventory;
- Appendix C contains a summary of recommendations organized by community;
- Appendix D contains the regional household hazardous waste agreement; and
- Appendix E contains recycling and solid waste management cost estimates.

II. KEY FINDINGS

Communities' most pressing waste management problems are described below. The recommendations for solving these problems are contained in the next section of the Plan.

Waste Management System Findings

- Communities **rely too heavily on disposal** as the primary waste management method. Communities should use a wider range of methods - including household hazardous waste management, used oil recycling, and solid waste recycling - to help ensure compliance with regulations, protect human health and the environment, and minimize long-term liability.

- Community staff **lack the full complement of training** they need to ensure compliance with regulations and to minimize the potential for adverse environmental impacts. In particular, staff have not been trained sufficiently in used oil and hazardous waste handling, where regulations are complex and the consequences of mishandling (spills, leaks, etc.) can be serious.

Waste Stream-Specific Findings

Priority Waste Streams

Of approximately 20 different wastes generated in the communities, three are a priority for communities to address:

- used oil;
- household hazardous waste; and
- municipal solid waste.

These are deemed a priority for improvement either because of the potential environmental and public health risks they pose, and/or because good opportunities exist to dramatically improve their management through relatively modest changes in waste management practices. Table 1 shows the community priority level assigned to each of the twenty waste streams.

The wastes were assigned priority levels depending on the degree to which the following criteria applied:

- potential for adverse environmental impacts
- existence of alternatives
- regulatory compliance issue

TABLE 1: COMMUNITY PRIORITIES

Top Priority Waste Streams	Used oil Municipal solid waste Household hazardous waste
Second Priority Waste Streams	Scrap metal Sewage sludge Fish waste Stormwater runoff Tires Sport fish waste
Lower Priority Waste Streams	Plastics Construction and demolition debris Glass Asbestos Tank scale Incinerator ash Contaminated soil Floating processor waste Remote sites Medical clinic waste Industrial hazardous waste

- chronic, on-going concern
- regional management potential
- insufficient management capacity
- economic feasibility of alternatives

The specific issues associated with each priority waste stream are described below.

Used Oil

Inadequate facilities exist to manage used oil in the communities. This increases the likelihood that spills and leaks will occur and that used oil will be illegally disposed of on land or water. In Tatitlek and Chenega Bay, used oil is being stored in old drums and tanks because no management system exists. Cordova, Valdez, and Whittier consistently face a shortage of capacity to recycle all of the used oil they receive. To upgrade their facilities, communities need to ensure that they have adequate collection, storage, testing, and recycling capacity for used oil. Table 2 identifies each community's used oil facility needs.

TABLE 2: USED OIL MANAGEMENT NEEDS

Elements of a Comprehensive System	Adequacy of Existing System				
	Cordova	Valdez	Whittier	Tatitlek	Ch. Bay
Collection Facility					
· Sizable entry funnel with screen, lid	👍	👍	👎	👎	👎
· Double-Wall tank or bermed area	👍	👍	👎	👎	👎
· "Used Oil" Signage	👍	👍	👍	👎	👎
Processing and Transfer to Storage					
· Clor-D-Tec Test	👍	👎	👎	👎	👎
· Standardized Pump - Vacuum	👎	👎	n/a	n/a	n/a
· Oil/Water Separator	👎	👎	👎	n/a	n/a
· Filter System	👎	👎	👎	n/a	n/a
Storage					
· 12-month volume capacity	👎	👎	👎	n/a	n/a
· Double-Wall Tank or Diked	👍	👍	👍	n/a	n/a
· "Used Oil" Signage	👍	👍	👍	n/a	n/a
· Lab Test when @ Capacity	👍	👎	👍	n/a	n/a
Burn for Energy Recovery					
· Sufficient Capacity to Burn Used Oil	👎	👎	👎	👎	n/a
Other Issues					
· Oily Bilge Water Management System	👎	👎	👎	👎	👎
· Oily Materials Incinerator	👍	👎	👎	👎	👎
· Filter Crusher	👎	👎	👎	n/a	n/a

👍 – Adequate
👎 – Requires modification
n/a – Component not needed given local conditions

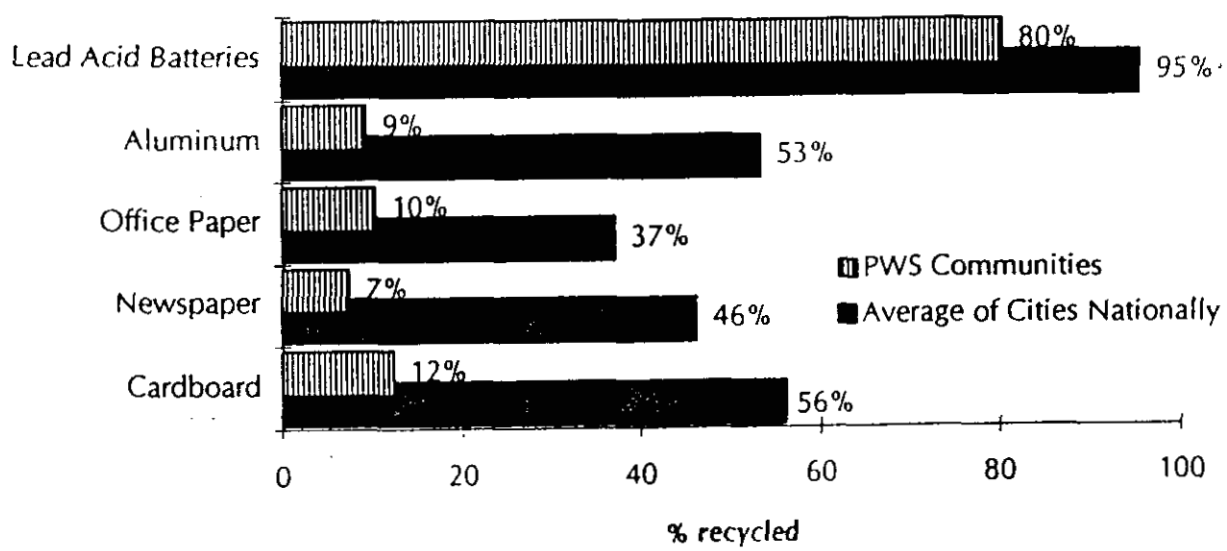
Household Hazardous Waste (HHW)

HHW consists of paints, lead-acid batteries, solvents, and other household materials that contain hazardous constituents. These wastes should not be disposed of in the community landfill, where they have the potential to leach out and contaminate surrounding land and water. None of the Prince William Sound communities, with the exception of Valdez, have programs to manage their HHW. A barrier to improved HHW management is the high cost of disposal of the waste in special hazardous waste landfills and the current lack of local personnel trained in HHW management.

Solid Waste Recycling

Recyclable materials—cardboard, office and other types of paper, and aluminum cans—constitute approximately 40% of municipal solid waste.[1] Prince William Sound communities have conducted only a limited amount of recycling, relying primarily on periodic volunteer efforts which tend to dissipate over time. Based on an analysis of recycling revenues and costs, the communities have the potential to "break even" or make revenue on recycling certain materials (aluminum, cardboard, office paper). Table 3 shows Prince William Sound recycling rates compared to the average of cities nationally.

TABLE 3: PWS COMMUNITY VS. NATIONAL RECYCLING RATES [1]



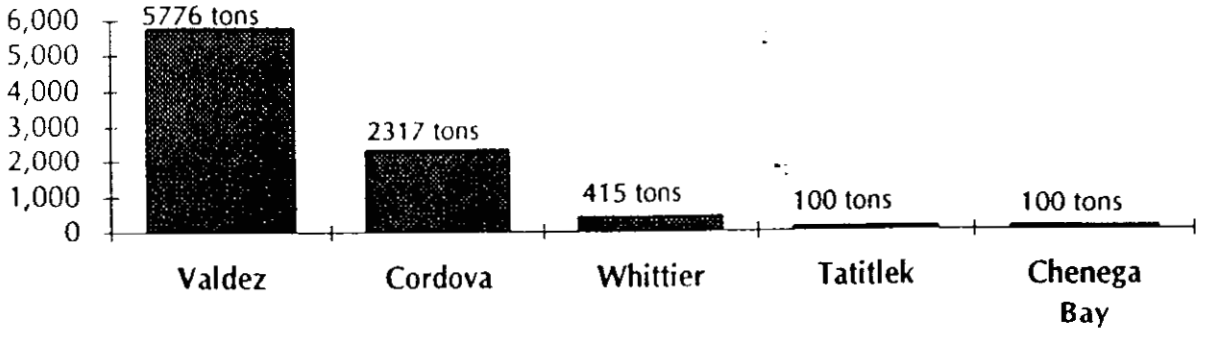
Solid Waste Disposal

With heavy precipitation, poor soils, and the potential for seismic upsets, the Prince William Sound region is not an optimal location for solid waste landfill sites. Some the communities face serious problems: Cordova's current landfill includes diked off tideland areas, with the lower portion of the landfill inundated by the tide. In Chenega, a salmon spawning stream runs through the landfill and fishing in the stream is prohibited. Communities are at a crossroads: non-compliance with current regulations, new tougher regulations coming on line, and the upcoming expiration of some communities' landfill permits (for which they may not be able to be repermitted at the current sites)

[1] Information on national recycling rates and composition of municipal solid waste stream from Characterization of Municipal Solid Waste in the U.S. 1994 Update, U.S. Environmental Protection Agency

have forced communities to step back and reevaluate their current disposal methods and locations. Current solid waste management costs in communities range from $135-$175 per ton (including collection). Communities will have to pay more to upgrade their practices and/or change their current disposal site locations. Table 4 shows the current volume of solid waste generated by each community in the region.

TABLE 4: SOLID WASTE GENERATION IN PRINCE WILLIAM SOUND
(1994)



Total 1994 MSW generation: 8,700 tons

III. RECOMMENDATIONS

The following recommendations constitute the region's plan for improving waste management in Prince William Sound. Taken together, the recommendations will:

- maximize health and environmental protection by shifting communities from a primary reliance on disposal to a more integrated approach to waste management;
- minimize waste management costs through regional cooperation; and
- create a waste management system that can be sustained over time, through increased training of staff, public education, and implementation of practical solutions.

The Plan's recommendations, presented in greater detail in subsequent pages, are as follows.

Recommendation #1: create a comprehensive used oil management system in each community by upgrading facilities as needed to manage all sources of used oil (engine oil, oily bilge water, and oily materials) at all stages of management (collection, storage, and burning for energy recovery).

Recommendation #2: establish a regional household hazardous waste collection and training program, in coordination with the Alaska Department of Environmental Conservation;

Recommendation #3: institute community-sponsored drop-off recycling programs for cardboard and aluminum.

Recommendation #4: establish EnVironmental Operation Stations in each community, to centralize and integrate used oil, household hazardous waste, and recycling operations.

Recommendation #5: determine how and where municipal solid waste will be disposed of over the next five to twenty years, through initiating discussions with city/village councils and residents, and using the disposal options analysis and recommendations developed by the Sound Waste Management Plan committee.

Each of the recommendations is presented in detail in the following pages. Information provided for each recommendation includes: a project description; estimated project costs; funding sources; implementation timeframes; and the benefits expected from the project.

Recommendation #1: Comprehensive Used Oil Management System

Project Description. A comprehensive used oil management system should be instituted in each community consisting of equipment sufficient for:

- "cradle to grave" management–collection, storage, filtering, transfer, and burning used oil for energy recovery; and
- managing all sources of used oil–including engine oil, oily bilge water and oil-contaminated materials.

Table 5 identifies the specific types of equipment needed and the functions they will serve. The equipment requirements for each community vary depending on local conditions. For example, in the villages a relatively small amount of used oil is generated and a basic set of equipment (e.g., for collection and burning for energy recovery) is primarily what is needed to manage used oil in a safe and efficient manner. Other communities have basic equipment but need additional equipment to improve management of the larger volumes of used oil they generate.

Project Cost

capital $336,000
annual $50,000

The total capital cost of this project is approximately $336,000 broken out as follows:

Cordova	$81,500
Valdez	$75,500
Whittier	$88,500
Chenega Bay	$45,500
Tatitlek	$45,500

The recommended equipment and associated costs for each community are shown on Table 6. The costs are based on price quotes obtained from equipment vendors in December 1995 (shipping costs are not included). Costs may be reduced somewhat if communities coordinate the purchase of the equipment (to obtain a large volume discount) and establish a regional contract for maintenance of the equipment.

Proposed Funding Sources

Capital Costs ..... Exxon Valdez Oil Spill Trustee Council
Annual O&M ..... Communities

A proposal will be submitted to the Exxon Valdez Oil Spill Trustee Council (EVOS) for the $336,000 in capital costs. The communities will be responsible for the annual operation and maintenance of the equipment estimated to be $20,000 in Cordova; $20,000 in Valdez; $5,000 in Whittier; $2,500 in Tatitlek and $2,500 in Chenega Bay.

Project Implementation. If funding is obtained, the project will be implemented in the Fall of 1996. Communities will work together to plan the purchase and installation of the equipment.

Project Benefits. The comprehensive used oil management system will:

- provide adequate capacity for managing all of the used oil that is generated;
- minimize the potential for spills and leaks;
- maximize the amount of used oil that is recycled; and
- reduce costs by decreasing the amount of new fuel to be purchased.

TABLE 5: PROPOSED USED OIL MANAGEMENT SYSTEM

Double Walled Collection Tank	Convenient and safe interim storage/collection point.
Storage Tank	Provides a minimum one-year capacity of used oil.
Vacuum Pumper System	Efficient, clean, maintenance-friendly for transfer of used oil from collection tank and bilges to storage tank and to recycling site(s).
Oily Water Separator	Device to remove oils from bilge water and other oil-contaminated water.
Filter System	Installed in-line to remove impurities prior to burning.
Used Oil Burner for Energy Recovery	Recovers energy from used oil in the form of heat (for buildings, etc.)
Filter Crusher	Maximizes residual oil removal from filters.
Oily Material Burner	Efficient and cost effective device for oily material destruction. Heat recovery possible.
Bilge Water Buffer Tank	Utilized to control flow of bilge water through oily water separator for maximum efficiency.

TABLE 6: USED OIL SYSTEM COSTS

Component	Specification	Cost	Equipment Needed in Community				
			Tatititlek	Ch. Bay	Cordova	Valdez	Whittier
Double Walled Collection Tank	500 gallons	$3,000	$3,000	$3,000			$3,000
	1,000 gallons	$4,500					
	2,000 gallons	$5,500					
Storage Tank	1,000 gallons	$4,500			$4,500	$4,500	$4,500
	5,000 gallons	$11,000				$11,000	$11,000
	10,000 gallons	$17,000					
Vacuum Pumper System	1,000 gallons	$18,000			$18,000	$18,000	$18,000
with hose	2,000 feet	$2,000	$2,000	$2,000		$2,000	
fixed piping	1,000 feet	$10,000			$10,000		
portable unit	100 gallons	$12,000	$12,000	$12,000			$12,000
Oily Water Separator	400 gallons	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Filter System		$500	$500	$500	$500	$500	$500
Used Oil Burner for Energy Recovery	125,000 btu	$3,500	$3,500	$3,500			
	175,000 btu	$4,500			$4,500	$9,000	$9,000
	350,000 btu	$6,500			$6,500		
Filter Crusher		$2,500			$2,500	$2,500	$2,500
Oily Material Burner		$3,500	$3,500	$3,500	$14,000	$7,000	$7,000
Bilge Water Buffer Tank	500 gallons	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
TOTAL:			**$45,500**	**$45,500**	**$81,500**	**$75,500**	**$88,500**
TOTAL (all equipment):						**$336,500**	

Recommendation #2: Regional Household Hazardous Waste Management System

Project Description. A Prince William Sound Household Hazardous Waste (HHW) program should be established to properly manage household wastes containing hazardous constituents including solvents, paints, batteries, and other commonly used items. The regional program would be a coordinated effort among Prince William Sound communities, with extensive training and technical assistance to be provided by the Alaska Department of Environmental Conservation (DEC). The program would be comprised of four main components: training, collection and packaging, recycling, and disposal. Table 7 shows the components of the program and details of their operation. The regional program would be formalized through a Regional Partnership Agreement between Prince William Sound Communities and DEC.

Project Cost

Annual Cost to All Communities $40,000/yr
Value of Technical Assistance by DEC .. $20,000/yr

The total regional cost to communities of this project is estimated to be $40,000 per year. The breakout for each community is as follows:

Cordova	$13,000
Valdez	$18,000
Whittier	$5,000
Chenega Bay	$2,000
Tatitlek	$2,000

Community costs are comprised of waste shipment costs, waste disposal costs, contractor costs, and some training costs.[2] The regional partnership approach to HHW management will reduce program costs to communities in a variety of ways, including equipment sharing, consolidating waste shipments, and using trained DEC and local personnel to reduce the need for professional contractor assistance.

Proposed Funding Sources. Communities will fund waste shipment, waste disposal, and some training costs. DEC will fund additional field technical assistance and training (at least one DEC staff member will assist in each community for 2-3 days), and assist with regional coordination. Funds will be requested from private businesses to assist with funding villages' disposal costs.

Project Implementation. The program will be implemented through a Regional Partnership Agreement with DEC and communities, expected to be signed in February 1996. The first collection is anticipated to take place in the fall of 1996. (The draft regional agreement is contained in Appendix D).

Project Benefits. The regional program will help keep HHW out of community landfills to:

- decrease the potential of landfills becoming "Superfund" sites;
- help prevent ground- and surface-water contamination; and
- increase compliance with regulations

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[2] The following assumptions were used to estimate community costs. Contractor costs of $1,000 per day (two days each in Cordova and Valdez and one day in Whittier); waste shipping and disposal costs of $500 per drum (estimated 31 drums in Valdez, 21 drums in Cordova, 7 drums in Whittier, 3 in Chenega Bay, and 3 in Tatitlek), and approximately $500 per community for training

TABLE 7: REGIONAL HOUSEHOLD HAZARDOUS WASTE (HHW) SYSTEM

Training

Communities obtain 40-hour classroom HAZWOPER training

DEC provides additional HHW Collection Training to community staff in how to identify, sort, and package HHW:

- 24-hour field training
- 8-hour refresher training after initial year

This training enables community staff to assist at HHW collection events.

Collection and Packaging

Communities collect HHW year-round and store or hold a weekend collection event for residents once per year.

The DEC Wastemobile, containing waste testing and packaging equipment, comes to community once per year (during the collection event) to package and ship collected HHW.

The Wastemobile is transported at a reduced rate on the Alaska Marine Highway.

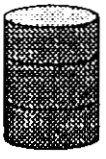
DEC and trained community staff work together to package the HHW (a professional HHW contractor may also be involved).

Recycling

Communities recycle as much of the collected waste as they can (e.g., used oil, batteries)

- larger communities will accept recyclable materials from the villages at no charge to reduce village costs
- information will be provided to residents on how to reduce their use of hazardous household materials in the future

Disposal



The remaining HHW is shipped on a commercial barge to a regulated hazardous waste site for safe disposal.

Recommendation #3: Drop-off Recycling Program for Cardboard, Paper, Aluminum

Project Description. Communities should institute city-sponsored recycling programs. The recycling programs should be structured to maximize revenues and minimize costs by:

- initially collecting only higher value materials–aluminum and cardboard;
- collecting materials through a drop-off system, where collection dumpsters are placed in several locations and residents and businesses deposit materials in the dumpsters (rather than door-to-door collection); and
- increasing collection during the summer months, when businesses and residents generate larger volumes of materials.

City-sponsored programs will be a significant change from the sporadic volunteer-led efforts that have characterized recycling efforts to date. Cordova and Valdez would provide dedicated staff time (approximately .5 FTE) to the program to ensure that enough materials are recycled to maximize revenues and cover program costs.

Project Costs and Revenues

Cordova annual net revenue $1,000
Valdez annual net revenue $16,000

Estimated recycling costs and revenues are shown in Table 8 for Cordova and Valdez.[2] In both communities the potential exists for recycling to cover program costs and provide a modest amount of revenue. The actual net program revenues or costs will depend on the market prices which exist at the time the materials are sold and on the communities' ability to collect the estimated amount of materials.[3] Both cities' programs are based on recovery rates of approximately 25% of the cardboard generated and 45% of the aluminum generated.[4] (Detailed information on recycling costs and revenues is contained in Appendix E).

Funding Sources. The programs would be funded by the revenues from sale of the materials and by the community (e.g., for capital costs).

Project Implementation. Valdez has secured its staff resources and is beginning to implement its program. In Cordova, the proposal will be brought before the city council in early 1996. The Cities will expand their programs to include additional materials as feasible.

Project Benefits. Communities' recycling programs will:

- conserve landfill space;
- conserve natural resources;
- generate revenues; and
- offer a service which typically has strong public support.

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[2] Tatitlek and Chenega Bay are expected to begin with an informal drop-off program (with no dedicated staff), and therefore no measurable revenues or operation costs are estimated for them. The capital costs of their program (a drop-off depot) are covered in Recommendation #4. Whittier will continue with its current school- and volunteer-sponsored recycling program.

[3] Because market prices fluctuate, communities plan to have the ability to stockpile materials so that they can take advantage of favorable prices.

[4] The net revenues in Cordova will be lower than in Valdez because, while the programs' fixed costs are similar, Cordova generates less waste and the recovery percentages therefore represent a smaller quantity of materials.

TABLE 8: RECYCLING COSTS AND REVENUE

	Valdez	Cordova
Costs [1]		
Capital Costs	$5,700 [2]	$1,800 [3]
Annual		
O&M [4]	$33,000	$22,000
TOTAL COSTS/YR:	**$39,000**	**$24,000**
Total Revenues per Year [5]	**$55,000**	**$25,000**
Net Revenue per year	**$16,000**	**$1,000**

[1] Costs are presented in present value terms. 1995 dollars and an 8% discount rate were used to determine the present value.

[2] Annualized from total of $60,000 for 60 collection dumpsters ($1000/dumpster). This was done to accurately compare annual costs and revenues. Twenty yearly payments of $5,700 with a discount rate of 8% is equivalent to a present value of $60,000.

[3] Annualized from total of $25,000 for 25 collection dumpsters.

[4] O&M includes $15,000 for labor (.5 FTE at $15/hr) plus funding for public education (Valdez: $5000 and Cordova: $2000). Also includes transportation costs, estimated to be $13,000 in Valdez and $5,000 in Cordova (assumes shipping cost of $1000/container to Seattle, 18 tons per full container).

[5] Revenues are based on $125/ton for cardboard (200 tons recycled in Valdez, 86 tons in Cordova) and $1200/ton for aluminum (25 tons in recycled in Valdez, 12 tons in Cordova).

Recommendation #4: Establishment of EnVironmental Operation Stations

Project Description. Each community should construct an EnVironmental Operation Station to integrate its recycling, household hazardous waste, and used oil operations. An EnVironmental Operation Station would provide:

- the physical, sheltered space necessary to manage and store collected materials;
- a convenient "one-stop" location, to encourage drop-off of wastes by residents.

Table 9 shows preliminary construction costs in each community. The EnVironmental Operation Stations would be designed as 20' by 20' building modules which could be duplicated or expanded without detailed design. Although the design of the EnVironmental Operation Stations would vary slightly in each community (e.g., each community would determine eave height, roofing cover, and roof pitch), the basic design and look of the Stations would be similar to enable residents of the Sound to use the Stations in each of the communities.

Project Cost

Capital Costs **$610,000**
Capital Assets (land) **$150,000**
Annual Costs **$75,000**

The total capital cost of this project excluding land value, is estimated to be $610,000. The breakout of costs by communities is as follows:

Chenega Bay	$40,000
Tatitlek	$40,000
Cordova	$200,000
Valdez	$200,000
Whittier	$130,000

Cost estimates include materials, shipping, and construction. The costs for each community differs depending on the facilities already existing in the community (e.g., the villages recently constructed household hazardous waste stations) and on the volume of wastes generated (which determines the number and design of necessary structures). The costs will vary from approximately $50.00 to $200.00 per square foot, mostly due to anticipated code interpretations.

Funding Sources. A proposal will be submitted to the Exxon Valdez Oil Spill Trustee Council for the capital costs listed above. Communities, however, will provide match in the form of land value ($150,000 for the region) and annual operation and maintenance of the stations ($40,000 in Cordova; $22,000 in Valdez; $6,000 in Whittier; and $3,000 in Chenega Bay and $3,000 in Tatitlek).

Project Implementation. Preliminary scoping designs for the stations have been developed. Final engineering designs will be developed during 1996. If funding is obtained, the stations would be constructed in the summer of 1997.

Project Benefits. The EnVironmental Operation Stations will:

- minimize operational costs of recycling, used oil and hazardous waste management by centralizing operations;
- maximize public participation, by offering a convenient and user-friendly "one stop" service; and
- reduce the potential for environmental contamination, by providing safe management for each waste stream.

TABLE 9: ENVIRONMENTAL OPERATION STATIONS [1]

Location	Recycle	Used Oil	HHW [2]	TOTAL
CHENEGA BAY				
# of modules	1	1		2
Cost	$20,000	$20,000		$40,000
TATITLEK				
# of modules	1	1		2
Cost	$20,000	$20,000		$40,000
WHITTIER				
# of modules		1	1	2
Cost	$20,000 [3]	$80,000	$30,000	$130,000
CORDOVA				
# of modules	2	1	1	4
Cost	$40,000	$80,000	$80,000	$200,000
VALDEZ				
# of modules	2	1	1	4
Cost	$40,000	$80,000	$80,000	$200,000
$$ TOTAL	$140,000	$280,000	$190,000	$610,000
MODULE TOTAL	6	5	3	14

[1] Cost estimate based on $50/sf minimum, $200/sf maximum. Cost estimates are for modules each measuring 20'x20'. Cost estimates variable mostly due to anticipated code interpretations.

[2] Chenega Bay and Tatitlek will have HHW storage depots beginning in 1996.

[3] Whittier will use three separate recycling collection dumpsters (at $7000) instead of a central collection station.

Recommendation #5: Choose Solid Waste Disposal Sites and Methods

Project Description. Communities should initiate a dialogue with their city/village councils and the general public to determine how best to manage municipal solid waste over the long term. Most communities are facing this decision with some urgency, either due to lack of compliance with regulations or upcoming expiration of their current disposal permits in the near term (for which they may not be able to be repermitted at the current sites).

As a foundation on which to build the decision-making process, the Sound Waste Management Plan identifies and analyzes a wide range of solid waste options:

- seven options are assessed for each community--ranging from the current disposal system, to constructing a regional disposal facility, to shipping solid waste out of state;
- capital and annual costs of the options are estimated; and
- two to three options are recommended most highly for each community on the basis of cost.[6]

Costs of Options. To provide a full perspective on the estimated costs of the disposal options, costs are assessed in three different ways:

- **total costs** over the life of the disposal option (a twenty year planning horizon was used for Cordova and Valdez, while a five year planning horizon was used for the villages to minimize their initial cost requirements)[7];
- **annualized costs**, which is what the option would cost if it were paid for in equal annual payments over the life of the project; and
- **cost per ton**, which divides the annualized costs by the tons of solid waste generated annually.

The range of costs for each community is summarized below. The range shows the lowest cost and the highest cost disposal option analyzed for each community.

Range of Costs for Solid Waste Disposal Options

	Cordova	Valdez	Chenega and Tatitlek
Total Costs	$3-7 million	$6-13 million	$300,000-600,000
Annualized Costs	$250,000-700,000	$550,000-$1.2 million	$30,000-60,000
Costs Per Ton	$110-305	$95-220	$300-600

[6] Solid waste disposal cost estimates were not developed for Whittier, because the city recently made the long-term decision to privatize its solid waste collection and to dispose of its solid waste at the Anchorage landfill.

[7] All costs are expressed in present value terms, using 1995 dollars and an 8% discount rate. Calculating the present value (discounting) is the standard method for expressing a set of costs (e.g., various amounts of capital and annual costs of occurring at different times over the life of the project) to a single figure to enable comparison among options. In other words, the calculation of present value takes explicit account of the timing of costs and benefits. The total cost (present value) of the options estimates the total amount the option would cost if it were all paid for today, all at once. The annualized cost of the options is the same amount expressed in terms of annual equivalent payments spread out over the 20 year life of the project; it has the same present value as the total cost figure. (Note that multiplying the annualized figure by the number of years--20--will not equal the total estimated costs because of the discounting procedure described above.)

Tables 10 - 15 on the following pages show the estimated costs for each of the seven options in each community. (The supporting information used to develop the cost estimates is contained in Appendix E.) As shown on the following tables, all communities will have to pay more than they are currently paying in order to come into compliance with regulations, meet the conditions of their permit, or generally improve their waste management practices. A brief description of the information contained in the tables is provided below.

Cordova and Valdez. Estimated solid waste management costs for Cordova are shown in Tables 10 and 11 and estimated costs for Valdez are shown in Tables 12 and 13. Solid waste management costs are comprised of waste collection costs and waste disposal costs.[8] The first table for each community shows the costs of each of the seven options in terms of both total estimated costs over a twenty year period and the annual per ton costs. The options which are most preferable in terms of cost are highlighted on the table. In Cordova the preferred options are vertical expansion of the existing balefill; construction of a balefill at 17 mile (with no liner); and shipping waste to Glennallen. In Valdez the preferred options are: vertical expansion of the existing balefill and shipping the waste to Glennallen. The second table for each community provides information on the preferred options, including listing advantages and disadvantages of each preferred option.

Tatitlek and Chenega Bay. Estimated solid waste disposal costs for Tatitlek and Chenega Bay are shown in Tables 14 and 15. (Collection costs are not shown because residents are responsible for hauling their solid waste to the landfill.) Table 14 shows both the total costs of the options over a twenty-year period and the annual cost per ton of each option. Preferred options are highlighted and are interrelated: 1) bringing the existing landfill into compliance with regulations (e.g., including covering and fencing the existing site); and 2) operate the site in the future in compliance with regulations (e.g., through proper maintenance of the landfill).

Table 15 shows additional information on the villages' preferred options. In particular, costs are broken out in terms of the labor and materials that the villages are able to contribute towards funding the options and the amount of funding which will be needed from outside sources. In addition, the costs for operating the landfill in compliance in the future are shown in terms of the dollars needed for operation and maintenance over the next five years only (rather than the full twenty year period) to minimize the amount of funding which the villages must secure in the near term.

Funding Sources. Valdez will continue to fund the operation of their solid waste management systems. Cordova will pursue funding from the Legislature (primarily from the recent Cordova Road Settlement monies) to supplement community funding. Tatitlek and Chenega Bay will pursue state and federal grants to fund a portion of the capital costs needed to implement their preferred option.

Project Implementation. During the first half of 1996, community representatives plan to hold workshops and make presentations to their city/village councils and the broader community to determine their long-term solid waste systems.

Project Benefits. Initiating a decision-making process for solid waste disposal issues will ensure:

- a proactive, rather than crisis-driven approach to solid waste management;
- increased compliance with regulations; and
- that the best decision for the community and the environment is reached.

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[8] Recycling costs are not included here but are included under recommendation #3.

TABLE 10: COSTS OF SOLID WASTE MANAGEMENT OPTIONS
CORDOVA

☐ = *preferred MSW management option*

TOTAL COSTS (present value) [1]	OPTION 1: Vertical Expansion of Balefill	OPTION 2A: Construct Balefill at 17 Mile (w/liner)	OPTION 2B: Construct balefill at 17 Mile (no liner)	OPTION 3: Regional Landfill: Glennallen	OPTION 4: Regional Landfill: Mile 70	OPTION 5A: Regional Landfill: Valdez (lat. expansion)	OPTION 5B: Regional Landfill: Valdez (vert. expansion)	OPTION 6: Ship to Southeast	OPTION 7: Ship to Lower 48
Management/ Disposal	**$2,747,000**	**$5,325,000**	**$4,173,000**	**$6,120,000 - 6,438,000**	$7,084,000 - 7,509,000	**$7,258,000**	$6,827,000	**$7,209,000**	**$6,769,000**
Collection	*$1,547,000 (same cost for all options)*								
TOTAL	$4,294,000	$6,872,000	$5,720,000	**$7,667,000 7,985,000**	$8,631,000 - $9,056,000	$8,805,000	$8,374,000	$8,756,000	$8,316,000

ANNUAL COSTS/TON [2] (1995 dollars)	OPTION 1: Vertical Expansion of Balefill	OPTION 2A: Construct Balefill at 17 Mile (w/liner)	OPTION 2B: Construct balefill at 17 Mile (no liner)	OPTION 3: Regional Landfill: Glennallen	OPTION 4: Regional Landfill: Mile 70	OPTION 5A: Regional Landfill: Valdez (lat. expansion)	OPTION 5B: Regional Landfill: Valdez (vert. expansion)	OPTION 6: Ship to Southeast	OPTION 7: Ship to Lower 48
Management/ Disposal	**$112**	**$217**	**$170**	**$249 - 262**	**$288 - 306**	**$295**	**$277**	**$293**	**$276**
Collection	*$63 (same cost across all options)*								
TOTAL	$175	$280	$233	**$312 - 325**	$351 - 369	$358	$340	$356	$339

[1] Present value calculations are in 1995 $s and are based on an 8% discount rate and 20-year timeframe.

[2] Cost per ton estimates are based on 1994 solid waste generation of 2317 tons.

TABLE 11: COMPARISON OF LEADING SOLID WASTE MANAGEMENT OPTIONS [1]

CORDOVA

OPTION 1: Vertical Expansion of Balefill -- no modifications

Estimated Costs of Disposal *(collection not included)*	Total Costs (present value) [2]	$2,750,000
	Annualized Costs (present value) [2]	$260,000
	Annual Cost/Ton (present value) [3]	$112
Advantages	· permit in place · socio status quo · proximity to users	
Disadvantages	· uncertainty of permit extension · potential groundwater contamination, stream intrusion, and seismic upset	

OPTION 2B: Construct Local Landfill at 17 Mile – without liner

Estimated Costs of Disposal *(collection not included)*	Total Costs (present value) [2]	$4,170,000
	Annualized Costs (present value) [2]	$390,000
	Annual Cost/Ton (present value) [3]	$170
Advantages	· encourages recycling · protected from stream intrusion	
Disadvantages	· potential groundwater contamination and seismic upset · distance from town	

OPTION 3: Regional Landfill - Glennallen [4]

Estimated Costs of Disposal *(collection not included)*	Total Costs (present value) [2]	$6,120,000 - $6,440,000
	Annualized Costs (present value) [2]	$580,000 - $610,000
	Annual Cost/Ton (present value) [3]	$249 - $262
Advantages	· little or no potential for groundwater contamination · seismic damage of no consequence · high incentive to recycle to minimize transport and disposal costs · minimal environmental risk · ease of management	
Disadvantages	· lack of direct control	

1 These costs are for disposal only, because collection costs are the same for all options.

2 Present value calculations are in 1995 dollars, and are based on 8% discount rate and 20-year planning horizon. Figures rounded to the nearest $10,000.

3 Based on 1994 annual disposal rate of 2,317 tons.

4 The range of costs is based on a high and low estimate of transportation costs from Cordova to Glennallen

TABLE 12: COSTS OF SOLID WASTE MANAGEMENT OPTIONS
VALDEZ

= *preferred MSW management option*

TOTAL COSTS (present value) [1] OVER 20 YEARS	OPTION 1A: Vert. Expansion of Balefill (no modifications)	OPTION 1B: Vert. Expansion of Balefill (cut-off wall)	OPTION 2: Lateral Expansion of Balefill (w/liner)	OPTION 3: Regional Landfill: Glennallen	OPTION 4: Regional Landfill: Mile 70	OPTION 5A: Regional Landfill: Valdez (lat. expansion)	OPTION 5B: Regional Landfill: Valdez (vert. expansion)	OPTION 6: Ship to Southeast	OPTION 7: Ship to Lower 48
Management/ Disposal	**$5,900,000**	**$8,836,000**	**$10,190,000**	**$7,869,000 - 8,664,000**	**$10,182,000 11,242,000**	**$9,332,000**	**$8,253,000**	**$13,563,000**	**$12,567,000**
Collection	*$2,358,000 (same cost for all options)*								
TOTAL	$8,258,000	$11,194,000	$12,548,000	*$10,227,000 - 11,022,000*	*$12,540,000 13,600,000*	$11,690,000	$10,611,000	$15,921,000	$14,925,000

ANNUAL COSTS/TON [2] (1995 dollars)	OPTION 1A: Vert. Expansion of Balefill (no modifications)	OPTION 1B: Vert. Expansion of Balefill (cut-off wall)	OPTION 2: Lateral Expansion of Balefill (w/liner)	OPTION 3: Regional Landfill: Glennallen	OPTION 4: Regional Landfill: Mile 70	OPTION 5A: Regional Landfill: Valdez (lat. expansion)	OPTION 5B: Regional Landfill: Valdez (vert. expansion)	OPTION 6: Ship to Southeast	OPTION 7: Ship to Lower 48
Management/ Disposal	**$97**	**$144**	**$180**	**$128 - 141**	**$166 - 184**	**$152**	**$135**	**$221**	**$205**
Collection	*$39 (same cost across all options)*								
TOTAL	$136	$183	$219	$167 - $180	$205 - $223	$191	$174	$260	$244

Present value calculations are in 1995 $s and are based on an 8% discount rate and 20-year timeframe.

[2] Cost per ton estimates are based on 1994 solid waste generation of 5776 tons.

TABLE 13: COMPARISON OF LEADING SOLID WASTE MANAGEMENT OPTIONS [1]

VALDEZ

OPTION 1A: Vertical Expansion of Balefill -- no modifications

Estimated Costs of Disposal *(collection not included)*	Total Costs (present value) [2]	$5,960,000
	Annualized Costs (present value) [2]	$560,000
	Annual Cost/Ton (present value) [3]	$97
Advantages	· permit in place · socio status quo · proximity to users	
Disadvantages	· uncertainty of permit extension · potential groundwater contamination, stream intrusion, and seismic upset	

OPTION 3: Regional Landfill - Glennallen [4]

Estimated Costs of Disposal *(collection not included)*	Total Costs (present value) [2]	$7,870,000 - $8,660,000
	Annualized Costs (present value) [2]	$740,000 - $820,000
	Annual Cost/Ton (present value) [3]	$128 - $141
Advantages	· little or no potential for groundwater contamination · seismic damage of no consequence · strong incentive to recycle to minimize transport disposal costs · minimal environmental risk · ease of management	
Disadvantages	· lack of direct control	

[1] These costs are for disposal only because collection costs are the same for all options.

[2] Present value calculations are in 1995 dollars, and are based on 8% discount rate and 20-year planning horizon. Figures rounded to the nearest $10,000.

[3] Based on 1994 annual disposal rate of 5,776 tons.

[4] The range of costs is based on a high and low estimate of transportation costs from Valdez to Glennall

TABLE 14: COST OF SOLID WASTE MANAGEMENT OPTIONS [1]
TATITLEK AND CHENEGA BAY

☐ = *preferred MSW management option*

TOTAL COSTS (present value) [1]		OPTION 1: Cost to Bring Landfill into Compliance	OPTION 2: Operate Existing Landfill in Compliance	OPTION 3: Ship to Glennallen	OPTION 4: Regional Landfill: Mile 70	OPTION 5: Incineration	OPTION 6: Ship to Southeast	OPTION 7: Ship to Lower 48
Capital Costs	*($)*	N/A	$223,000	$80,000	$105,000	$180,000	$80,000	$80,000
Annual O&M Costs	*($/yr)*	N/A	$9,500	$29,000	$31,000	$42,000	$35,000	$33,000
Total Present Value [2] of Costs (over 20 yrs)	*($)*	Ch Bay: $154,000 Tatitlek: $236,000	$321,000	$369,000	$608,000	$577,000	$617,000	$601,000
Annualized Cost (present value)	*($)*	N/A	$30,000	$35,000	$58,000	$54,000	$59,000	$57,000
Annual Cost/Ton (present value) [3]	*($)*	N/A	$303	$352	$578	$544	$586	$571

[1] Collection costs are not included in these figures, because residents self-haul wastes to the landfill.
[2] Present value calculations are in 1995 dollars and based on an 8% discount rate and a 20-year time frame.
[3] Annual cost per ton is based on an annual disposal rate of 100 tons in each village.

TABLE 15: COST OF RECOMMENDED OPTIONS
TATITLEK AND CHENEGA BAY

Cost to Bring Existing Landfill into Compliance with Regulations [1]

	Tatitlek	Chenega Bay
Total Cost	**$236,000**	**$154,000**
Village In-Kind Contribution	$65,000	$42,000
Total Cost to be Raised from Outside Funding Sources	$171,000	$112,000

Cost to Operate Existing Landfill in Compliance with Regulations [2]

CAPITAL COSTS:	Tatitlek	Chenega Bay
Total Capital Cost [3]	**$85,000**	**$85,000**
Village In-Kind Contribution	$3,000	$3,000
Total Cost to be Raised from Outside Funding Sources	$82,000	$82,000
ANNUAL COSTS:	**Tatitlek**	**Chenega Bay**
Total Annual Cost	**$9,500**	**$9,500**
Village In-Kind Contribution [4]	$2,000	$2,000
Monthly Cost/Household Required to Pay for Annual Costs [5]	$18	$25

[1] This option would put cover material and a geomembrane over the existing site and fence the entire perimeter. In Chenega, the stream would be diverted around the landfill. The cost includes funding to hire a contractor to perform this work, and would be completed within one year.

[2] This option includes capital costs to purchase equipment and vehicles to maintain the landfill and annual costs to hire .25 FTE to maintain the landfill (e.g., to apply regular cover). Additional information on these costs is included in Appendix E.

[3] These costs are the totals needed for the first five years of operation.

[4] This is for materials needed each year to cover the landfill.

[5] This figure is based on dividing the annual labor costs ($7,500) by 25 households in Chenega and 35 households in Tatitlek, respectively.

IV. CONCLUSION

By creating the Sound Waste Management Plan, communities have chosen a proactive approach to environmental management. The Plan shapes the future of waste management practices in the communities through development of creative and cost-effective solutions to a wide range of environmental management problems.

The Sound Waste Management Plan demonstrates the dedication of communities to significantly improving their waste management practices. The Sound Waste Management Plan recommendations have been endorsed by local councils, and will involve communities' providing a substantial amount of capital and staff resources to implement the Plan.

The Sound Waste Management Plan is the culmination of a steady series of improvements which communities have been making in their waste management practices over the past two years. These include scrap metal recycling in Cordova and Valdez, improved solid waste disposal site maintenance in Tatitlek, and privatization of waste disposal and increased recycling in schools in Whittier. As a result of several solid waste management improvements in Valdez, the Department of Environmental Conservation recently extended the City's landfill disposal permit.

Many more improvements will be made as the Sound Waste Management Plan is implemented. Improved and comprehensive used oil management, solid waste recycling and disposal, and household hazardous waste management – all critical to preventing land and marine pollution - will be implemented under the Plan. The Plan has demonstrated the ability of the region to successfully work in concert with state and federal agencies; some of the Plan's recommendations will be implemented with technical and/or funding assistance from state and federal agencies. Development of the Plan itself would not have been possible without funding from the *Exxon Valdez* Oil Spill Trustee Council.

One of the most important benefits of the collaborative planning process has been the improved communication and working relationship among Prince William Sound communities. As one community member put it, "the Sound Waste Management Plan process has helped to heal the wounds created by the oil spill." Prince William Sound communities plan to continue to build mutual understanding and create positive waste management solutions by continuing to work together in the future.

APPENDIX B

Detailed Project Description
April 15, 1996

Implementation of the Sound Waste Management Plan: Environmental Operations and Used Oil Management System

Project Number:	97115
Restoration Category:	General Restoration
Proposed by:	Prince William Sound Economic Development Council
Lead Trustee Agency:	ADEC
Duration:	3rd year, 4 year project
Cost FY 97:	$1,130,584
Cost FY 98:	$75,000
Geographic Area:	Prince William Sound
Injured Resource/Service:	Intertidal and subtidal organisms, harlequin ducks, black oystercatchers, sea otters, harbor seals, and other seabirds, shorebirds, and marine mammals. The services most likely to benefit are subsistence and recreation, both of which are affected by the adverse environmental and visual effects of pollution.

ABSTRACT

This project will help prevent marine pollution that is generated from land-based sources within the five Prince William Sound communities. The recently completed Sound Waste Management Plan was developed to address community-based sources of marine pollution. This project will provide a portion of the funding needed to implement two of the five recommendations contained in the Sound Waste Management Plan: 1) construction of Environmental Operation Stations to improve the overall management of solid and oily wastes; and 2) creation of a comprehensive used oil management system in each community. The communities will provide substantial funding to help implement the recommendations contained in the Sound Waste Management Plan.

Attachment-A : Detail Project Description

INTRODUCTION

A wide range of waste streams are generated within Prince William Sound communities. These include used oil generated from vehicles and vessels, hazardous wastes generated by households, and municipal solid waste. These waste streams constitute a major and chronic source of marine pollution.

Communities currently face serious problems with managing these wastes, including inadequate facilities to properly manage used oil, landfills that are located in areas of potential groundwater and surface water contamination, and hazardous household wastes disposed of in community landfills where they may leach into surrounding land and water. As a result of these problems, pollution from these sources is entering Prince William Sound on an on-going basis.

The Sound Waste Management Plan was developed by Prince William Sound communities to find solutions to these problems. It is the first collaborative planning effort among the communities of Cordova, Valdez, Whittier, Chenega Bay and Tatitlek and was made possible with funding from the *Exxon Valdez* Oil Spill Trustee Council. The Sound Waste Management Plan, completed in February 1996, contains five recommendations for improving waste management and decreasing pollution to Prince William Sound:

- create a comprehensive used oil management system in each community;
- establish a regional household hazardous waste collection and training program;
- institute community-sponsored drop-off recycling programs;
- construct EnVironmental Operation Stations in each community; and
- determine how and where municipal solid waste will be disposed of over the long term.

These recommendations are based on extensive community-specific analysis and discussion to identify the priority environmental management problems in each community and to develop practical and cost-effective waste management solutions. Several of the recommended solutions are innovative in that they are regional solutions, which take advantage of the cost efficiencies (e.g., in planning, equipment purchase, construction design) made possible by communities working together to plan and implement the solutions.

Strong community support exists for the recommendations. This support is evidenced by the council resolutions which each community has passed endorsing the Sound Waste Management Plan; the time and effort spent by community representatives in the year-long development of the Plan; and the willingness of the communities to devote substantial resources to implementing the Plan's recommendations.

This proposal requests funding from EVOS to provide a portion of the one-time capital costs needed to implement two of the five recommendations: 1) construction of Environmental Operation Stations; and 2) establishment of a comprehensive used oil management system. This proposal will benefit all of the communities in Prince William Sound. Communities will

fund all ongoing operation and maintenance costs and a portion of the capital costs needed to implement the projects. In addition, communities will seek funding assistance from sources other than EVOS to implement the remaining three project recommendations.

The purpose of constructing EnVironmental Operation Stations (or EVOS) is to provide the physical, sheltered space necessary to safely manage and store used oil, household hazardous waste, and recyclable solid waste. The EnVironmental Operation stations will also centralize used oil, household hazardous waste, and recycling operations and will encourage participation by residents by providing a convenient "one-stop" drop-off location for the wastes.

A comprehensive used oil management system will be created in each community by upgrading equipment as needed to enable all sources of used oil (engine oil, oily bilge water, and oily materials) to be properly managed at all stages (collection, storage, and burning for energy recovery). This will ensure that used oil is collected from all sources and that it is managed safely.

These are viable solutions to reducing the impact to Prince William Sound caused by inadequate management of used oil, household hazardous wastes and recyclable solid waste generated within each of the communities. Proper management of these waste streams is difficult to enforce and therefore improved management must rely upon the provision of adequate and convenient facilities to encourage their use by residents and businesses so that the maximum volume of these wastes are collected and managed safely.

This is one of two proposals being submitted to EVOS to help implement the Sound Waste Management Plan recommendations. The second proposal is being submitted by the City of Cordova to help fund a portion of the capital costs needed to construct a new landfill in Cordova.

Funding is being requested from EVOS for only a portion of the overall "package" of recommendations contained in the Sound Waste Management Plan. Communities are pursuing a variety of funding sources for the other Plan recommendations including the communities, the private sector (e.g., Alyeska Pipeline Service Co.), the Cordova Road Settlement Fund, the Department of Environmental Conservation, Native Alaskan organizations, and EVOS. (The table on the following page shows the recommendations, associated costs, and potential funding sources).

Communities have already obtained some of the funding needed to implement the recommendations (e.g., a regional household hazardous waste collection and training program has been established in coordination with the Department of Environmental Conservation). In addition to this very concrete progress, the Sound Waste Management Plan project has improved communication and created "general good will" among communities which will help ensure that positive changes in waste management practices are possible and can be sustained over time.

TABLE 1: SOUND WASTE MANAGEMENT PLAN RECOMMENDATIONS

What environmental issues does the region face?	*What are the solutions?*	*What is the cost?*	*Who will provide funding?*	*What is the start date?*
Used Oil Lack of adequate management facilities, which increases risk of spills and illegal dumping	1. Create a Comprehensive Used Oil Management System	$336,000 (capital) $50,000 (annual)	Exxon Valdez Oil Spil Trustee Council Communities	Fall 1996
Household Hazardous Waste Current disposal in community landfills unsafe due to potential to leach out into land and water	2. Establish a Regional Household Hazardous Waste System	$60,000 (annual)	Communities, Dept. of Environmental Conservation, Private Sector	Spring 1996
Solid Waste Recycling Communities are not recycling despite potential for revenue and resource conservation	3. Institute Drop-Off Recycling Programs	$60,000 (capital & annual) ($77,000 revenues)	Communities	Summer 1996
Operation of Waste Management System Current operations are inefficient due to lack of centralization	4. Construct EnVironmental Operation Stations	$580,000 (capital) $150,000 (capital) $75,000 (annual)	Exxon Valdez Oil Spil Trustee Council Communities Communities	Summer 1997
Solid Waste Disposal Communities need to make landfill siting decisions because landfills are filling up and/or permits are expiring	5. Choose Solid Waste Disposal Sites and Methods	$9-$20 million (capital & annual) depending on option selected	Communities, State/Federal Grant or Settlement Monies	Summer 1997 (for selection of options)

The communities are: Cheneega Bay, Cordova, Eatitek, Valdez, and Whittier *Costs shown are for the region as a whole.*

NEED FOR THE PROJECT

A. Statement of Problem

This project addresses pollution entering Prince William Sound from a wide variety of community-based sources, including households, businesses, boats, and automobiles. These sources generate used oil, oily bilge water, hazardous wastes, and solid wastes on an on-going basis. Communities are struggling to provide proper management of the wastes but currently do not have the equipment, facilities, and training necessary to ensure prevention of spills, of illegal dumping/discharges of solid and oily wastes, and of on-going contamination of ground and surface water from current disposal practices. As a result wastes from community sources are entering Prince William Sound on an on-going basis.

According to a recent study (United Nations, 1995), 80% of marine pollution is generated by land-based sources. Marine pollution in Prince William Sound affects the following injured resources: intertidal and subtidal organisms, harlequin ducks, black oystercatchers, sea otters, harbor seals, and other seabirds, shorebirds, and marine mammals. The services most likely affected are subsistence and recreation, both of which are affected by the adverse environmental and visual effects of pollution.

B. Rationale/Link to Restoration

The waste streams generated within communities and which are entering Prince William Sound on an on-going basis are affecting fish, wildlife, and human uses injured by the spill, including disruption of important habitat. Any decrease in local pollution would have the effect of decreasing the stress on injured fish and wildlife that rely on clean water. The fish and wildlife likely to benefit the most are those that feed in the intertidal or near-shore waters in the vicinity of community waterfronts and small boat harbors. Those most likely to benefit are subsistence and recreation both of which are affected by the recognition of pollution.

Chronic pollution from community sources is believed to have significant adverse effects on the marine environment:

- refined petroleum products tend to be even more toxic to fish and wildlife than crude oil;
- the cumulative effectsof chronic marine pollution can substantiallly increase the stress on fish and wildlife resources; and
- with regard to the mortality of seabirds, chronic marine pollution is believed to be at least as important as large-scale spills.

Two examples show the potential benefits of this project to restoration. The first, Valdez Duck Fleats, is adjacent to the Valdez Small-baot Harbor. It includes 450 acres of mud flats and 460 acres of saltwater marsh. It provides habitat for rearing salmon and has been recognized by state and federal agencies as providing essential waterfowl habitat for species injured by the

spill. The habitat of the Duck Flats may be degraded by the storm water runoff which empties into the area, or by discharges from boats outside the harbor, landfill contamination flowing down Valdez Creek, or sewage disposal in the Port.

Orca Inlet, outside Cordova has the largest pupping concentration of sea otters in Prince William Sound and is also important for sport fishing, hunting, and is seasonally used by large concentration of seabirds and waterfowl, including many resources injured by the spill. It is part of the largest contiguous wetland in the western hemisphere which, during migrations, hosts the largest concentration of shorebirds in the world. The Cordova waterfront hosts most of the waste management problems described in this proposal. The shoreline includes the solid waste landfill, which is built in part on tidelands and is inundated by the tide twice each day; storm-water and sewer outfalls, and outfalls for fish processing offal which have created an anaerobic zone on the inlet floor.

Implementation of the project will assure that marine pollution from communities does not further degrade the marine habitat of Prince William Sound. By assuring that wastes are properly handled and do not contaminate the marine environment, natural recovery of the resources and services will continue without interference.

C. Location

The project will be implemented in five Prince William Sound communities: Cordova, Valdez, Whittier, Chenega Bay and Tatitlek. The project will improve the health of Prince William Sound, thereby improving marine habitat for injured species, and will assist in restoring recreation and other injured services. A clean environment is necessary to maintain a good "quality of life" which attracts recreation-oriented visitors as well as new businesses and residents.

COMMUNITY INVOLVEMENT

The Prince William Sound communities will have extensive involvement in this project. Public and private sector representatives from each of the five communities, who comprise the Prince William Sound Economic Development Council (PWSEDC) Waste Management Committee, were responsible for developing the Sound Waste Management Plan. These same representatives will be involved in the implementation of this proposed project through monthly project meetings and/or teleconferences. The community representatives will be responsible for working closely with the contractor and the PWSEDC to ensure that their project needs are met through review of design plans and providing project direction and oversight. Each of the community representatives will also be responsible for conducting public education to ensure that the city/village councils and community residents are aware of the proposed projects and are kept informed as they are implemented.

PROJECT DESIGN

A. Objectives

1. To decrease pollution that is entering Prince William Sound from solid waste sites, mishandling of the wastes (e.g., spills) and illegal dumping of solid, hazardous, and oily wastes.

2. To decrease the flow of used oil into Prince William Sound from vessels, boats, vehicles and other community-based sources due to the lack of sufficient management equipment.

B. Methods

Description of proposed project

Construction of EnVironmental Operation Stations

An EnVironmental Operation Station (or EVOS) is a building which will provide the physical, sheltered space necessary to safely collect and store used oil, household hazardous wastes, and recyclable solid wastes. An EVOS station will help to prevent spills, leaks, and illegal dumping of these wastes by providing:

- a collection point for the wastes within each community;
- sufficient capacity to store the wastes prior to recycling or disposal; and
- safety features for proper management of the wastes such as bermed areas and fire suppression systems as needed for each waste type.

Each community currently lacks collection facilities, storage capacity, and/or safety equipment. For example, in Tatitlek and Chenega Bay household hazardous wastes and recyclable solid wastes are not collected. Used oil is collected sporadically in the two villages but is currently stored in old rusting drums or tanks. Used oil is collected in the three larger communities, but current collection and storage operations are not sheltered from the weather and lack some of the safety equipment needed to prevent contamination from spills and leaks.

In addition to providing the physical space necessary for safe collection and storage of the wastes, the EVOS Stations will maximize the amount of wastes that are collected by providing a user-friendly and convenient "one-stop" drop-off location of the wastes by residents. Further, the EVOS Stations will also minimize the number of staff needed by centralizing the collection and storage of the waste streams at the EVOS Station.

An EVOS station will be comprised of 20' by 20' building modules. Each building module will be used to manage a different waste stream (used oil, household hazardous waste, and

recyclable solid wastes). The building modules will be layed out in either a linear fashion or back to back, depending on the preference of each community.

The building modules will be constructed with steel columns and steel joist roof rafters with a metal roof skin. The floor will be concrete slab. The building modules will vary somewhat based on the type of wastes which will be collected. The used oil and household hazardous waste modules will be enclosed for safety and to enable electrical power to be run to them. In addition, the floor of the household hazardous waste module will have curbs to assure proper containment of materials. The recycling module will not be enclosed.

Preliminary design concepts for the modules are shown on the following pages. The initial step in the project will be to develop the detailed design for the modules. The costs of designing and constructing the EVOS Stations will be minimized because they are all comprised of the same basic building module, which can be duplicated or expanded without detailed design.

The cost of the EVOS Stations will vary from $50.00 to $200.00 per square foot based on whether or not the module is enclosed. Each community has somewhat different needs for the number, type, and configuration of the building modules that will comprise its EVOS Station. Table 2 on the following page shows the number, type, and estimated capital costs of the building modules in each community.

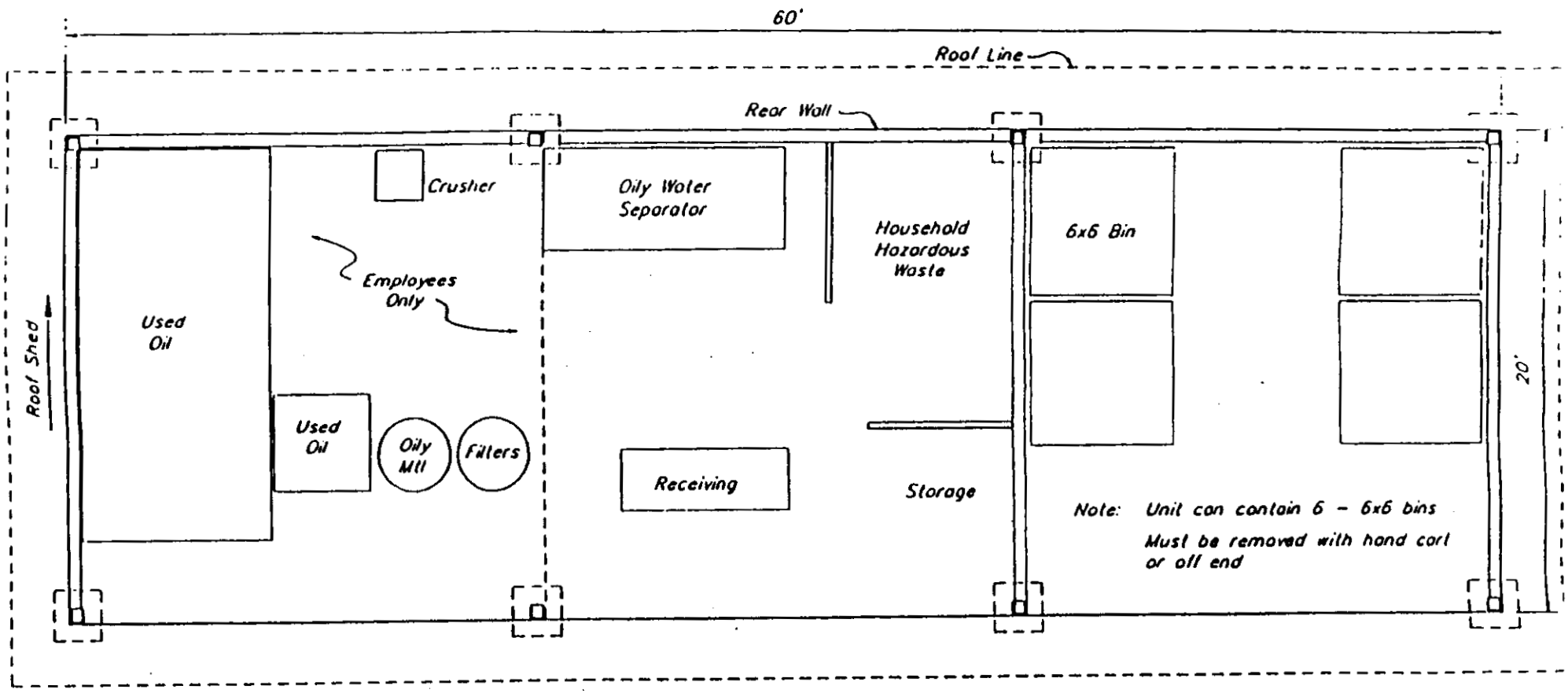
In Valdez and Cordova, the used oil and household hazardous modules are estimated to cost $200.00 per square foot based on the communities' plan to enclose them. Cordova and Valdez would also have the equivalent of two building modules for their recycling operations, based on the volume of materials which will be collected.

In Tatitlek and Chenega Bay, only two building modules will be constructed (one each for used oil and for recycling), because they have recently constructed a household hazardous waste module using federal funding. The two building modules for the villages will each cost approximately $50.00 per square foot and will not be enclosed, due to the relatively small volume of wastes generated in the villages.

In Whittier, one building module for used oil will be constructed at an estimated cost of $200.00 per square foot.[1]

The total estimated capital costs for the region for the EnVironmental Operation Stations are $580,000. In addition to these costs, there is approximately $70,000 for engineering/design, $63,000 for construction management and inspection, $60,000 for personnel, and $21,584

[1] Whittier plans to collect household hazardous waste, but will immediately ship it for disposal rather than storing it. For its recyclable solid waste, Whittier is requesting funding for three collection dumpsters rather than construction of a central collection module. The total estimated cost of the dumpsters (a total of $20,000) is equal to the cost of an unenclosed building module.



LINEAR LAYOUT

Scale: 1/4" = 1'-0"

SOUND WASTE MANAGEMENT PLAN
March 1996

FLOOR PLAN

ENVIRONMENTAL OPERATION STATION

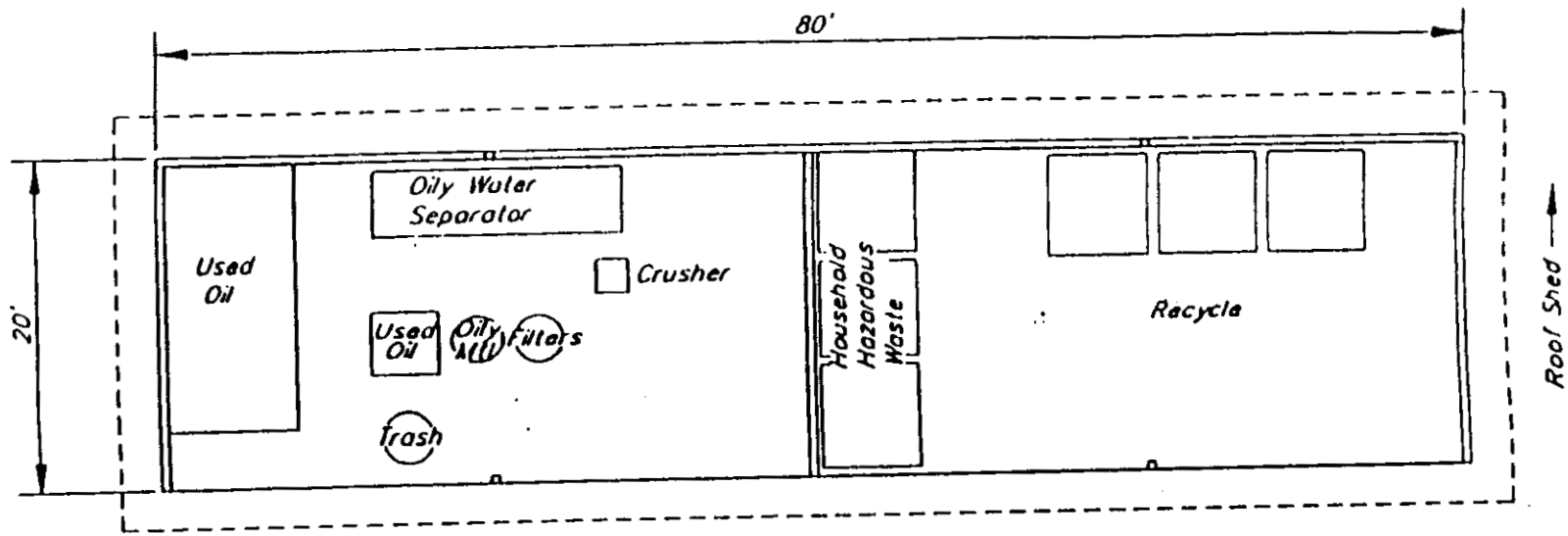
TABLE 2: ENVIRONMENTAL OPERATION STATIONS [1]

Location	Recycle	Used Oil	HHW [2]	TOTAL
CHENEGA BAY				
# of modules	1	1		2
Cost	$20,000	$20,000		$40,000
TATITLEK				
# of modules	1	1		2
Cost	$20,000	$20,000		$40,000
WHITTIER				
# of modules		1		1
Cost	$20,000 [3]	$80,000		$100,000
CORDOVA				
# of modules	2	1	1	4
Cost	$40,000	$80,000	$80,000	$200,000
VALDEZ				
# of modules	2	1	1	4
Cost	$40,000	$80,000	$80,000	$200,000
SS TOTAL	$140,000	$280,000	$160,000	$580,000
MODULE TOTAL	6	5	2	13

[1] Cost estimate based on $50/sf minimum, $200/sf maximum. Cost estimates are for modules each measuring 20'x20'. Cost estimates variable mostly due to anticipated code interpretations.

[2] Chenega Bay and Tatitlek will have HHW storage depots beginning in 1996. Whittier will hold an annual HHW collection event, but will ship the HHW for disposal at the end of the event and therefore will not need an EVOS station to store the waste.

[3] Whittier will use three separate recycling collection dumpsters (at $7000) instead of a central collection station.



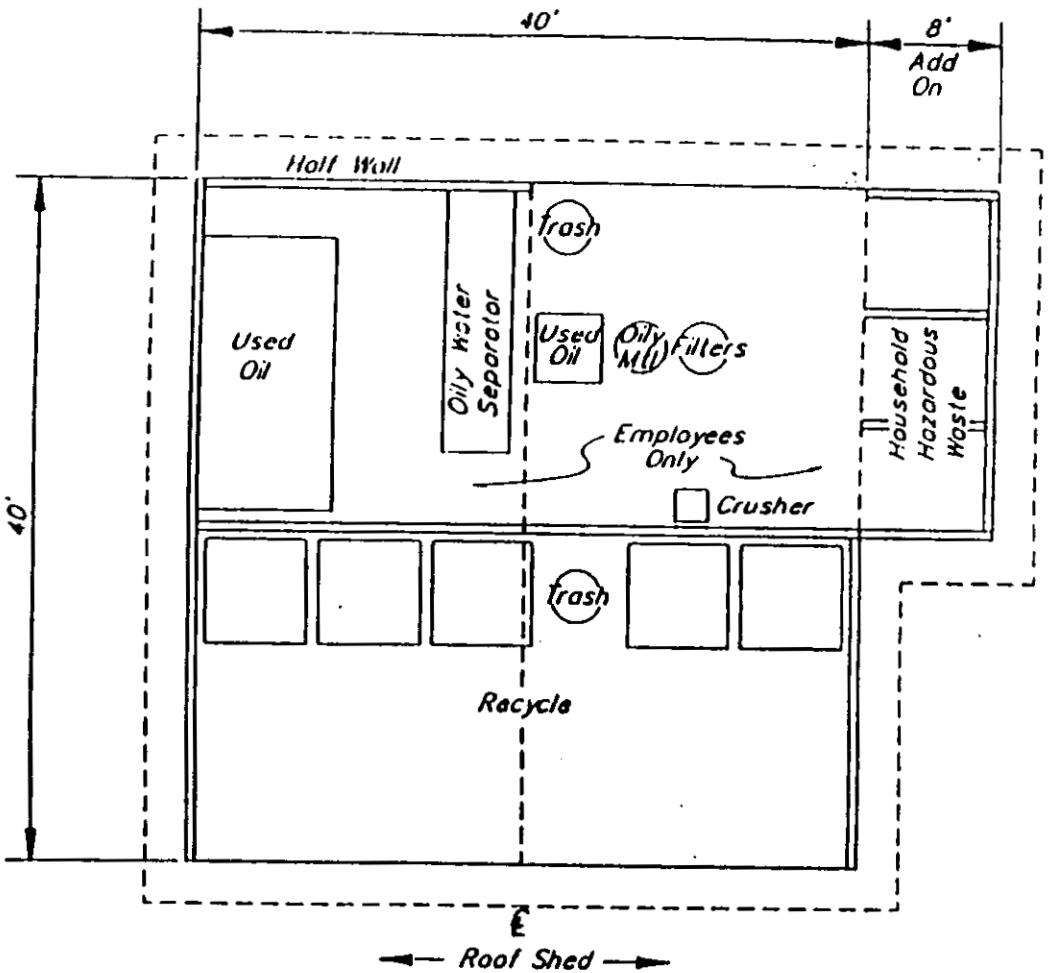
LINEAR LAYOUT

Scale: 1/8" = 1'-0"

SOUND WASTE
MANAGEMENT PLAN
March 1996

FLOOR PLAN

ENVIRONMENTAL
OPERATION STATION



BACK TO BACK LAYOUT

Scale: 1/8" = 1'-0"

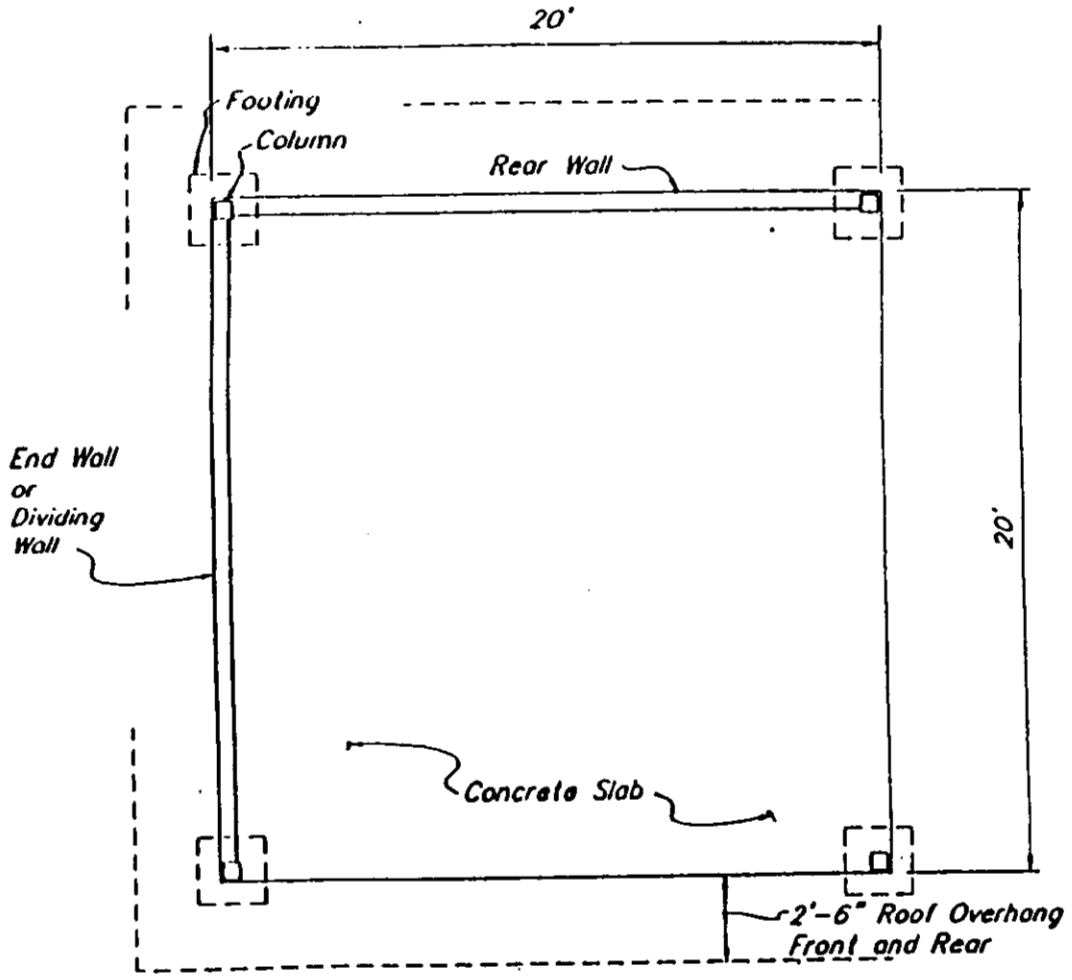
SOUND WASTE MANAGEMENT PLAN
March 1996

FLOOR PLAN
ENVIRONMENTAL OPERATION STATION

4/15/96

12

Project 97115



TYPICAL MODULE

Scale: 1/4" = 1'-0"

FLOOR PLAN

ENVIRONMENTAL
OPERATION STATION

SOUND WASTE
MANAGEMENT PLAN
March 1996

for travel for community representatives to facilitate planning and implementation. Combining these figures, the total estimated project cost requested from the Trustee Council for the EnVironmental Operations Stations is $794,584.

The communities will fund the annual operation and maintenance of the EVOS Stations, which includes staffing the stations on either a full-time or part-time basis. Each community will also maintain ownership of the EVOS Stations and will provide the land on which the stations will be located. Each community's annual costs and land value contributions are estimated below. The total annual costs for the region are estimated to be $75,000 per year. The total value of the land to be provided by the region is estimated at $150,000.

Table 3: Community Funding To Be Provided for the EVOS Stations

	Annual O&M	Land Value
Cordova	$40,000	$90,000
Valdez	$22,000	$20,000
Whittier	$6,000	$35,000
Chenega Bay	$3,000	$2,500
Tatitlek	$3,000	$2,500
TOTAL	$75,000	$150,000

Used oil management equipment

In addition to the collection and storage space to be provided by the EVOS Stations, the proposed project will also upgrade used oil management equipment as necessary to ensure that used oil from all sources can be processed and recycled (through burning for energy recovery). This equipment will be housed in the EVOS Station.

The equipment requested will ensure the comprehensive management of all used oil through enabling:

- "cradle to grave" management of the used oil–collection, storage, filtering, transfer, and burning used oil for energy recovery; and
- management of all sources of used oil–engine oil, oily bilge water, and oil-contaminated materials (e.g., rags and other materials).

Table 4 shows the equipment components of a comprehensive used oil management system and the function which each component serves.

TABLE 4: PROPOSED USED OIL MANAGEMENT SYSTEM

Double Walled Collection Tank	Convenient and safe interim storage/collection point.
Storage Tank	Provides a minimum one-year capacity of used oil.
Vacuum Pumper System	Efficient, clean, maintenance-friendly for transfer of used oil from collection tank and bilges to storage tank and to recycling site(s).
Oily Water Separator	Device to remove oils from bilge water and other oil-contaminated water.
Filter System	Installed in-line to remove impurities prior to burning.
Used Oil Burner for Energy Recovery	Recovers energy from used oil in the form of heat (for buildings, etc.)
Filter Crusher	Maximizes residual oil removal from filters.
Oily Material Burner	Efficient and cost effective device for oily material destruction. Heat recovery possible.
Bilge Water Buffer Tank	Utilized to control flow of bilge water through oily water separator for maximum efficiency.

To determine the equipment needs in each community, community-specific assessments were made of each communities' current used oil management system. Table 5 shows the aspects of the current management system in each community which require modification.

Table 6 shows the estimated costs of the equipment needed in each community. The costs are based on price quotes from equipment vendors. The equipment specifications shown were developed in conjunction with each community. The specifications for each community vary depending on local conditions. For example, in the villages a relatively small amount of used oil is generated and a basic set of equipment is primarily what is needed to manage used oil in a safe and efficient manner. Other communities have the basic equipment but need additional equipment to improve the management of the larger volumes of used oil they generate.

The total estimated capital costs for the used oil management equipment are $336,000. This is the amount requested from the Trustee Council. The communities will fund the annual operation and maintenance of the equipment, estimated at $50,000 per year. The amounts to be provided by each community are summarized below.

Table 7: Community Funding of Annual Used Oil Management System Costs

Cordova	$20,000
Valdez	$20,000
Whittier	$5,000
Chenega Bay	$2,500
Tatitlek	$2,500

Project Implementation

The Prince William Sound Economic Development Council (PWSEDC) will coordinate the design and construction process. This will entail working with the communities to select a designer, developing and issuing construction bid documents, ensuring inspection of the construction work, and developing a written report on the project for the Trustee Council.

The PWSEDC Solid Waste Committee, which developed the Sound Waste Management Plan, will provide direction to the PWSEDC staff coordinating the design and construction process. The Committee is comprised of representatives of each of the Prince William Sound communities.

A contractor will be hired for the design and construction of the EVOS Stations and to purchase the used oil equipment. The contractor will work closely with the PWSEDC and the communities to ensure that community-specific needs and conditions are met.

TABLE 5: USED OIL MANAGEMENT NEEDS

Elements of a Comprehensive System	Adequacy of Existing System				
	Cordova	Valdez	Whittier	Tatitlek	Ch. Bay
Collection Facility					
· Sizable entry funnel with screen, lid	👍	👍	👎	👎	👎
· Double-Wall tank or bermed area	👍	👍	👎	👎	👎
· "Used Oil" Signage	👍	👍	👍	👎	👎
Processing and Transfer to Storage					
· Clor-D-Tec Test	👍	👎	👎	👎	👎
· Standardized Pump - Vacuum	👎	👎	👎	👎	👎
· Oil/Water Separator	👎	👎	👎	👎	👎
· Filter System	👎	👎	👎	👎	👎
Storage					
· 12-month volume capacity	👎	👎	👎	n/a	n/a
· Double-Wall Tank or Diked	👍	👍	👍	n/a	n/a
· "Used Oil" Signage	👍	👍	👍	n/a	n/a
· Lab Test when @ Capacity	👍	👎	👍	n/a	n/a
Burn for Energy Recovery					
· Sufficient Capacity to Burn Used Oil	👎	👎	👎	👎	👎
Other Issues					
· Oily Bilge Water Management System	👎	👎	👎	👎	👎
· Oily Materials Incinerator	👍	👎	👎	👎	👎
· Filter Crusher	👎	👎	👎	n/a	n/a

👍 – Adequate
👎 – Requires modification
n/a – Component not needed given local conditions

TABLE 6: USED OIL SYSTEM COSTS

Component	Specification	Cost	Equipment Needed in Community				
			Tatitlek	Ch. Bay	Cordova	Valdez	Whittier
Double Walled Collection Tank	500 gallons	$3,000	$3,000	$3,000			$3,000
	1,000 gallons	$4,500					
	2,000 gallons	$5,500					
Storage Tank	1,000 gallons	$4,500			$4,500	$4,500	$4,500
	5,000 gallons	$11,000				$11,000	$11,000
	10,000 gallons	$17,000					
Vacuum Pumper System	1,000 gallons	$18,000			$18,000	$18,000	$18,000
with hose	2,000 feet	$2,000	$2,000	$2,000		$2,000	
fixed piping	1,000 feet	$10,000			$10,000		
portable unit	100 gallons	$12,000	$12,000	$12,000			$12,000
Oily Water Separator	400 gallons	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
Filter System		$500	$500	$500	$500	$500	$500
Used Oil Burner for Energy Recovery	125,000 btu	$3,500	$3,500	$3,500			
	175,000 btu	$4,500			$4,500	$9,000	$9,000
	350,000 btu	$6,500			$6,500		
Filter Crusher		$2,500			$2,500	$2,500	$2,500
Oily Material Burner		$3,500	$3,500	$3,500	$14,000	$7,000	$7,000
Bilge Water Buffer Tank	500 gallons	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
TOTAL:			$45,500	$45,500	$81,500	$75,500	$88,500
TOTAL (all equipment):					$336,500		

C. Cooperating Agencies, Contracts, and Other Agency Assistance

The Alaska Department of Environmental Conservation will be an ex-officio member of the community-based committee which will be implementing the project.

SCHEDULE

A. Measurable Project Tasks for FY 97

September 1 - October 15	Select Designer for EVOS Stations
October 15 - December 15	Complete EVOS station design
December 15 - February 15	Develop bid documents for construction and acquisition of used oil management equipment
February 15 - March 31	Solicit Bids
April 1 - April 30	Bid Opening and Contract Award
May 1 - May 31	Start of Contract Period
June 1 - September 30	Construction of EVOS Stations and purchase of used oil equipment
October 1 - October 31	Project Report for EVOS Trustee Council

B. Project Milestones and Endpoints

December 31, 1996	Complete EVOS Station design
March 31, 1997	Issue RFP for EVOS Station construction and acquisition of used oil management equipment
June 30, 1997	Begin construction of EVOS stations and purchase of used oil equipment
September 30, 1997	Improve overall management of waste streams to decrease direct and indirect discharge of waste to the Sound.
September 30, 1997	Decrease direct flow of used oil to Prince William Sound

C. Completion Date

The project work will be completed by September 30, 1997. After the September 30th completion of the construction of the EVOS stations, a project report describing the project's activities and accomplishments will be written and submitted to the EVOS Trustee Council.

PUBLICATIONS AND REPORTS, PROFESSIONAL CONFERENCES

The project plans to make a presentation at the annual Alaska Municipal League meeting. The project team will attend any other conferences to which it is invited and/or assist in providing information to any organization which requests it.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

This project will be coordinated with any other restoration efforts as needed. There are currently no other similar projects which have been funded by the Trustee Council.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

No changes have been made from the original scope and content of this project.

PROPOSED PRINCIPAL INVESTIGATOR

Name	Paul Roetman
Affiliation	Executive Director, Prince William Sound Economic Development Council
Mailing address	128 Pioneer Dr., Valdez, AK, 99686
Phone number	(907) 835-3775
Fax number	(907) 835-3770
E-mail address	pwsedc@alaska.net

1997 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1996 September 30, 1997

New Equipment Purchases:	Number of Units	Unit Price	Proposed FFY 1997
Description			
We have included under the contractual costs\$336.0 for used oil management equipment. It is included in the contractual category because the contractor will be responsible for its purchase.			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Those purchases associated with replacement equipment should be indicated by placement of an R.	Number of Units	
Existing Equipment Usage:		
Description		

1997

Prepared: 4 of 4 4/15/96

Project Number: 97115
Project Title: SWMP II: Environmental Operations and Used Oil Management System
Name: Prince William Sound Economic Developrnent Council

FORM 4B
Equipment
DETAIL

4/15/96

TOTAL P.25

1997 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1996 - September 30, 1997

Budget Category	Authorized FFY 1996	Proposed FFY 1997
Personnel	$12.8	$63.8
Travel	$6.0	$23.1
Contractual	$245.6	$1,046.0
Commodities	$1.0	$0.0
Equipment	$0.0	$0.0
Subtotal	$265.4	$1,132.7
Indirect		
Project Total	$265.4	$1,132.7
Full-time Equivalents (FTE)		12.0
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FFY 1998	Estimated FFY 1999	Estimated FFY 2000	Estimated FFY 2001	Estimated FFY 2002	
$75.0					

Dollar amounts are shown in thousands of dollars.

Comments:

Prince William Sound communities will fund all of the annual operation and maintenance costs associated with this proposed project. These annual costs total $125,000 per year for the region. In addition, communities will be providing approximately $150,000 in capital assets (in land) for the project.

1997

Project Number: 97115
Project Title: SWMP II: Environmental Operations and Used Oil Management System
Name: Prince William Sound Economic Development Council

FORM 4A
Non-Trustee
SUMMARY

Prepared: 4.15.96

4/15/96

1997 EXXON VALDEZ ...USTEE COUNCIL PROJECT BUDGET

October 1, 1996 - September 30, 1997

Personnel Costs: Name	Position Description	Months Budgeted	Monthly Costs	Overtime	Proposed FFY 1997
					0.0
PWSEDC	Project Manager	12.0	5.3	0.0	63.6
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
	Subtotal	12.0	5.3	0.0	
				Personnel Total	$63.6

Travel Costs: Description	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FFY 1997
					0.0
Chenega Representative to Anchorage - for committee meeting	1.0	4	4	0.1	4.4
Tatitlek representative to Anchorage- for committee meeting	0.5	4	4	0.1	2.4
3 Valdez representatives to Anchorage - for committee meeting	0.2	15	4	0.1	3.4
2 Cordova representatives to Anchorage - for committee meeting	0.2	10	5	0.1	2.5
					0.0
Project Manager from Valdez to Chenega	1.1	4	4	0.0	4.4
Project Manager from Valdez to Tatitlek	0.5	4	4	0.0	2.0
Project Manager from Valdez to Whittier	0.4	4	4	0.1	2.0
Project Manager from Valdez to Cordova	0.4	4	4	0.1	2.0
					0.0
					0.0
				Travel Total	$23.1

1997

Prepared 4.15.96

Project Number: 97115
Project Title: SWMP II: Environmental Operations and Used Oil Management System
Name: vacant

FORM 4B Personnel & Travel DETAIL

4/15/96

1997 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1996 - September 30, 1997

Contractual Costs:	
Description	Proposed FFY 1997
NEPA Environmentalf Assessment	40.0
Engineering / Design of the EVOS Stations	60.0
Purchase of used oil equipment	336.0
Construction management	60.0
Contingency	75.0
Construction	505.0
Contractual Total	$1,046.0

Commodities Costs:	
Description	Proposed FFY 1997
There are no commodities costs for this project	0.0
Commodities Total	$0.0

1997

Project Number: 97115
Project Title: SWMP II: Environmental Operations and Used Oil Management System
Name: Prince William Sound Economic Development Council

FORM 4B
Contractual & Commodities DETAIL

Prepared:
4 15 96 3 of 4

4/15/96

DIVISION OF ADMINISTRATIVE SERVICES
Office of the Director
410 Willoughby Avenue, Suite 105
Juneau, AK 99801-1795

Telephone No. (907)465-5010
FAX No. (907)465-5097

December 16, 1996

Mr. James Winchester
PWSEDC
P.O. Box 2353
Valdez, AK 99686

Dear Mr. Winchester:

Three copies of the revised Sound Waste Management Implementation Plan contract are enclosed. The primary changes to the contract include:

- incorporating the detailed project descriptions approved by the trustee council,
- general provisions and indemnity clause used for construction contracts
- increased the not to exceed amount to $1,132,700
- clearer definition of expected outcome and requirements for each phase
- added appropriate state laws that need to be considered
- budget revision requirements
- require dates of service and names of individuals for all personal services
- limits indirect rate to four percent

For your information, invoices on the contract will be receiving a thorough review. Unreasonable or excessive charges, such as the boat rental rates on the Chenega project, will not be paid. Your prior billings show support services increasing from $36 to $40 per hour. This is high for copying, faxing and other administrative tasks, and could be construed as already including an indirect percentage. On this contract, we will not pay any increases on these rates, and your indirect is limited to the four percent mentioned above.

If you have any questions or comments, please contact me at 465-5014. Please sign all three contract copies and return to me at the letterhead address above. Thank you.

Sincerely,

JoEllen Hanrahan
Fund Administration

APPENDIX C

EVOS Station Conceptual Design Memorandum
January 20 ,1997

EVOS Stations
Conceptual Design Memorandum

Prepared for
Prince William Sound Economic Development Council

January 20, 1997

Stephl Engineers
2525 Blueberry, Suite 203
Anchorage, Alaska 99503
(907) 274-7170

In association with
USKH

CONTENTS

Section 1
Purpose of Conceptual Design

The purpose of this memorandum is to present the proposed conceptual design of the Environmental Operation Stations (EVOS Stations) project. This memorandum will be reviewed and evaluated by members of the Sound Waste Management Plan (SWMP) Committee. The committee is made up of representatives from each of the communities of Valdez, Cordova, Tatitlek, Chenega and Whittier. The Alaska Department of Environmental Conservation (ADEC) and staff members from the Exxon Valdez Oil Spill (EVOS) Trustee Council are also represented on the committee.

A SWMP Committee meeting will be held on January 28, 1997, in Anchorage, to discuss the design, make changes to the conceptual design and answer questions about the proposed projects. At completion of the meeting it is anticipated that the conceptual design for each EVOS Station will be confirmed. After the conceptual design is approved by the committee, the engineering design team will proceed with the next phase of the project, the Preliminary Design. This project will be constructed in the summer of 1997

During the SWMP Committee meeting on January 28, the following items will be discussed:

- The conceptual design for each building
- Proposed equipment
- Code issues
- The need for community resolutions approving the projects
- Sites and locations
- Estimated costs and overall project funding
- Necessary permits and agency approvals

This project is being designed by Stephl Engineers in association with USKH. Stephl Engineers is under contract to the Prince William Sound Economic Development Council, Inc. (PWSEDC), the organization managing the project. The Alaska Department of Environmental Conservation (ADEC) is the lead state agency administering the project.

Section 2
Cordova EVOS Station Conceptual Design

Description

The purpose of the EVOS Station in Cordova is to handle used oil, provide storage for household hazardous waste (HHW) and storage for recycled materials. The building is proposed concrete block building with a concrete floor on grade. The metal frame roof will be covered with metal roofing material. The new building will be served with electricity, water and sewer service. The used oil processing portion of the building will be heated with the waste oil burner, the HHW and recycle collection area will not be heated.

Cordova's building will be the same shape, appearance and type building as the EVOS Station proposed for Valdez.

Operation

The recycling bins, HHW collection and waste oil disposal area will be accessible by the public. A garage door will be installed at the entry to the collection area to allow the City to close off access as necessary.

The household hazardous waste collection and storage area will only be open to accept waste from the public during scheduled hours. Separate bins will be provided for the various types of collected materials. The collection area will be designed to allow the City's Bobcat loader to enter and pick up the collection bins. The collection area will be used to collect oil filters, oily rags, old oil containers and used oil. It is assumed that the City will remove these items from the collection area daily and will drain the oil collection tank as needed.

The general public will not be allowed in the used oil and oily material processing area. Only qualified City staff will be allowed to operate the equipment and process oily material.

The City currently collects and distributes approximately 18,000 gallons of used oil per year. Used oil is burned at a number of different locations in the community. The City owns a 2000 gallon tanker truck with a fixed pump on the truck. It is used to collect and distribute used oil.

The Cordova EVOS Station will contain the following equipment:

- 1,000 gallon used oil storage tank
- oily water separator to filter oil from water
- oil filtration system, to filter collected used oil prior to burning
- oil filter crusher
- oily material burner to burn oily rags, sorbent pads, etc.
- 175,000 BTU used oil burner

A 350,000 BTU used oil burner will be purchased and installed by the City in another City building.

The City plans to pump oily bilge water from boats and treat it at the EVOS Station. A bilge water vacuum pumper system with 1,000 feet of fixed piping will be installed at the City's ferry dock. The pump will be permanently mounted near the Ferry Dock sewage pump station. Approximately 1000 feet of fixed piping will be installed along the dock from the pump to the proposed boat pumping area. The pump will discharge into a 1000 gallon holding tank. The City's 2000 gallon tanker truck will be used to haul the oily bilge water to the EVOS building for treatment.

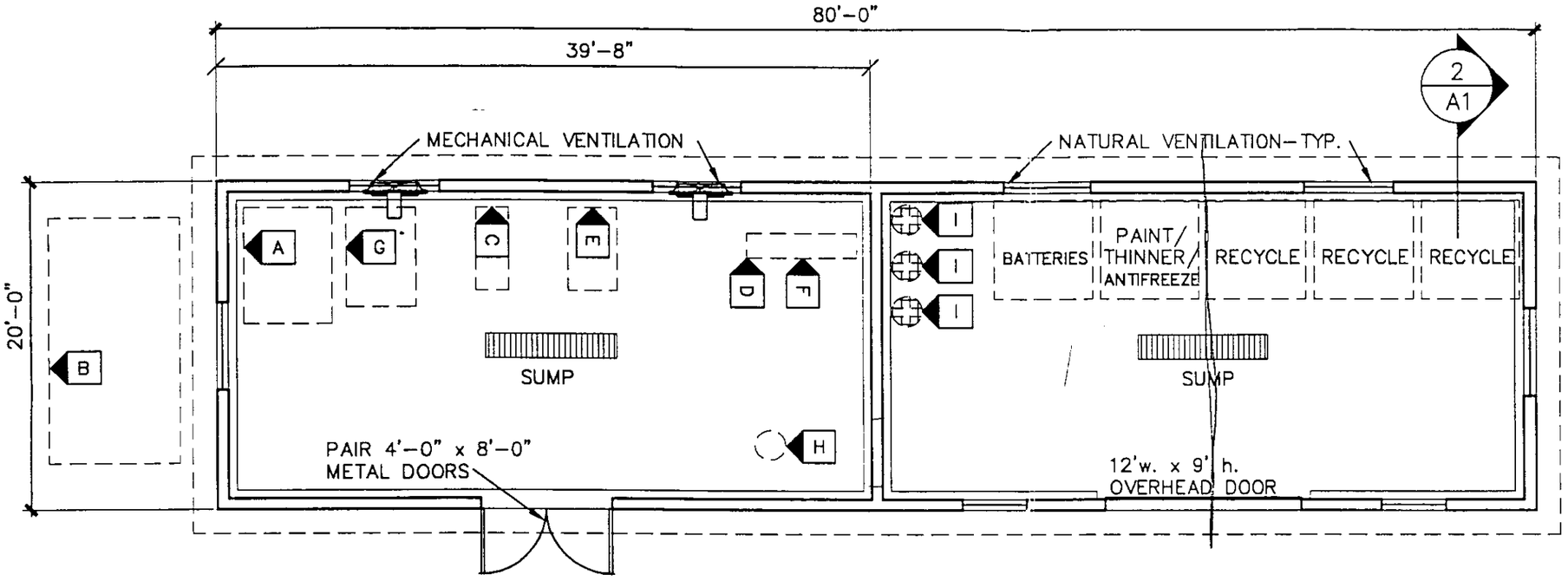
Figure A1 shows the proposed floor plan of the Cordova EVOS Station. The City proposes to locate the building near their solid waste baler facility on Whitshed Road.

Section 3
Valdez EVOS Station Conceptual Design

Description

The purpose of the EVOS Station in Valdez is to handle used oil, provide storage for HHW and storage for recycled materials. The building is proposed to be a concrete block building with a concrete floor on grade. The metal frame roof will be covered with metal roofing material. The used oil processing portion of the building will be heated with the waste oil burner, the HHW and recycle collection area will not be heated.
The new building will be served with electricity, water and sewer.

The Valdez building will be the same shape, appearance and type building as the EVOS Station proposed for Cordova.

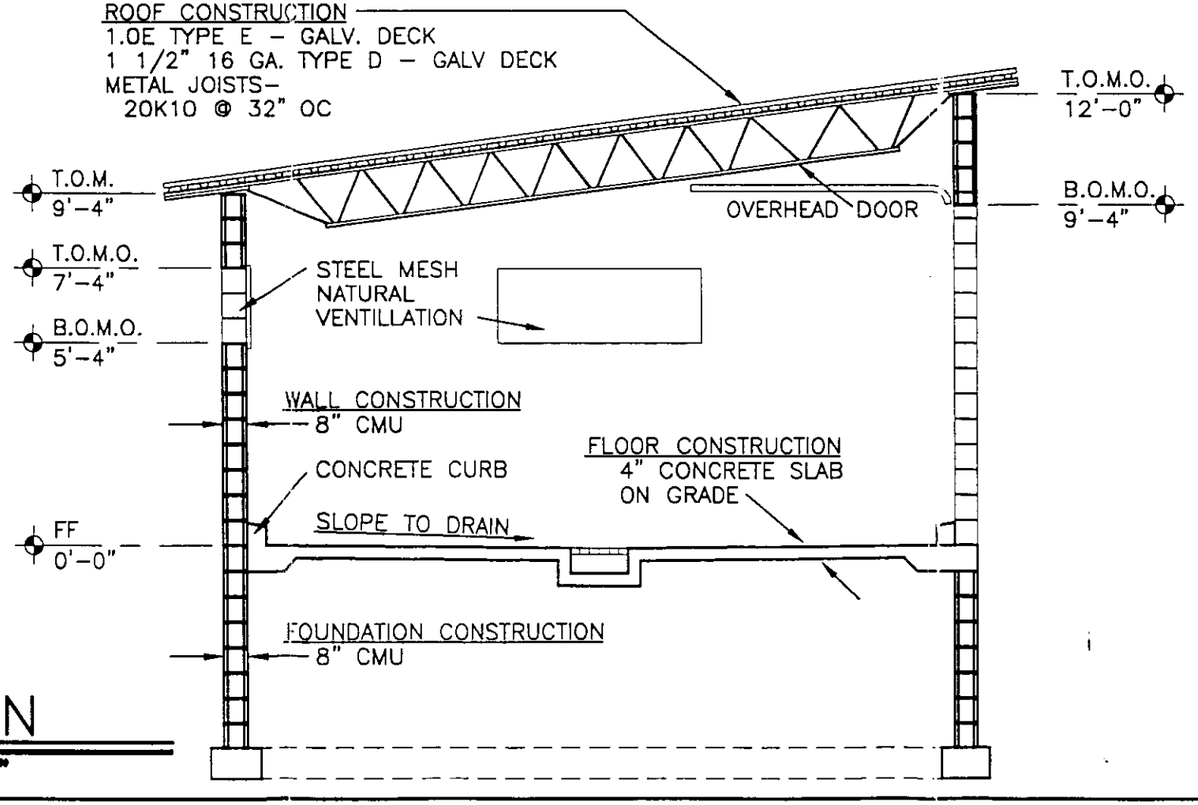


1/A1 FLOOR PLAN

1/8" = 1'-0"

VALDEZ & CORDOVA EVOS STATIONS

- A — 1000 GALLON USED OIL STORAGE TANK: 5'-4" ø x 7'-0" L.
- B — 5000 GALLON USED OIL STORAGE TANK: 8'-0" ø x 15'-0" L.
- C — OILY WATER SEPARATOR: 2'-0" ø x 5'-0" L.
- D — OIL FILTRATION SYSTEM
- E — OIL FILTER CRUSHER: 36" x 60"
- F — USED OIL BURNER : 18" ø x 81" L.
- G — 500 GALLON BILDGE WATER BUFFER TANK: 4'-2" ø x 6'-0" L.
- H — OILY MATERIAL BURNER (PORTABLE)
- I — OILY MATERIAL COLLECTION (55 GAL DRUM): 22" ø x 32" H



2/A1 SECTION

1/4" = 1'-0"

CONCEPTUAL
DESIGN
1-23-97

Date:

Sheet A1

W.O. # 510604 | CAD File 510604A1 | Checked JAH

Date 1-23-97 | Scale AS NOTED | Drawn PRM

STEPHL ENGINEERS
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907-274-7170 Phone
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Sheet Title FLOOR PLAN

Project ENVIRONMENTAL OPERATIONS STATIONS

Client PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Operation

The waste oil disposal area will be accessible by the public. A garage door will be installed at the entry to the collection area to allow the City to close off access as necessary. The collection area will be designed to allow the City's Bobcat loader to enter and pick up the collection bins. The collection area will be used to collect oil filters, oily rags, old oil containers and used oil. It is assumed that the City will remove these items from the collection area daily and will drain the oil collection tank as needed. The City currently collects HHW and recyclable materials in their baler building. How they proposed to utilize the HHW and recycle area in the new EVOS Station has not be confirmed yet.

The general public will not be allowed in the used oil and oily material processing area. Only qualified City staff will be allowed to operate the equipment and process oily material.

The City currently collects and distributes approximately 15,000 gallons of used oil per year. Used oil is burned at a number of different locations in the community. The City owns a flatbed that is used to carry portable oil tanks. The truck is used to distribute used oil.

The Valdez EVOS Station will contain the following equipment:

- 1,000 gallon used oil storage tank
- 5,000 gallon used oil storage tank (outside the building)
- 1,000 gallon bilge water vacuum pumper system with 2,000 feet of flexible hose to pump oily bilge water from boats
- oily water separator to filter oil from the water
- oil filtration system, to filter collected used oil prior to burning
- oil filter crusher
- oily material burner
- 175,000 BTU used oil burner

175,000 BTU heater mounted somewhere else

The plans to pump oily bilge water from boats and treat it in the new EVOS Station. The details of the bilge pumping system have not been completed. If the new EVOS Station is constructed at the harbor, the bilge water would be pumped directly in the oil storage tank and processed.

Figure A1 shows the proposed floor plan of the Valdez EVOS Station. The City has identified two potential sites for the new building; 1) near the City's solid waste baler facility, or 2) near the boat harbor.

Section 4
Whittier EVOS Station Conceptual Design

Description

The purpose of the EVOS Station in Whittier is handling used oil and recycling. The building is proposed to be a steel frame structure with a concrete slab floor. It will not have a permanent foundation. The new building will be mounted on above-ground beams to allow it to be moved periodically. This will allow some flexibility in where the building is located as the City's harbor continues to grow in the next few years. The metal roof frame will be covered with metal roofing material. The entire building will be heated and enclosed. The new building will be served with electricity. Water will be provided from adjacent hose bibs located throughout the harbor area.. Sewer service will likely be provided to the building via a temporary-type discharge hose from the building to an adjacent sewer manhole.

CONCEPTUAL DESIGN
1-23-97

Date:

Sheet A4

W.O. # 510604 | CAD File 510604A4 | Checked JAH

Date 1-23-97 | Scale AS NOTED | Drawn PRM

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907-274-7170 Phone
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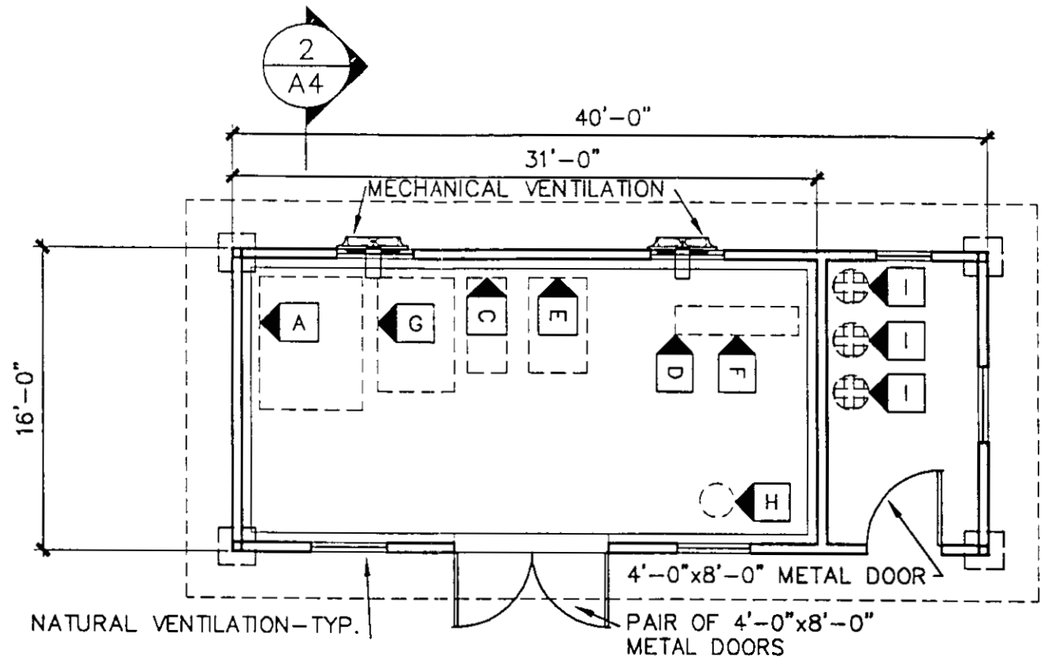
Sheet Title FLOOR PLANS

Project ENVIRONMENTAL OPERATIONS STATIONS

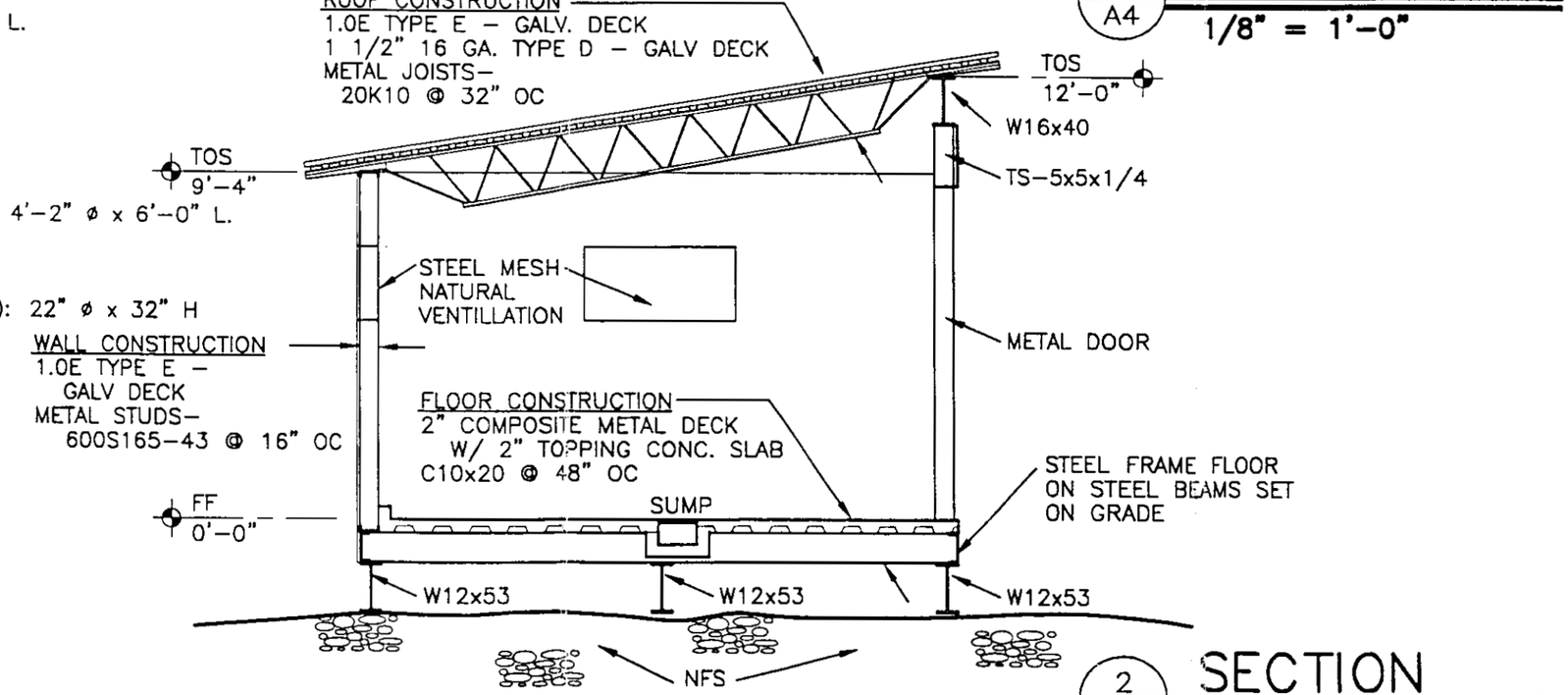
Client PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

WHITTER EVOS STATIONS

- A — 1000 GALLON USED OIL STORAGE TANK: 5'-4" ø x 7'-0" L.
- C — OILY WATER SEPARATOR: 2'-0" ø x 5'-0" L.
- D — OIL FILTRATION SYSTEM
- E — OIL FILTER CRUSHER: 36" x 60"
- F — USED OIL BURNER : 18" ø x 81" L.
- G — 500 GALLON BILDGE WATER BUFFER TANK: 4'-2" ø x 6'-0" L.
- H — OILY MATERIAL BURNER
- I — OILY MATERIAL COLLECTION (55 GAL DRUM): 22" ø x 32" H



1/A4 FLOOR PLAN
1/8" = 1'-0"



2/A4 SECTION
1/4" = 1'-0"

Recycle collection bins will be placed either next to the new EVOS Station or at some other location in town.

Operation

A drop-off container for used oil and oily materials will be provided in the new EVOS Station. It is assumed the City will collect the oily material items daily and will drain the oil collection tank as needed. The general public will not be allowed in the used oil and oily material processing area. Only qualified City staff will be allowed to operate the equipment and process oily material.

The Whittier EVOS Station will contain the following equipment:

- 1,000 gallon used oil storage tank
- oily water separator to filter oil from water
- oil filtration system to clean oil before it enters the heater
- oil filter crusher
- oily material burner
- 175,000 BTU used oil heater

A ~~150,000~~ 175,000 BTU used oil burner and 5000 gallon storage tank will be purchased and installed in another building in the community.

Whittier plans to have two types of bilge water pumping facilities: a 100-gallon portable unit and a fixed 1000-gallon unit.

Figure A4 shows the proposed floor plan of the Whittier EVOS Station. It is assumed the building will be located adjacent to the City's boat harbor.

Section 5
Chenega EVOS Station Conceptual Design

Description

The purpose of the EVOS Station in Chenega is handling used oil and recycling. The building is proposed to be a steel frame structure with a concrete slab floor. It will not have a permanent foundation. The new building will be mounted on above ground beams. The metal roof frame will be covered with metal roofing material. Three of the four outside walls will be one-half height to allow ventilation and natural light to enter the building. Openings in the walls will be covered with mesh so that the building is secure from unauthorized entry. The new building will be served with electricity and possibly community water. Depending on the selected site, the building may be connected to the community sewer system.

The Chenega building will be the same shape, appearance and type building as the EVOS Station proposed for Tatitlek.

Operation

It is assumed that the recycling bin area will be open on an as-needed basis. This area will likely be accessible by the public and separate bins will be provided for the various types of collected materials.

A drop-off container for oily products will be provided in the new EVOS Station. It will be accessible for public disposal of oily materials. The drop off area will likely be open on a scheduled basis. The drop off

area will be capable of containing oil filters, oily rags, old oil containers and used oil. Qualified staff will collect the oily material items and will empty the oil collection tank as needed.
The general public will not be allowed in the oily material processing area. Only qualified staff will be allowed to operate the equipment and process oily material.

The Chenega EVOS Station will contain the following equipment:
- 500 gallon used oil collection tank
- oily water separator to remove oil from water
- oily material burner

In addition, a 125,000 BTU used oil burner will be purchased and installed in another community building. This will provide for energy recovery and disposal of used oil. The community will also be provided with a 100 gallon portable vacuum pumper system and 2,000 feet of flexible hose for removing oily bilge water.

Figure A3 shows the proposed floor plan of the Chenega EVOS Station. A site for the building has not yet been selected .

Section 6
Tatitlek EVOS Station Conceptual Design

Description

The purpose of the EVOS Station in Tatitlek is handling used oil and recycling. The building is proposed to be a steel frame structure with a concrete slab floor. It will not have a permanent foundation. The new building will be mounted on above ground beams. The metal roof frame will be covered with metal roofing material. Three of the four outside walls will be one-half height to allow ventilation and natural *light to enter the building. Openings in the walls will be covered with mesh so the building is secure from* unauthorized entry. The new building will be served with electricity and possibly community water. Depending on the selected site, the building may be connected to the community sewer system.

The Tatitlek building will be the same shape, appearance and type building as the EVOS Station proposed for Chenega.

Operation

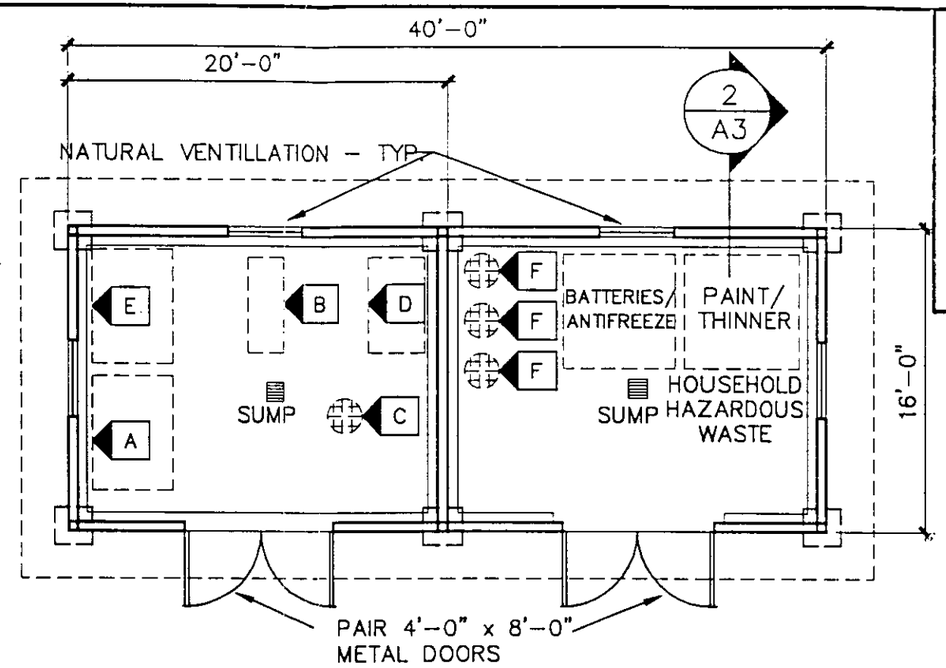
It is assumed the recycling bin area will be accessible by the public. The public will drop off recyclable materials at their convenience. Separate bins will be provided for the various types of collected materials.

A drop-off container for oily products will be provided in the new EVOS Station. It will be accessible for public disposal of oily materials. The drop-off area will likely be open on a scheduled basis. The drop-off area will be capable of containing oil filters, oily rags, old oil containers and used oil. Qualified staff will collect the oily material items and will empty the oil collection tank as needed. The general public will not be allowed in the oily material processing area. Only qualified staff will be allowed to operate the equipment and process oily material.

The Tatitlek EVOS Station will contain the following equipment:
- 500 gallon used oil collection tank
- oily water separator to remove oil from water
- oily material burner

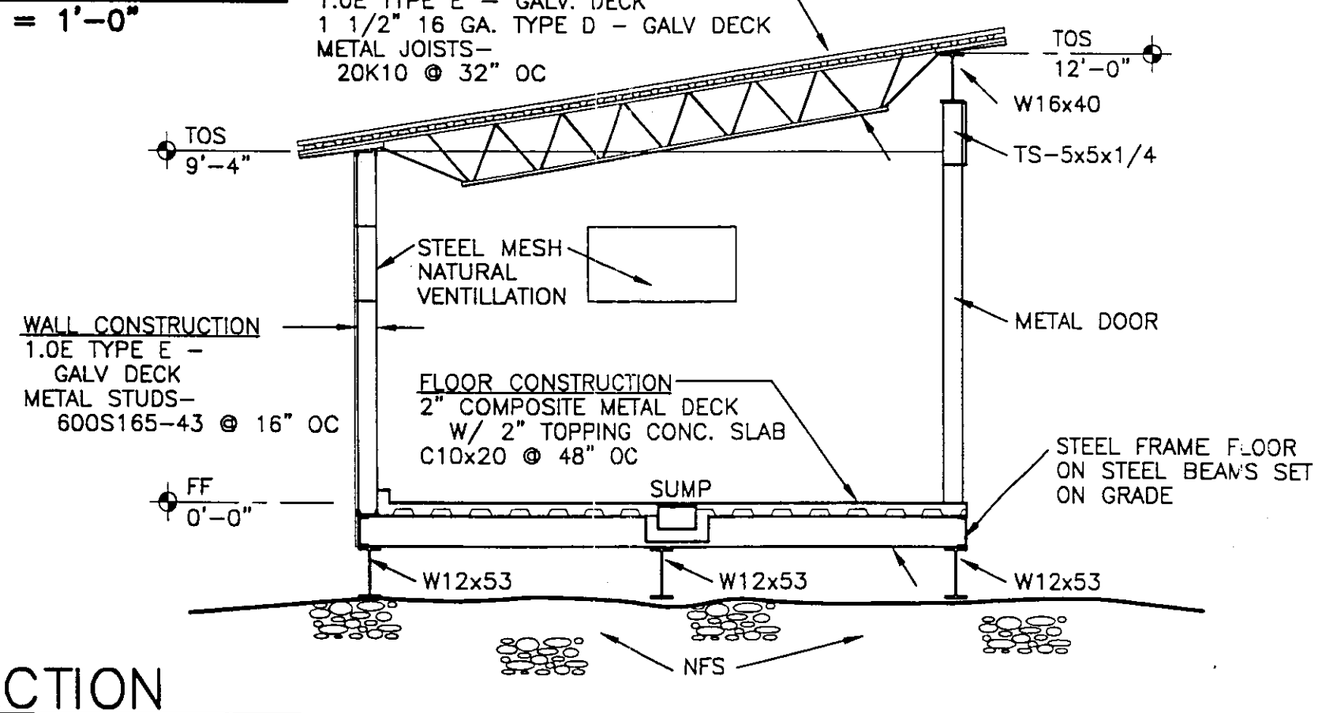
TATITLEK & CHENEGA EVOS STATIONS

- A — 500 GALLON USED OIL STORAGE TANK: 4'–2" ø x 6'–0" L.
- B — OILY WATER SEPARATOR: 2'–0" ø x 5'–0"
- C — OILY MATERIAL BURNER
- D — OIL FILTER CRUSHER: 36" x 60"
- E — 500 GALLON BILGE WATER BUFFER TANK: 4'–2" ø x 6'–0" L.
- F — OILY MATERIAL COLLECTION (55 GAL DRUM)



1/A3 **FLOOR PLAN**

1/8" = 1'–0"



2/A3 **SECTION**

1/4" = 1'–0"

CONCEPTUAL DESIGN 1–23–97

Date:

Sheet A3

W.O. # 510604 | CAD File 510604A3 | Checked JAH

Date 1–23–97 | Scale AS NOTED | Drawn PRM

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Sheet Title: FLOOR PLANS

Project: ENVIRONMENTAL OPERATIONS STATIONS

Client: PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

In addition, a 125,000 BTU used oil burner will be purchased and installed in another community building. This will provide for energy recovery and disposal of used oil. The community will also be provided with a 100 gallon portable vacuum pumper system and 2,000 feet of flexible hose for removing oily bilge water.

Figure A3 shows the proposed floor plan of the Tatitlek EVOS Station. A site for the building has not yet been selected .

Section 7
Building Code Review and Issues

The EVOS Stations must go through a building code review to determine the building classification, safety requirements, ventilation requirements, fire detection and prevention requirements, access requirements, interior finish requirements, separation to adjacent structures, electrical equipment requirements, fire suppression needs, and any other special needs. This code review is based on the 1994 Uniform Building Code (UBC).

The following paragraphs contain a description of the various codes and rules that apply to the construction and operation of the EVOS Stations.

Occupancy classification: **Table 3-A**

F1 Refuse incineration Sec. 306
Quantity of used oil (III-B) is less than quantity allowed in Table 3-D (13,200 Gallons), therefore occupancy is not a H2 (hazardous) occupancy.

S1 Storage - combustible materials

Table 3-B Required Separation in Buildings of Mixed Occupancy (Hours)

F1 to S1 = N (no requirements for fire resistance)

Type of Construction: II-N Metal
V-N Wood/Metal

Location on property: Table 5-A
F1 and S1: II N
or F1 and S1: VN

Exterior walls, bearing = 1 hr < 20 ft.

Exterior walls, nonbearing = 1 hr < 20 ft.

Openings: Not permitted < 5 ft.
Protected < 10 ft.

Allowable Floor Areas: Table 5-B

F-1, S-1, II-N = 12,000 square feet.
F-1, S-1, V-N = 8,000 square feet.

The actual areas of all 5 EVOS buildings square feet are less than the allowable areas and comply.
Area increases are not required and neither are area separation walls.

H-2 II-N = 3,700 square feet.
H-2 V-N = 2,500 square feet.

Therefore, if H2 occupancy, the EVOS buildings comply for area also.

Allowable Height and number of stories: Table 5-B

F-1, S-1 II N Max height = 2 stories 55 ft.
F-1, S-1 V N Max height = 2 stories 40 ft.

H-1 II N Max height = 1 story 55 ft.
H-1 V N Max height = 1 story 55 ft.

All EVOS buildings comply

Review the building for conformity with the occupancy requirements.

302.5 Heating Equipment Room Occupancy Separation. In Groups A; B; E; F; I; M; R Division 1; and S Occupancies, rooms containing a boiler, central heating plant or hot-water supply boiler shall be separated from the rest of the building by not less than a one-hour occupancy separation.

EXCEPTIONS: In Groups A, B, F, I, M and S Occupancies, boilers, central heating plants or hot water supply boilers where *the largest piece of fuel equipment* does not exceed 400,000 Btu per hour (117.2kW) input.

NOTE: Only "E" occupancy deleted from this exception by State of Alaska amendments.

Section 306, F occupancies (F1), #35 Refuse Incineration

306.5 *Light, Ventilation and Sanitation. In Group F* Occupancies, light, ventilation and sanitation shall be as specified in Chapter 12 and 29. At least 6 continuous air changes per hour will be required.

306.8 Special Hazards. For special hazards of Group F Occupancies, see Section 304.8

304.8 Special Hazards. Chimneys and heating apparatus shall conform to the requirements of *Chapter 31 of this code and the* Mechanical Code.

Storage and use of flammable and combustible liquids shall be in accordance with the Fire Code.

Devices generating aglow, spark or flame capable of igniting flammable vapors shall be installed such that sources of ignition are at least 18 inches (457 mm) above the floor of any room in which Class I flammable liquids or flammable gases are used or stored.

Section 311 - Group S Occupancies (S1)

311.5 Light, Ventilation and Sanitation. In Group S Occupancies, light, ventilation and sanitation shall be as contained in Chapters 12 and 29, except as noted below:

311.5.1 Repair and storage garages, aircraft hangars. See Section 1202.2.6 for ventilation requirements for Group S, Division 3 repair garages, storage garages and Group S, Division 5 aircraft hangars.

311.8 Special Hazards. For special hazards of Group S Occupancies, see Section 304.8 Storage and use of flammable and combustible liquids shall be in accordance with the Fire Code.

Review the building for conformity with the type of construction requirements in Chapter 6.

Section 603 - Type II Buildings. Comply.
Section 606 - Type V Buildings. Comply.

Review the building for conformity with the exiting requirements - Chapter 10.

Section 1020 - Special Hazards

1020.1 Rooms Containing Fuel-fire Equipment. Except in Group R, Division 3 Occupancies, any room containing a boiler, furnace, incinerator or other fuel-fired equipment shall be provided with two exits when both of the following conditions exist.

1. The area of the room exceeds 500 square feet (46.45 m^2), and

2. The largest piece of fuel-fired equipment exceeds 400,000 Btu per hour (117 228W) input capacity.

If two exits are required, one may be a fixed ladder. Exits shall be separated by a horizontal distance not less than half the greatest horizontal dimension of the room. Interior openings between a Group H Occupancy and an incinerator room are prohibited.

Review the building for other detailed code regulations.

Section 8
Permits Required Prior to Beginning Construction

Approval is needed from a number of different local, state and federal agencies before construction can begin on the new buildings.

Local Permits

A City of Valdez building permit will be required. Preliminary and final plans of the Valdez EVOS building will be submitted to the City's building department for review. It is assumed the City will not charge a review fee for this project.

A City of Cordova building permit will be required. Final plans of the Cordova EVOS building will be submitted to the City's building department for review. It is assumed the City will not charge a review fee for this project.

Review and approval of the building plans will also be required from Tatitlek, Chenega and the City of Whittier. It is assumed that plan review fees will not be charged by these communities.

State Permits

A Coastal Questionnaire will be filled out and submitted to the Department of Governmental Coordination (DGC). A total of five questionnaires will be completed, one for each community. These will be submitted after the preliminary design is completed in early March.

An approval of the plans will be required from the ADEC. The preliminary design will be submitted to the Valdez office of ADEC for review and a follow up meeting will be held with the Department representative to discuss any critical issues identified in the preliminary design. After the plans are revised, the final design will be submitted to the agency along with a request for an "approval to construct" the facilities. At completion of the construction, asbuilts and other necessary forms will be submitted to ADEC and a request for an "approval to operate" the facilities will be requested.

Final plans and specifications of the five EVOS Stations will be submitted to the State of Alaska Fire Marshall's office for review and approval.

Federal Permits

To meet the requirements for EVOS funded projects, documents will be prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project.

An Environmental Assessment (EA) will be completed in February and published for comment by the public. The public comment period will last 30 days. Comments received will be incorporated into the final EA. Assuming there are no significant impacts identified, it is anticipated the USFS will approve the EA during April.

Section 9
Cost Estimate

Estimates of the costs for the new buildings and equipment will be presented at the January 28 SWMP meeting.

Section 10
Project Funding

There is $916,500 available for construction of the EVOS Stations and purchase of equipment. In the Phase I SWMP plan it was estimated that this funding would be spent in the manner described in the following table.

Community	Building Cost	Equipment Cost	Subtotal
Valdez	$200,000	$75,500	$275,500
Cordova	$200,000	$81,500	$281,500
Whittier	$100,000	$88,500	$188,500
Chenega	$40,000	$45,500	$85,500
Tatitlek	$40,000	$45,500	$85,500
TOTAL	$580,000	$336,500	$916,500

439,000
451,000
323,000
306,000
306,000
O/M - # +00 (L

The above costs do not include annual operation and maintenance and purchase of the land where the EVOS Station will be located. The respective communities will provide the land for the new buildings and will also provide for annual operation and maintenance of the new facilities.

On September 12, 1996 the EVOS Trustee Council approved $1,132,700 for this project. Of this amount $916,500 will be spent for construction and equipment as explained above. The remaining $216,200 will be spent on engineering design, gaining necessary agency permits, gaining a National Environmental Policy Act (NEPA) approval, construction inspection, Prince William Sound Economic Development Council, Inc. (PWSEDC) project management, developing a final report to EVOS and SWMP committee travel and meetings.

Section 11
Contractor Selection

The EVOS Stations will be constructed by independent construction contractors. The construction contractors will be selected through a bidding process. Selection will be based on low bid.

To keep construction costs to a minimum, it is anticipated that the Cordova and Valdez EVOS Stations will be bid as one project. Both buildings will be constructed by one contractor.

The Whittier, Chenega and Tatitlek EVOS Stations will also be bid as one project and constructed by one contractor. They are of similar construction and, therefore, bids will likely be lower with all three buildings combined into one project.

We may consider bidding the entire project in one package and having all five structures built by one contractor.

Combining the projects on one or two packages can reduce bidding costs, construction administration and inspection costs.

It is anticipated that bidding will take place in April and May and construction will begin in July.

Section 12
Community Authorization and Acceptance of Project

Before construction of the EVOS Stations can proceed, the communities will be required to authorize and accept responsibility for operation of the proposed facilities. Phase II construction will be approved by EVOS and ADEC, after the appropriate legally binding notarized Letters of Agreement with each of the five communities (Valdez, Cordova, Whittier, Chenega Bay and Tatitlek) are received. These agreements must be signed by an executive officer of the community who is legally entitled to obligate the community

and the Executive Director of the PWSEDC. These letters of agreement must contain, but are not limited to, agreement that:

A.) The communities will obtain all titles, easements, and permits necessary to provide clear title and authority to construct and maintain the proposed project.
B.) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management, and maintenance of the EVOS facility after construction has been completed. Accidental discharge of waste products from the facilities, after final transfer to the community had been affected, is the sole responsibility of the community where the accident occurs. In the event of an accident, PWSEDC, its agents, subcontractors, and consultants will be held harmless for resultant damages.
C.) The PWSEDC and its subcontractors may enter upon the community's property and construct the project.
D.) The agreements with the communities of Chenega Bay and Tatitlek will contain the clause: "By signing this agreement, (community) waives sovereign immunity it may have for claims arising out of its activities under this agreement."
E.) The location, construction, and management of these buildings will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream, or body of water.
F.) The PWSEDC and the community will hold harmless, the ADEC and the EVOS Trustee Council, its officers, agents, and employees from liability of any kind, including costs and expenses, for or on account of any and all suits or damages of any nature, sustained by any person, persons or property, by virtue of performance of the PWSEDC or community acting in place of or for PWSEDC for this project.

Section 13
Information Requested from Community Representatives

Assistance is requested from the community representatives to provide information to the design team. In addition, the design team has a number of questions they will ask at the January 28, SWMP committee meeting. Some of those questions are presented below. We ask that the community representatives be prepared to assist with answering these questions in the upcoming meeting.

Cordova

1. Be prepared to discuss how you intend to operate the new facility. What hours of operation do you expect? Who will be responsible for operating the equipment in the building? Will you charge for collection of the materials?
2. What will the improvements at the site look like? What type of signs would you like to have on or outside the building?
3. Will the existing oil collection tank near the harbor be left in operation?

Valdez

1. Please identify a proposed site for the new EVOS Station. Bring information about the site to the January 28 SWMP committee meeting. Helpful information would include items such as: survey plat maps, photographs of the site, aerial photos, size of the site, location and/or asbuilts of the nearest utilities, location and distance to nearby buildings and information on subsurface soils at the site.
2. Be prepared to discuss how you intend to operate the new facility. What hours of operation do you expect? Who will be responsible for operating the equipment in the building? Will you charge for collection of the materials?

3. What will the improvements at the site look like? Do you plan to have a paved parking area and outside lighting. What type of signs would you like to have on or outside the building? Do you want the site to have a security fence around it?
4. Be prepared to discuss how you would like to pump oily bilge water and how it will be transferred to the EVOS building.
5. Will the existing oil collection tank near the harbor be left in operation?

Whittier

1. Please identify a proposed site for the new EVOS Station. Bring information about the site to the January 28 SWMP committee meeting. Helpful information would include items such as: survey plat maps, photographs of the site, aerial photos, size of the site, location and/or asbuilts of the nearest electric and water utilities, distance from the proposed site to the boat harbor, location and distance to nearby buildings and information on subsurface soils at the site.
2. Be prepared to discuss how you intend to operate the new facility. What hours of operation do you expect? Who will be responsible for operating the equipment in the building? Will you charge for collection of the materials?
3. What type of signs would you like to have on or outside the building?
4. Be prepared to discuss how you will pump oily bilge water and how it will be transferred to the EVOS building.
5. Will the existing oil collection tank near the harbor be left in operation?

Chenega

1. Please identify a proposed site for the new EVOS Station. Bring information about the site to the January 28 SWMP committee meeting. Helpful information would include items such as: survey plat maps, photographs of the site, aerial photos, size of the site, location and/or asbuilts of the nearest utilities, distance from the proposed site to the boat harbor, location and distance to nearby buildings and information on subsurface soils at the site.
2. Be prepared to discuss how you intend to operate the new facility. What hours of operation do you expect? Who will be responsible for operating the equipment in the building? Will you charge for collection of the materials?
3. What will the improvements at the site look like? What type of signs would you like to have on or outside the building?
4. Be prepared to discuss how you would like to pump oily bilge water and how it will be transferred to the EVOS building.

Tatitlek

1. Please identify a proposed site for the new EVOS Station. Bring information about the site to the January 28 SWMP committee meeting. Helpful information would include items such as: survey plat maps, photographs of the site, aerial photos, size of the site, location and/or asbuilts of the nearest utilities, distance from the proposed site to the boat harbor, location and distance to nearby buildings and information on subsurface soils at the site.
2. Be prepared to discuss how you intend to operate the new facility. What hours of operation do you expect? Who will be responsible for operating the equipment in the building? Will you charge for collection of the materials?
3. What will the improvements at the site look like? What type of signs would you like to have on or outside the building?
4. Be prepared to discuss how you would like to pump oily bilge water and how it will be transferred to the EVOS building.

Section 14
Equipment Cut Sheets

The following pages contain manufacturers catalog cuts of equipment that is being considered for the EVOS Stations. All five EVOS Stations will have similar types and similar manufacturers equipment installed in them.

Oil/Water Separators and Interceptors

Working Together for a Cleaner Environment.

Highland Tank

The Highland Advantage

Highland's Oil/Water Separators provide unparalleled performance, greater structural strength, superior product compatibility, and unsurpassed corrosion resistance. Highland patented oil/water separators have a proven record of reliability with thousands of high-performance separators in commercial operation around the world.

Highland engineers have designed a functional means of primary oil/water separation that not only assists in meeting federal, state and local oil and grease discharge limitation requirements, but surpasses them. And unlike other oil/water separators, Highland Separators are easy to operate and maintain!

Highland Oil/Water Separators can be sized to accommodate a wide range of oily pollutant discharges from petroleum and non-petroleum based industries. Highland's Oil/Water Separators come in a variety of industry-proven designs, available in either a cylindrical or rectangular vessel. Single and double-wall construction is available for both underground and aboveground applications.

Each oil/water separator is backed by Highland Tank's professional design, engineering, fabrication, delivery and service. Highland never subcontracts — you receive your separator directly from one of Highland's six strategically located manufacturing facilities. This practice ensures complete quality control, from expert design to *timely delivery by our professional drivers* experienced with tank handling. The safety and security of a Highland protected steel oil/water separator is guaranteed by Highland and by the Steel Tank Institute's 30-year limited warranty against corrosion and structural failure.

When you invest in a Highland product, you *benefit from a heritage that spans five decades.* From the solid heavyweight construction to the *patented design and operating simplicity*, a Highland Oil/Water Separator is a product of experience, backed by a debt-free company with almost 50 years of private ownership and continuous management.

Highland Oil/Water Separators are competitively priced and are readily available from *numerous regional representatives* and distributors. You can depend on Highland Tank to provide you with environmentally safe and structurally sound oil/water separator solutions well into the 21st century and beyond.

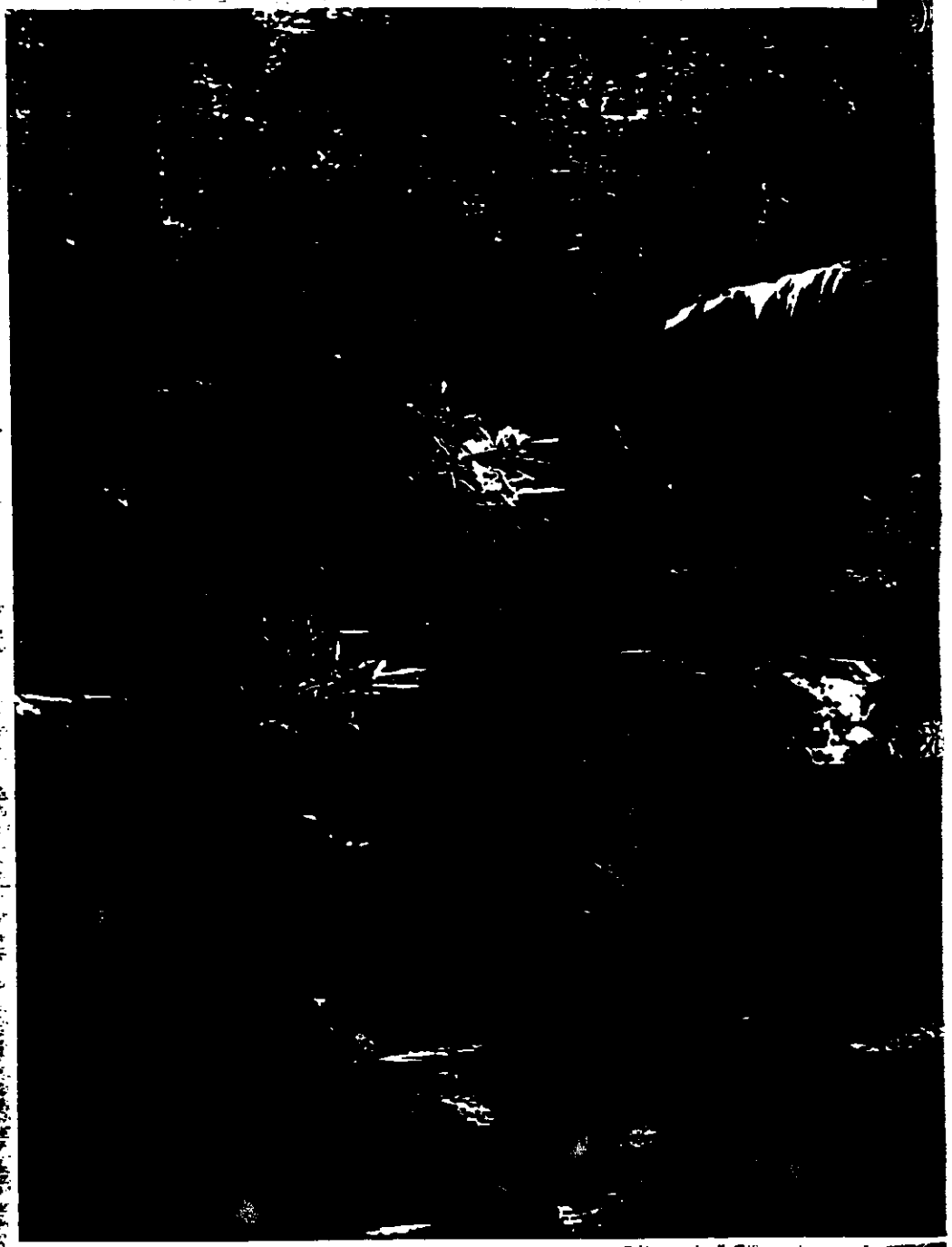
C O N T E N T S

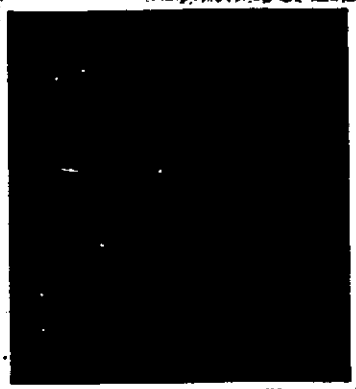
Environmental Regulations

Increasing public interest in the conservation of our nation's water resources has directly affected industries worldwide. Pressure to control harmful oil discharges and spills from industrial facilities has resulted in increasingly more stringent regulations and high penalties for noncompliance.

Oil bearing waste water discharges occur in many types of facilities, in many locations, and for many reasons. Relatively small but chronic oil discharges result from routine operations — engine and parts steam cleaning; regular vehicle maintenance and wash down; storage tank dike draining; and intentional hose-downs of loading racks, fueling islands, and vehicle parking areas.

Large, catastrophic spills usually result from human error and equipment failure associated with loading and dispensing operations. Fire and environmental codes require that the surface on which spills may





1972
Federal Water Pollution Control Act

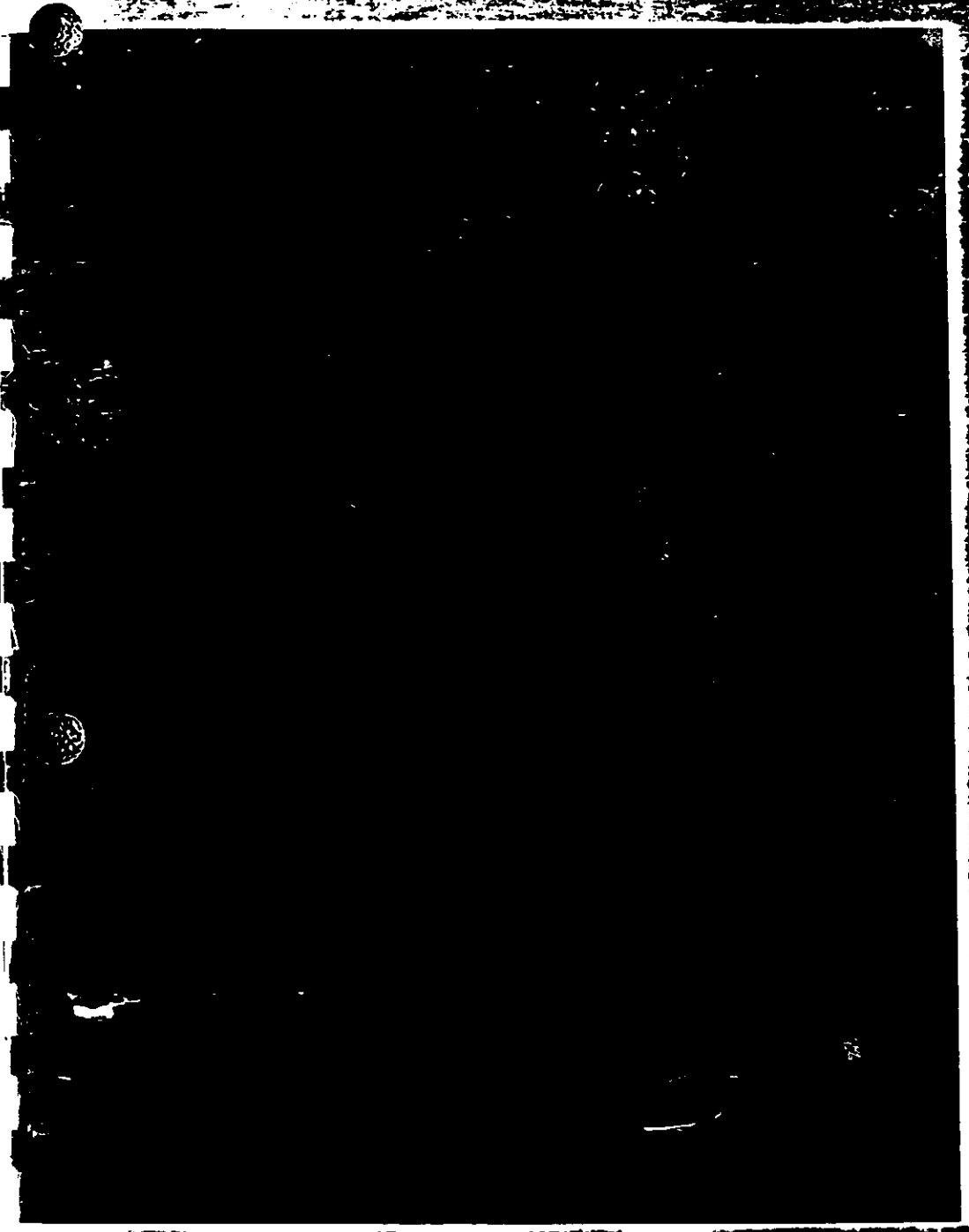
1974
Spill Prevention, Control and Countermeasures (SPCC) Plan Regulations

1976
Resource Conservation and Recovery Act (RCRA)

1977
Clean Water Act (CWA)

1980
"Superfund" Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

1984
Hazardous and Solid Waste Amendments (HSWA) to RCRA



occur be fully paved, curbed, and drained so that all spills flow to an adequately sized drain and oil/water separator. In most cases, oil and grease discharge regulations state that "any facility which discharges a harmful quantity of oil, or any petroleum product, and the oil enters a navigable body of water of the United States, by whatever means, is liable for significant penalties for clean-up costs and ecological damage."

Highland Tank offers many innovative solutions for industrial waste-water problems. Highland's Oil/Water Separator meets or exceeds current federal, state and local oil and grease limitations under the new Sewer Pretreatment Rules and Pollutant Discharge Elimination Systems Regulations for storm water discharge.

Highland Tank — helping you plan now for the future.

1986
"Superfund" Amendment and Reauthorization Act (SARA)
• • • •
Safe Drinking Water Amendments

1987
Water Quality Act (WQA)

1990
Publicly-Owned Treatment Works (POTW) Pre-treatment Rules

1990
National Pollution Discharge Elimination System (NPDES) Stormwater Regulations
• • • •
Oil Pollution Act (OPA)

1994
SPCC II Plan Regulation Revisions

?
Future Regulations

Vessel Construction

Highland Tank's Steel Oil/Water Separators and Interceptors are second to none in design, quality and workmanship. The following information describes Highland's standard vessel construction and fabrication options for steel separators and interceptors.

Single-wall

Standard single-wall vessels are constructed of mild carbon or stainless steel meeting ASTM specifications. Material thicknesses from 7 gauge to ¼" can be specified. Superior "ribbed" strength is achieved with continuous exterior full-fillet lap welds, employing a minimum 1" overlap on both head and shell joints. All separators and interceptors are factory air tested for leaks at 5 psi.

Double-wall Type I

Double-wall Type I vessels are constructed by wrapping a secondary steel wall completely around the primary vessel. Each double-wall vessel is constructed employing the same basic fabrication techniques as are used on single-wall vessels. The area between the vessel walls, known as the interstice, can be monitored with a leak detection system installed in the monitor tube, located on the vessel head.

Double-wall Type II

Double-wall Type II vessels consist of a primary vessel that is completely contained by the secondary, exterior steel wall. The two walls are physically separated by standoffs that measure 1.5" on the shell, and 3" between the heads. This heavy-duty construction is based on the same fabrication techniques used on the single-wall and double-wall Type I vessels. A fitting located between the inner and outer heads of the vessel permits monitoring of the interstice with a leak detection system.

Standard 24", 30" and 36" diameter manways permit easy access to the inside of the vessel for maintenance from above. Double bolting manways for secondary containment sumps and custom size rectangular manways are also available.

Rolling Steel
Steel plates from 7 ga. to ¼" are rolled to form the rigid shell of the vessel.

Forming Heads
Sheet steel is cut with a rotary shear and flanged to form tank head.

Welding
All separators are sealed with a continuous exterior full-fillet lap weld. Interior welding is required with interior coatings.

Rectangular Construction

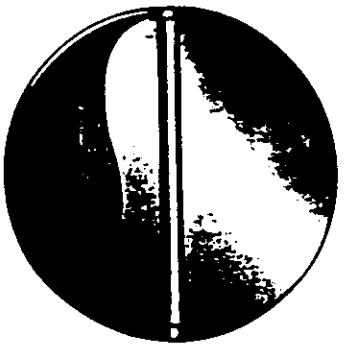
Rectangular separators are fabricated with flanged top surfaces and removable lids for easy access. All separators are constructed of a minimum 7 gauge mild carbon or stainless steel, meeting ASTM specifications. Steel plates are formed, fitted, and welded creating a separator of superior strength.

Highland Tank Oil Water Separators carry the following patents and approvals:

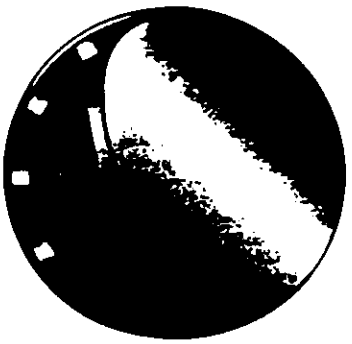
U.S. Patent # 4,702,830
Canadian Patent # 1,236,263

Approved by:
State of New York Board of Standards and Appeals
Under Calendar Number 1215 and SA
Metropolitan Dade County FL Code #93-0910-01
Massachusetts Board of State Examiners of Plumber and Gas Fitters Approval Code P1 1594-25

Single-wall



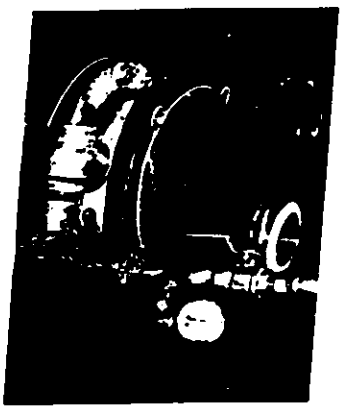
Double-wall Type I



Double-wall Type II

Rectangular

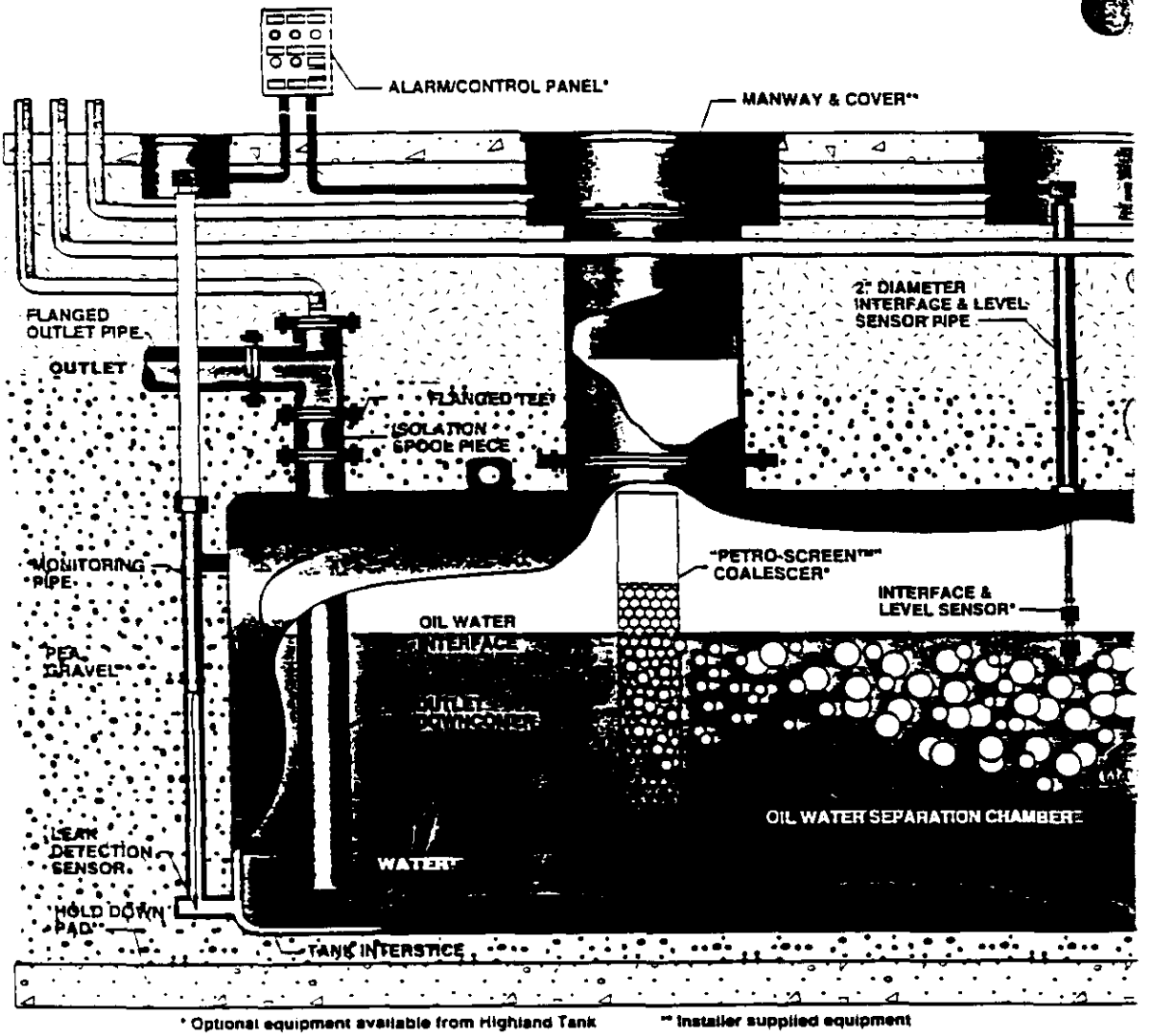
Fitting Components
Manways, flanged and threaded fittings, and other special components are fitted to the vessel, then welded in place.



Testing
All separators are air tested for leaks at 5 psi. All seams are inspected to ensure weld integrity.

Coating
Polyurethane, fiberglass reinforced polyester or other high-grade coatings are applied based on the separator's end use.

How It Works . . .



* Optional equipment available from Highland Tank ** Installer supplied equipment

Highland's Patented Design

Highland Tank's patented design combines state-of-the-art technology with time-tested materials, making Highland separators the strongest and most reliable high-performance separators in the industry.

The oil/water separator is a stationary underground, wastewater treatment vessel, filled with water. Internal baffles and coalescers accelerate the oil/water separation process. Waste accumulates within the separator while effluent is discharged by gravity.

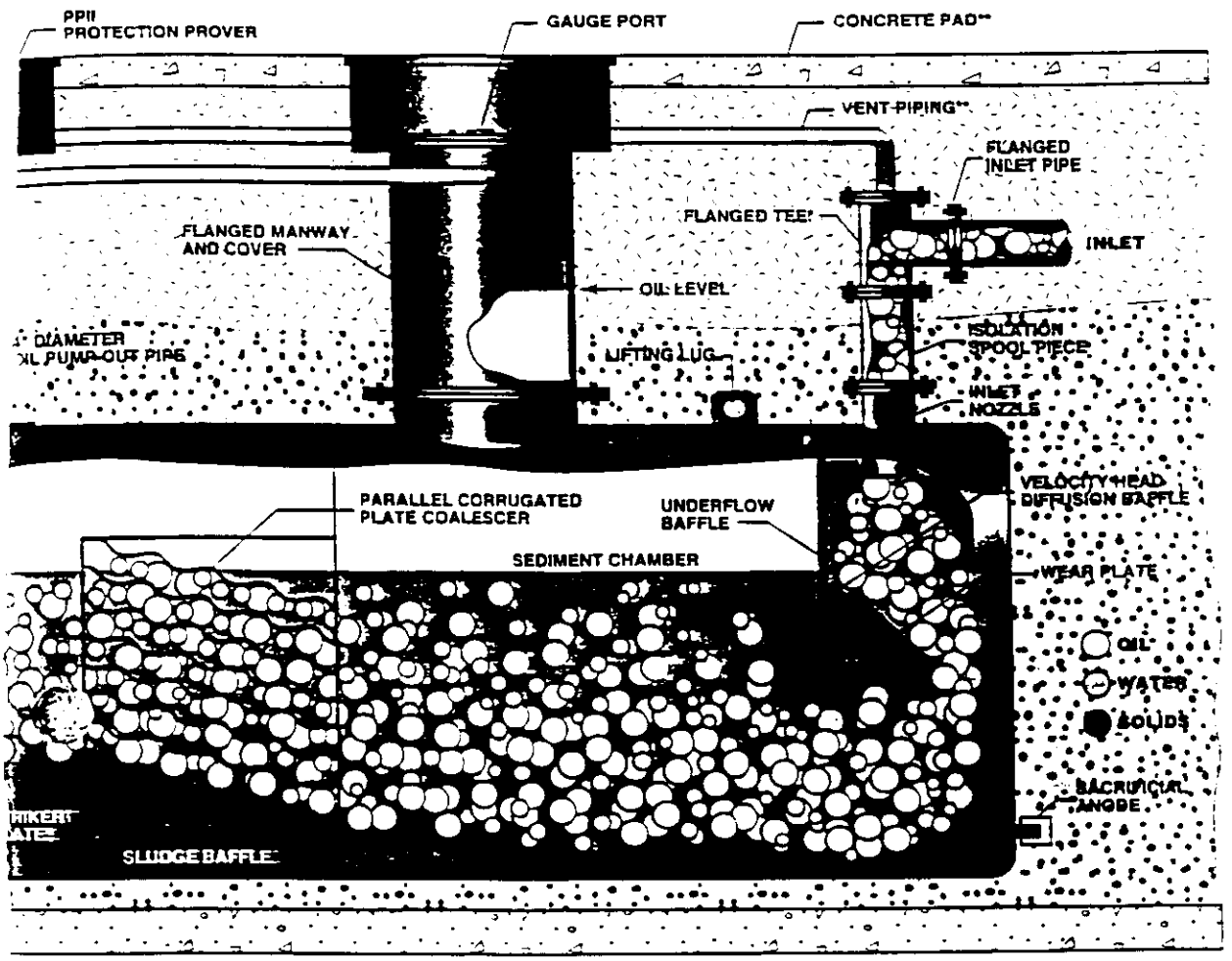
Diffusion Baffle

The velocity head diffusion baffle, located near the inlet of the separator, is designed to serve four basic functions:

1. *To dissipate the velocity head, thereby improving the overall hydraulic characteristics of the separator.*
2. *To direct incoming flow downward and outward maximizing the use of the separator volume.*
3. *To reduce flow turbulence and to distribute the flow evenly over the separator's cross-sectional area.*
4. *To isolate inlet turbulence from the rest of the separator.*

Internal Chambers

In the sediment chamber, heavy solids settle out, and concentrated oil slugs rise to the surface. As the oily water passes through the parallel corrugated plate coalescer (an inclined arrangement of parallel corrugated plates) the oil rises and coalesces into sheets on the underside of each plate. The oil then creeps up the plate surface, and breaks loose at the top in the form of large



globules. These globules then rise rapidly to the surface of the separation chamber where the separated oil accumulates.

The effluent flows downward to the outlet downcomer, where it is discharged by gravity displacement from the lower regions of the separator.

Petro-Screen™

For enhanced oil removal efficiency, a "Petro-Screen™" polypropylene coalescer (a bundle of oleophilic (oil attracting) fibers, layered from coarse to fine and encased within a solid framework) is used to intercept droplets of oil too minute to be removed by the parallel corrugated plate coalescer.

Monitoring Systems

For easy and efficient operation and maintenance, an oil level sensor can sound an alarm at high oil levels so waste oil can be removed from the separator. Double-wall separators can be furnished with a leak detection system for the interstitial space.

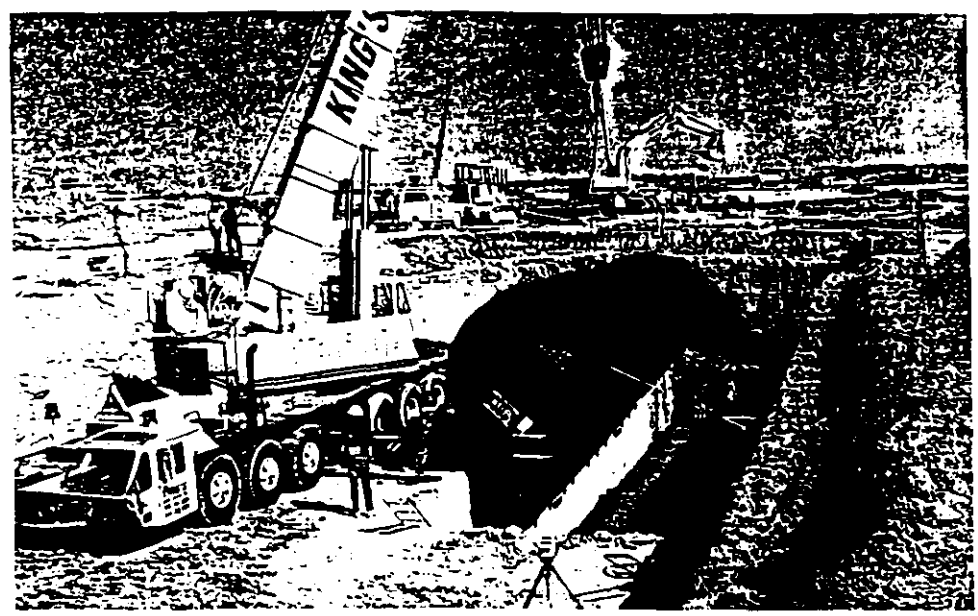
Additional monitoring equipment is available for oil or water level sensing, alarm and pumpout control.

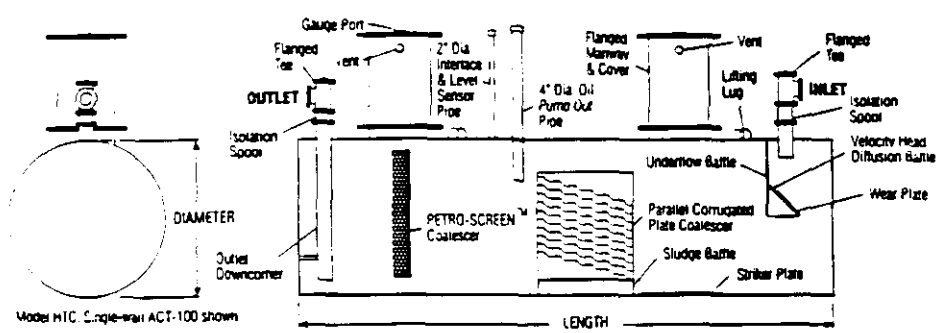
Cylindrical Design

Highland Oil/Water Separators help industries comply with oil and grease discharge regulations.

Highland Oil/Water Separators are used specifically for the removal of free floating oil, grease, and settleable oily coated solids from oil/water discharges associated with many types of industrial facilities. Designed to remove oils with a specific gravity less than .95, high performance separators from 15 ppm oil/grease discharge (Model HT) down to 10 ppm discharge (Model HTC) are available.

Highland Separators are highly efficient — treating wastewater under a wide range of conditions. All separators are of the highest quality — constructed to American Petroleum Institute (API), Underwriters Laboratories (UL), and Steel Tank Institute (STI) ACT-100 or STI-P3 specifications.





Model HTC Single-wall ACT-100 shown

Model (HT or HTC)	Total Volume (Gallons)	Total Spill Capacity (Gallons)	Inlet/ Outlet	Flow Rate (gpm)	Dimensions Diameter	Length	Approx. Wt.* (lbs.)
550	550	275	4"	55	3'6"	7'9"	2,024
1,000	1,000	500	5"	100	4'0"	10'9"	3,001
2,000	2,000	1,000	5"	200	5'4"	12'0"	4,122
3,000	3,000	1,500	8"	300	5'4"	18'0"	5,001
4,000	4,000	2,000	8"	400	5'4"	24'0"	5,760
5,000	5,000	2,500	8"	500	6'0"	23'10"	8,082
6,000	6,000	3,000	10"	600	6'0"	28'8"	9,484
7,000	7,000	3,500	10"	700	7'0"	24'4"	11,124
8,000	8,000	4,000	10"	800	7'0"	28'0"	11,959
9,000	9,000	4,500	12"	900	8'0"	24'0"	11,983
10,000	10,000	5,000	12"	1,000	8'0"	26'8"	12,696
12,000	12,000	6,000	12"	1,200	10'0"	20'6"	14,131
15,000	15,000	7,500	14"	1,500	10'0"	25'6"	19,...57
20,000	20,000	10,000	16"	2,000	10'6"	31'0"	23,316
25,000	25,000	12,500	18"	2,500	10'6"	38'9"	30,456
30,000	30,000	15,000	20"	3,000	10'6"	46'6"	35,586
40,000	40,000	20,000	24"	4,000	12'0"	47'3"	43,...39
50,000	50,000	25,000	24"	5,000	12'0"	59'0"	51,511

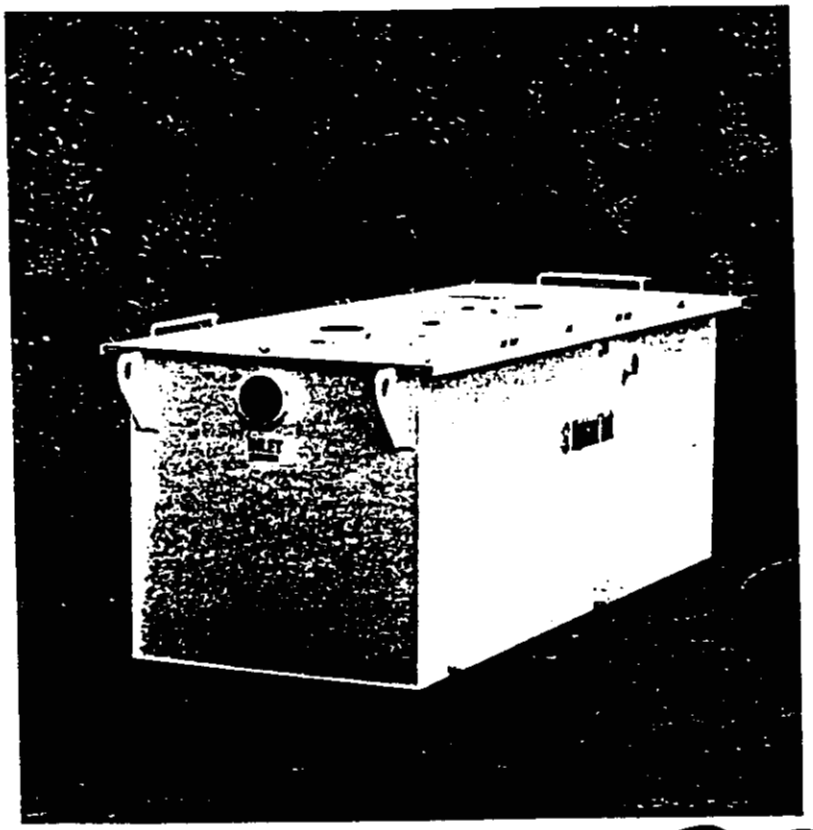
Weights shown are for Model HTC Single-wall Separators. Contact Highland for all other weights. Plate spacing and orientation may vary depending on site conditions.

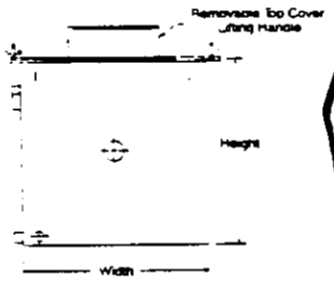
Rectangular Design

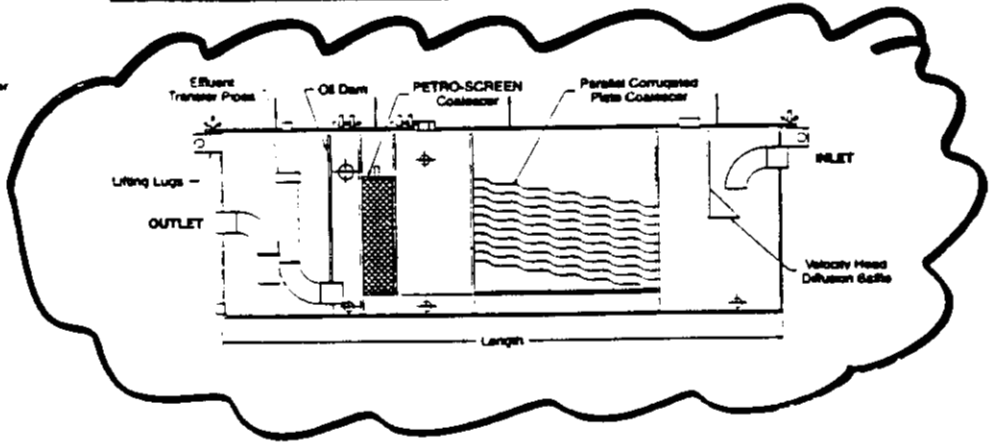
Highland's Rectangular Separators are designed for aboveground or belowground installations. These small, low flow rate models are ideal for vehicle maintenance facility wash and repair bays. All rectangular separators incorporate Highland's patented internal design and are available in both 10 gpm (HTC) and 15 gpm (HT) models.

All rectangular models have removable top panels for easy access and maintenance.

Oil or water level sensing, alarm and automatic pumpout controls, special coatings and other options are available to customize a separator to your specific needs.





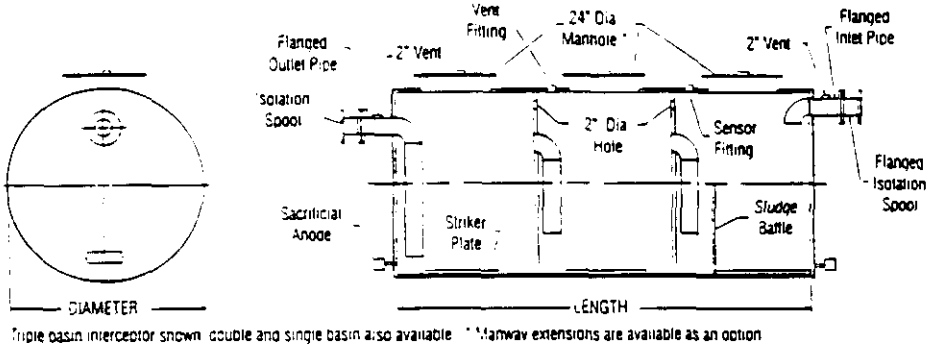


Model R-HT or R-HTC	Nominal Capacity (Gallons)	Spill Capacity (Gallons)	Flow Rate (gpm)	Dimensions L x W x H	Inlet/Outlet Diameter	Approx. Wt.* (lbs.)
200	200	80	10	5'0" x 2'0" x 3'0"	2"	975
300	300	100	25	7'0" x 2'0" x 3'0"	3"	1,150
600	600	200	50	9'0" x 3'0" x 3'0"	4"	1,850
900	900	300	75	10'0" x 3'0" x 4'0"	6"	2,145
1,000	1,000	400	100	11'0" x 4'0" x 4'0"	6"	4,380
2,000	2,000	750	200	12'0" x 5'0" x 5'0"	8"	7,150

Cylindrical Design

Highland Single, Double and Triple Basin Interceptors are engineered to collect sand, grit, grease and free oil (hydrocarbons and other petroleum products) from storm water runoff spills and vehicle maintenance operations. Highland Interceptors can be used in conjunction with high-performance oil/water separators. An optional overflow bypass is available on double basin interceptors to divert flow and prevent separator overflow. Double or triple basin interceptors may be connected directly to a sanitary sewer system or be used in conjunction with a recycle wash water system.

Highland Interceptors are highly dependable — operating under a wide range of conditions. Highland's Interceptors are constructed of the highest quality materials — to UL 58/142 and ASTM C-913 specifications. Single or double-wall construction and colors and accessories similar to those for separators are available.



Triple basin interceptor shown; double and single basin also available. * Manway extensions are available as an option.

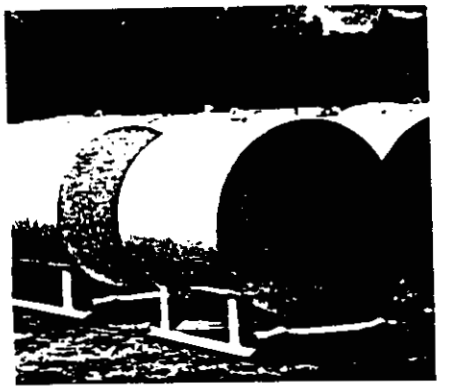
Nominal Capacity (Gallons)	Sludge Capacity SB	Sludge Capacity DB (Cubic Ft.)	Sludge Capacity TB	Flow Rate (gpm)	Inlet/ Outlet Diameter	Dimensions Diameter	Dimensions Length	Approx. Wt.* (lbs.)
550	30	20	10	55	6"	3'6"	7'9"	1,253
1,000	60	40	18	100	6"	4'0"	10'9"	1,734
2,000	120	80	35	200	8"	5'4"	12'0"	2,519
3,000	180	120	53	300	8"	5'4"	18'0"	3,323
4,000	250	160	71	400	8"	5'4"	24'0"	4,339
5,000	310	230	89	500	10"	6'0"	23'10"	6,646
6,000	375	275	107	600	10"	6'0"	28'8"	8,547
7,000	425	315	125	700	10"	7'0"	24'4"	8,361
8,000	500	385	143	800	10"	7'0"	28'0"	8,912
9,000	540	400	160	900	12"	8'0"	24'0"	9,632
10,000	600	465	178	1,000	12"	8'0"	26'8"	10,853
12,000	750	600	214	1,200	12"	10'0"	20'6"	12,279
15,000	900	685	267	1,500	14"	10'0"	25'6"	16,958
20,000	1,200	1,900	356	2,000	16"	10'6"	31'0"	20,299
25,000	1,525	1,250	445	2,500	18"	10'6"	38'9"	27,942
30,000	1,850	1,580	535	3,000	20"	10'6"	46'6"	33,089
40,000	2,400	2,000	713	4,000	24"	12'0"	47'3"	40,121
50,000	3,080	2,650	891	5,000	24"	12'0"	59'6"	47,187

** Weights given are for Triple Basin Interceptors. Other weights available upon request.*

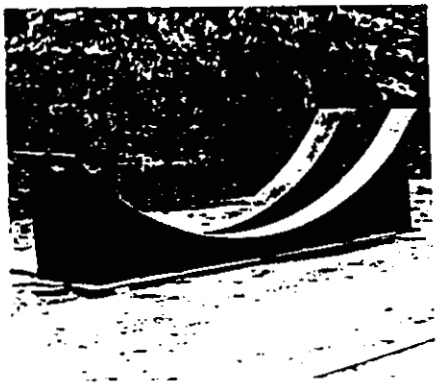
Design Options

Highland Tank custom fabricates oil/water separators and interceptors to satisfy your specific need. Separator and interceptor installations vary greatly with each location. Highland offers a wide range of design options to handle these situations. The following information illustrates some of the support options available for aboveground units, three effluent/product handling options and other operating accessories available from Highland Tank.

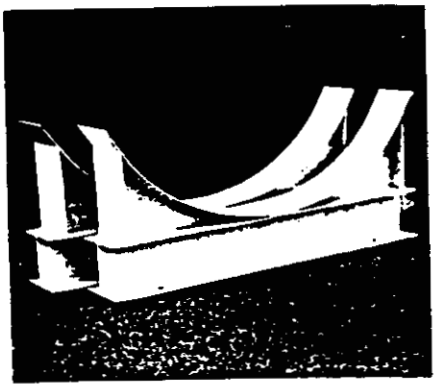
***Heavy duty skids** for 48" – 96" diameter vessels.*



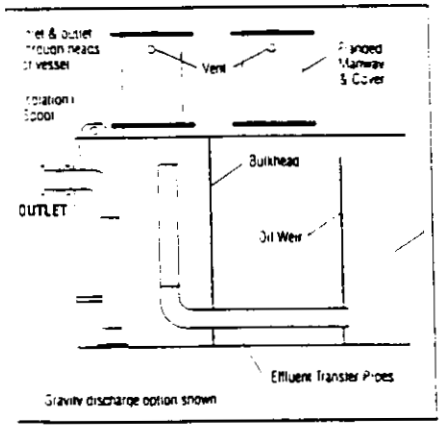
***Light duty skids** for 38" – 48" diameter vessels.*



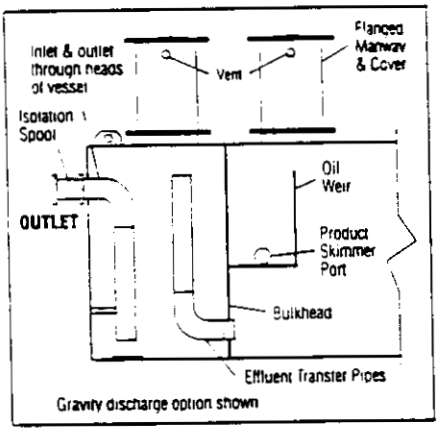
***Heavy duty saddles** for 84" – 144" diameter vessels.*



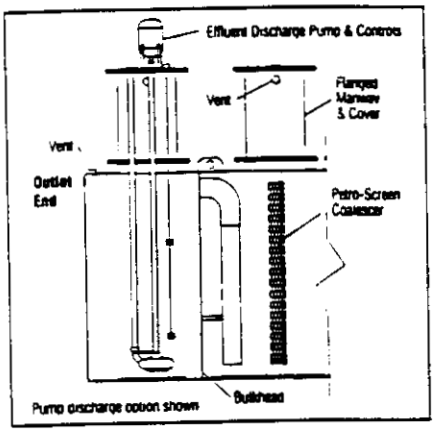
***Light duty saddles** for 38" – 72" vessels.*



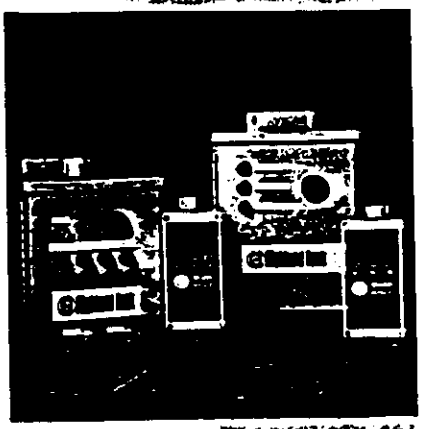
Series H
Series H Oil/Water Separators feature an integral product sump for storing separated oil. A special product weir permits the removal of only the skimmed oil by pump-out. The effluent is discharged by either pump or gravity flow.



Series I
Series I Oil/Water Separators feature an integral product reservoir for receiving skimmed oil. The oil is removed by pump or gravity through a side port to a remote oil storage tank. The effluent is discharged by either pump or gravity flow.

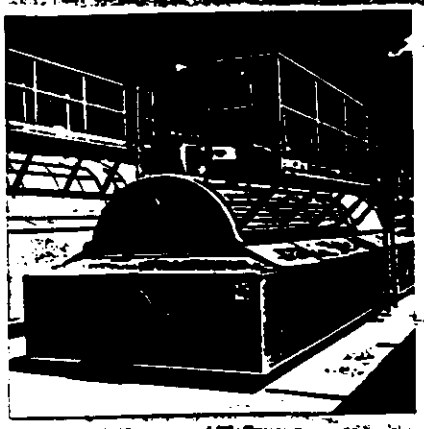


Series J
Series J Oil/Water Separators feature an integral effluent pump-out chamber with level controls to operate a pump at prescribed levels. The pumped effluent can then be routed through Highland's Activated Carbon Filtration unit.



Alarm Control Panels

Activated Carbon Filtration



Ladders, Platforms and Walkways

STI P3®
UNDERGROUND STORAGE TANKS

STI-P3 Protection System

Protective Coating
A tough, heavy duty dielectric coating of either polyurethane or fiberglass reinforced polyester covers the separator and seals it from the surrounding soil providing the first line of defense against stray current and galvanic corrosion.

Electrical Isolation
UL-Listed dielectric nylon bushings or flange isolation kits are used in each opening to electrically isolate the separator from piping, preventing the entry of stray currents or galvanic action through piping connections.

Cathodic Protection
Galvanic anodes provide protective current flow to any scratches in the coating that may occur during shipping/handling. The anodes are self-regulating, supplying current only as needed, for extra long life. Every STI-P3 separator is shipped with factory installed PP2 Protecon prover cathodic protection monitoring system.

ACT-100®

ACT-100 Protection System

Protective Coating
A tough, heavy duty dielectric coating of 100 mil fiberglass reinforced polyester covers the separator and seals it from the surrounding soil providing the first line of defense against stray current and galvanic corrosion.

Electrical Isolation
UL-Listed dielectric nylon bushings or flange isolation kits are used in each opening to electrically isolate the separator from piping, preventing the entry of stray currents or galvanic action through piping connections.

Highland Tank

Wastewater Treatment Applications

Ever increasing oil and grease discharge regulations at industrial facilities necessitate the development of spill and wastewater treatment plans and installation of equipment to implement those plans.

Typically Regulated Facilities

- Aircraft Services
- Airports
- Ambulance Services
- Automobile Dealers
- Automobile Rental Services
- Bus Companies
- Construction Companies
- Garbage Carters
- Gasoline Service Stations
- Industrial Facilities
- Military Installations
- Municipalities
- Railroads
- Taxi Cab Companies
- Trucking Companies
- Utilities

Vehicle services associated with each of these facilities might include:

  - Fueling Facilities
  - Repair and Maintenance Shops
  - Wash Areas
- Bulk Storage Tank Farms
- Hazardous Waste Sites
- Leaking Petroleum Storage Tank and Piping Remediation
- Petroleum Marketing Facilities
- Parking Lots
- Refineries
- Utility Switch Yards

Highland Design Assistance

Developing a spill control or wastewater treatment system and then selecting the proper equipment is no ordinary task!

Highland has a network of knowledgeable factory representatives located worldwide to assist you in this process. In addition, Highland offers a wide array of information that includes an engineering manual with detailed information for selecting and specifying products and accessories. Specifications and engineering drawings for standard models of separators are also available on 3.5" floppy disk.

For assistance in selecting and specifying Highland high performance oil/water separator and/or interceptor, and for the nearest Highland Oil/Water Separator representative, call or write:

Highland Tank
One Highland Rd.
Stoystown, PA 15563
814-893-5701
FAX 814-893-6126

Highland Tank

Highland Manufacturing Locations

One Highland Road
Stoystown, PA 15563-0338
Phone (814) 893-5701
Fax (814) 893-6126

99 West Elizabethtown Road
Manheim, PA 17545-9410
Phone (717) 664-0600
Fax (717) 664-0617

958 19th Street
Watervliet, NY 12189
Phone (518) 273-0801
Fax (518) 273-1365

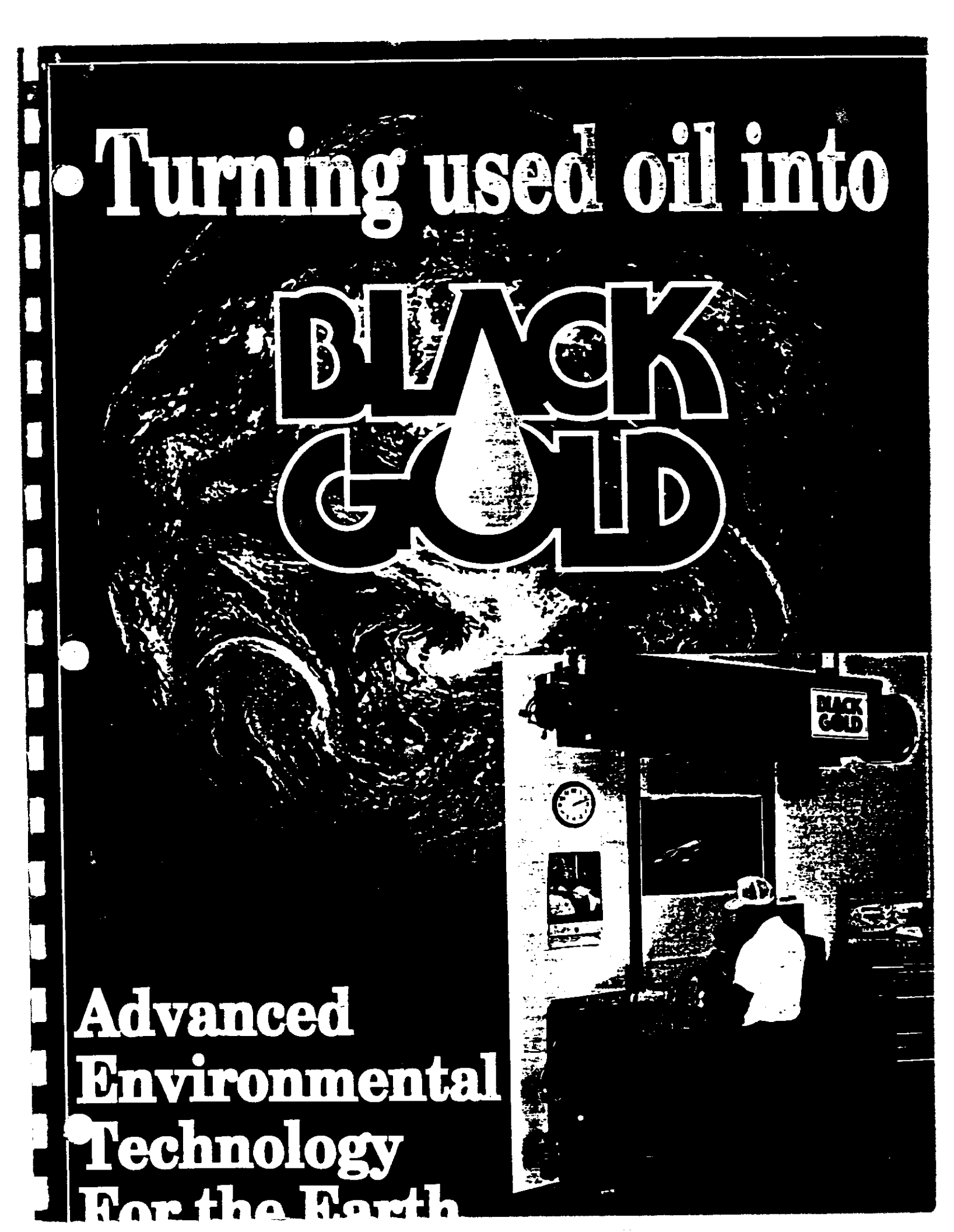
2225 Chestnut Street
Lebanon, PA 17042
Phone (717) 664-0602
Fax (717) 664-0631

2001 East Pontiac Street
Fort Wayne, IN 46803
Phone (219) 422-6191

2700 Patterson Street
Greensboro, NC 27407
Phone (910) 218-0801
Fax (910) 218-1292

Turning used oil into

BLACK GOLD



Advanced Environmental Technology For the Earth

Advanced Environmental Technologies

BLACK GOLD

Making Used Oil Profitable

For more information, contact

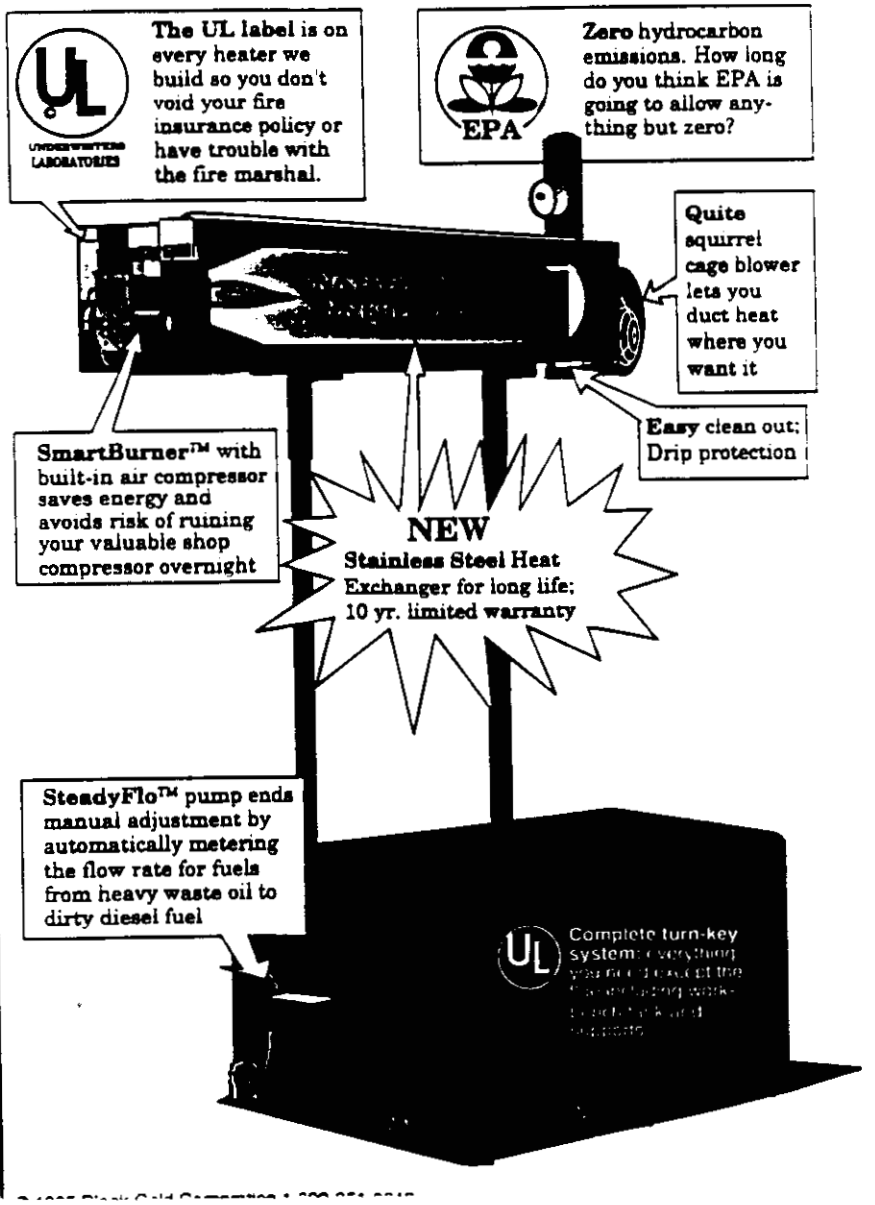
Place Stamp Here

INDUSTRIAL BOILER & CONTROLS, INC.
106 E. DOWLING RD., SUITE B
P.O. BOX 91418
ANCHORAGE, AK 99509-1418
(907) 562-2827

OIL FURNACE

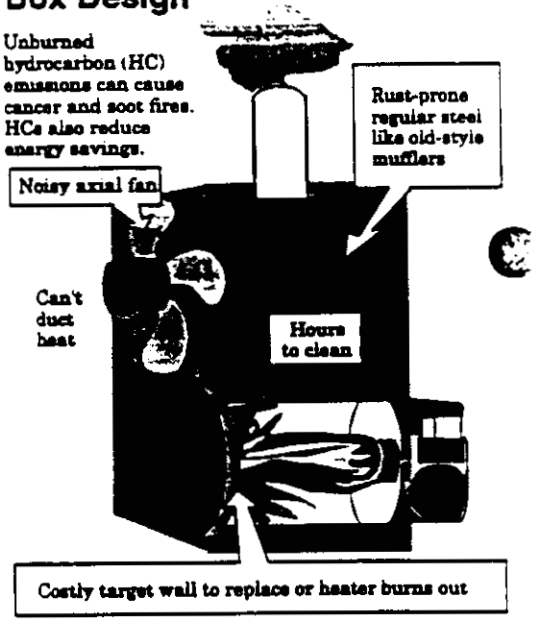
Black Gold Heater

Simply the Best On-Site Used Oil Recycling System for Clean Free Shop Heat and Hot Water



Competitor Heater

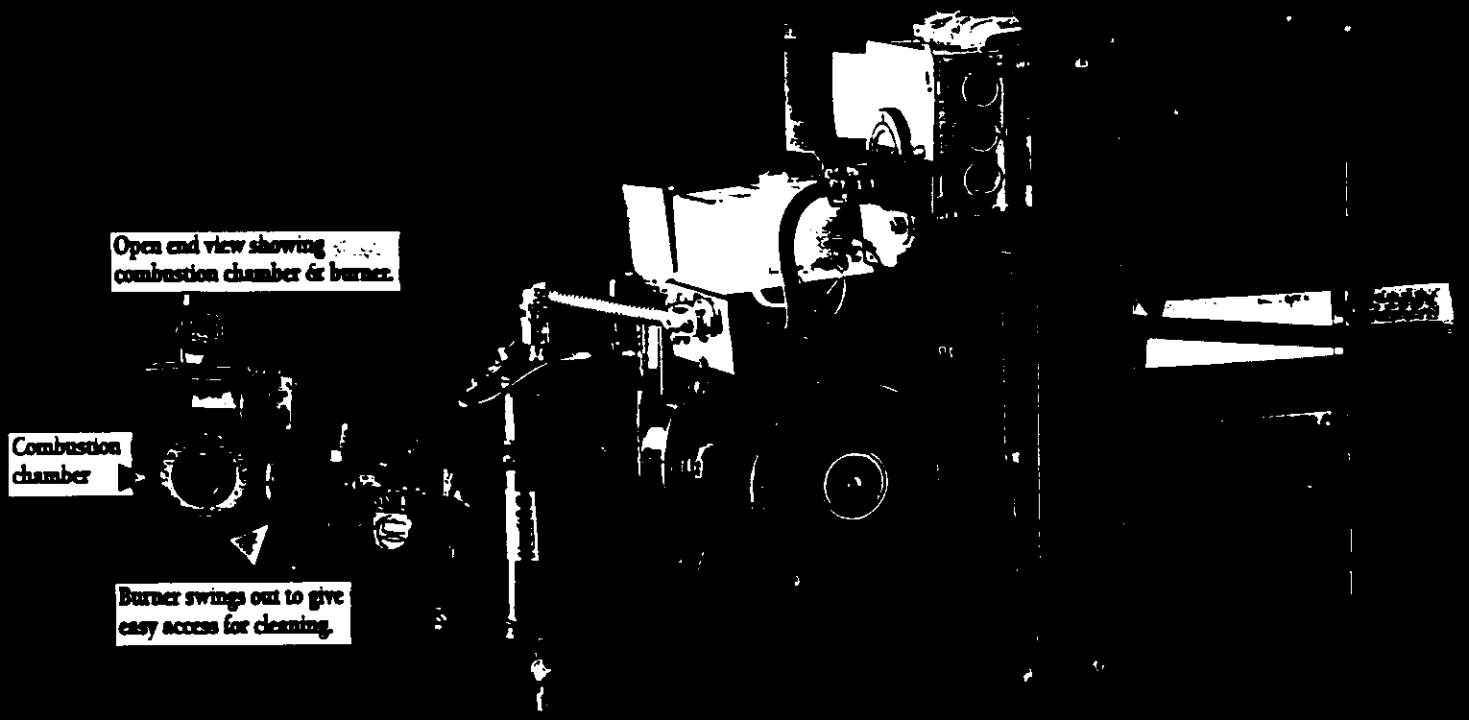
Say Good-bye to Old-Style Box Design



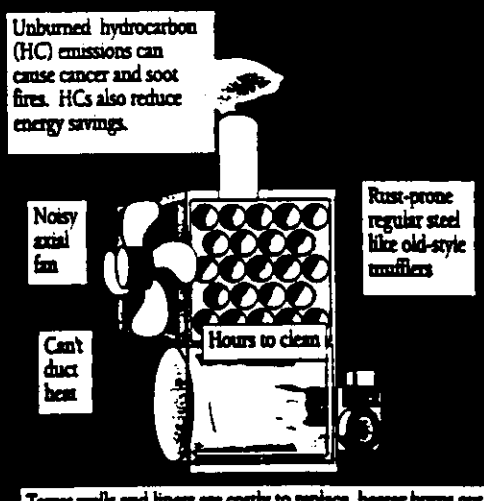
PEPSI · AmericanAirlines AA · J I CASE · KENWORTH · Navistar International · Jiffy Lube · JOHN DEERE · State of Alaska · USAir

These trademarks are owned by the respective named companies.

Thousands of businesses and government facilities chose Black Gold to save money and end their liability. They wanted reliable, automatic heat with long-life design, UL label and zero emission of hydrocarbons. Independent experts call the Black Gold Waste Oil Heater, *"the quickest and easiest to install and maintain ever built."*



Eliminates All The Problems Of The Older Box-Style Heaters



Pollution Free

- ▲ High temperature flame + long combustion chamber = highest air quality
- ▲ Zero hydrocarbons & zero % carbon monoxide emissions
- ▲ Exceeds every Government standard

Carefree Performance

- ▲ Black Gold PTC oil preheater keeps maximum temperature in "trouble free zone"
- ▲ Built-in compressor protects your shop air compressor
- ▲ No target walls and liners to replace
- ▲ More energy savings because your fuel burns more completely
- ▲ No hot spots after extended use

Easy To Use, Easy To Clean

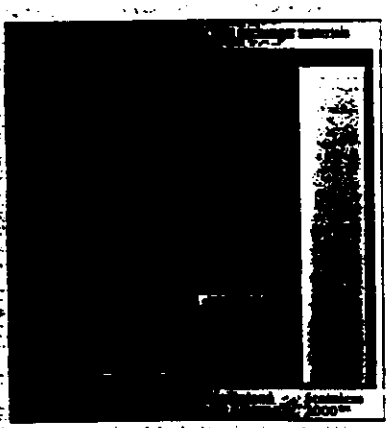
- ▲ No manual fuel adjustments due to automatic Steady Flo™ metering pump
- ▲ Quiet, ductible heat, up to 30 feet, with high capacity squirrel cage blower
- ▲ Fast cleaning, with straight horizontal cylinder and burner swing out

Meets Highest Standards

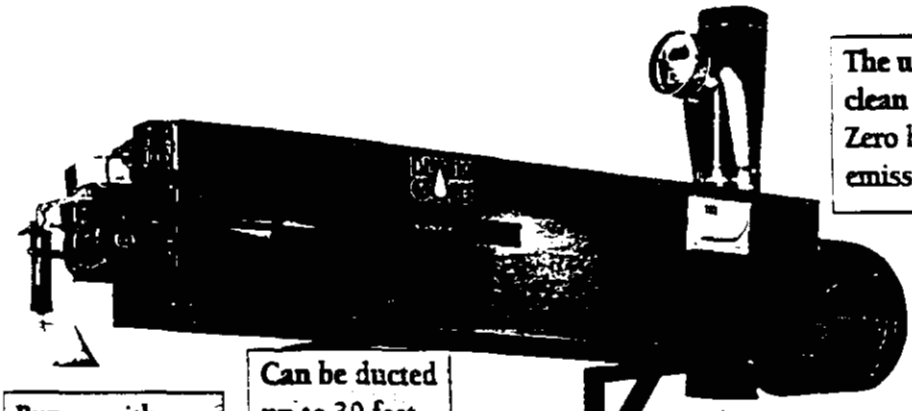
- ▲ The entire system, including tank, is safety tested & listed by Underwriters Laboratories, Inc. (UL) in the U.S. and (ULC) in Canada
- ▲ Meets National Fire Protection Association (NFPA)Standards

Stainless Steel

- ▲ Stainless 2000™ heat exchanger withstands 2000° F temperatures without embrittlement or corrosion



Older technology uses carbon steel heat exchangers rated at only 800° F



The ultimate in clean air protection: Zero hydrocarbon emissions.

PTC oil pre-heater **with solid-state reliability.**

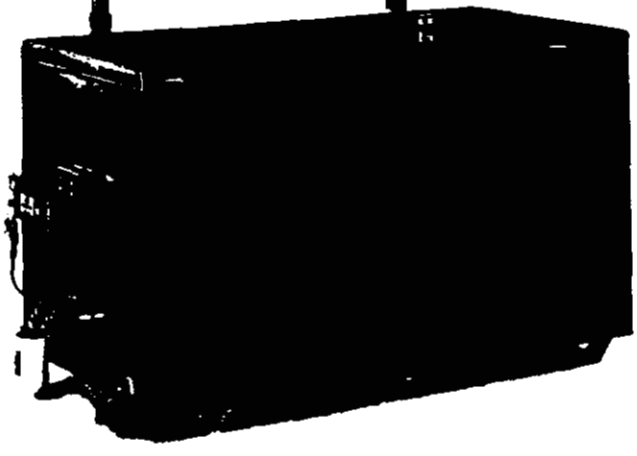
Quiet squirrel cage blower lets you duct heat where you want it.

Burner with built-in air compressor saves valuable shop air system.

Can be ducted up to 30 feet.

Easy clean out; drip protection.

The UL (USA) and ULC (Canada) **labels protect you from voiding your fire insurance policy.**



SteadyFlo™ Pump ends manual adjustments by automatically metering fuels from heavy waste oil to dirty diesel fuel.

Complete turn-key system: everything you need except the flue. Includes workbench tank and supports.

Discover what thousands of users and reviewers know:

"We replaced six to eight gas hot air furnaces with two Black Gold systems . . . they have completely eliminated our monthly $1,100 heating bill and have done away with all the liability of the used oil our service department generates."

Larry Neu, Neu Motors
Erie, Pennsylvania

"The quickest and easiest waste oil system to install and maintain..."

Auto Service Today

"With Black Gold, used oil is a profit center."

Randy Mitchell, Service Manager,
Saturn of Cool Springs, Tennessee

PSI · AA · J I CASE · KENWORTH · Jiffy Lube · Navistar International · JOHN DEERE · Canadian Government Yukon & Northwest Territories

e a few of the businesses and government facilities that have chosen Black Gold to save money and end their liability

Distributed By:

NuERA Technologies, Inc. Steven R. Ransom

Profitable Waste Management

- *Waste Oil Furnaces*
- *On Site Disposal/Recycling Eq.*
- *Waste Assessment & Minimization Programs*

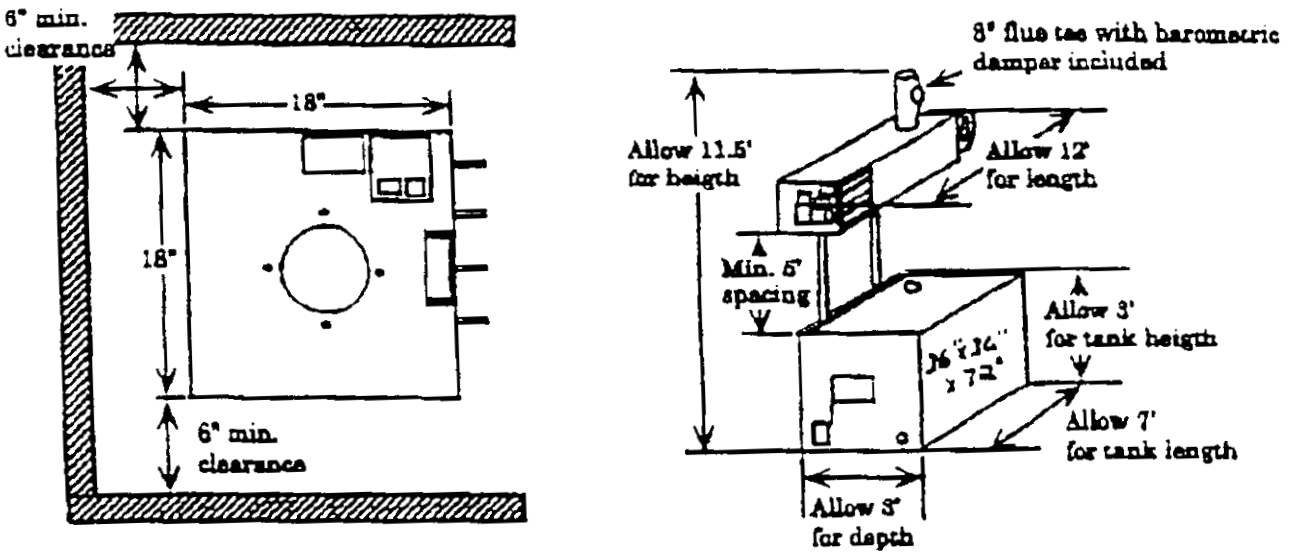
800-347-9575

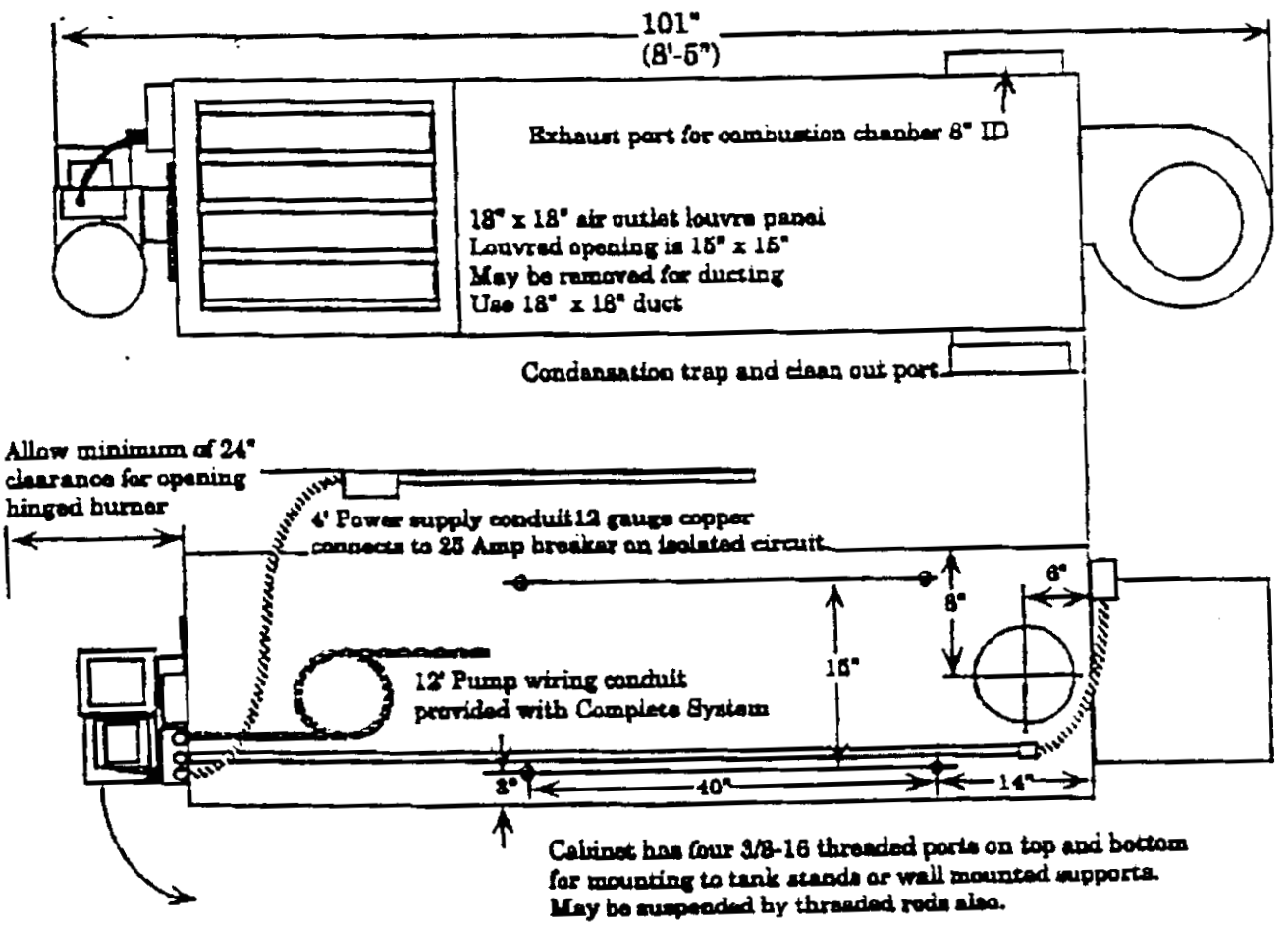
N.W. REGIONAL OFFICE
ALASKA OFFICE

:RA TECHNOLOGIES, INC.
P.O. Box 5357
ENT, WASHINGTON 98064
) 630-0362 (206) 639-3630

Sun 2 Installation Cut Sheet
Black Gold Corporation

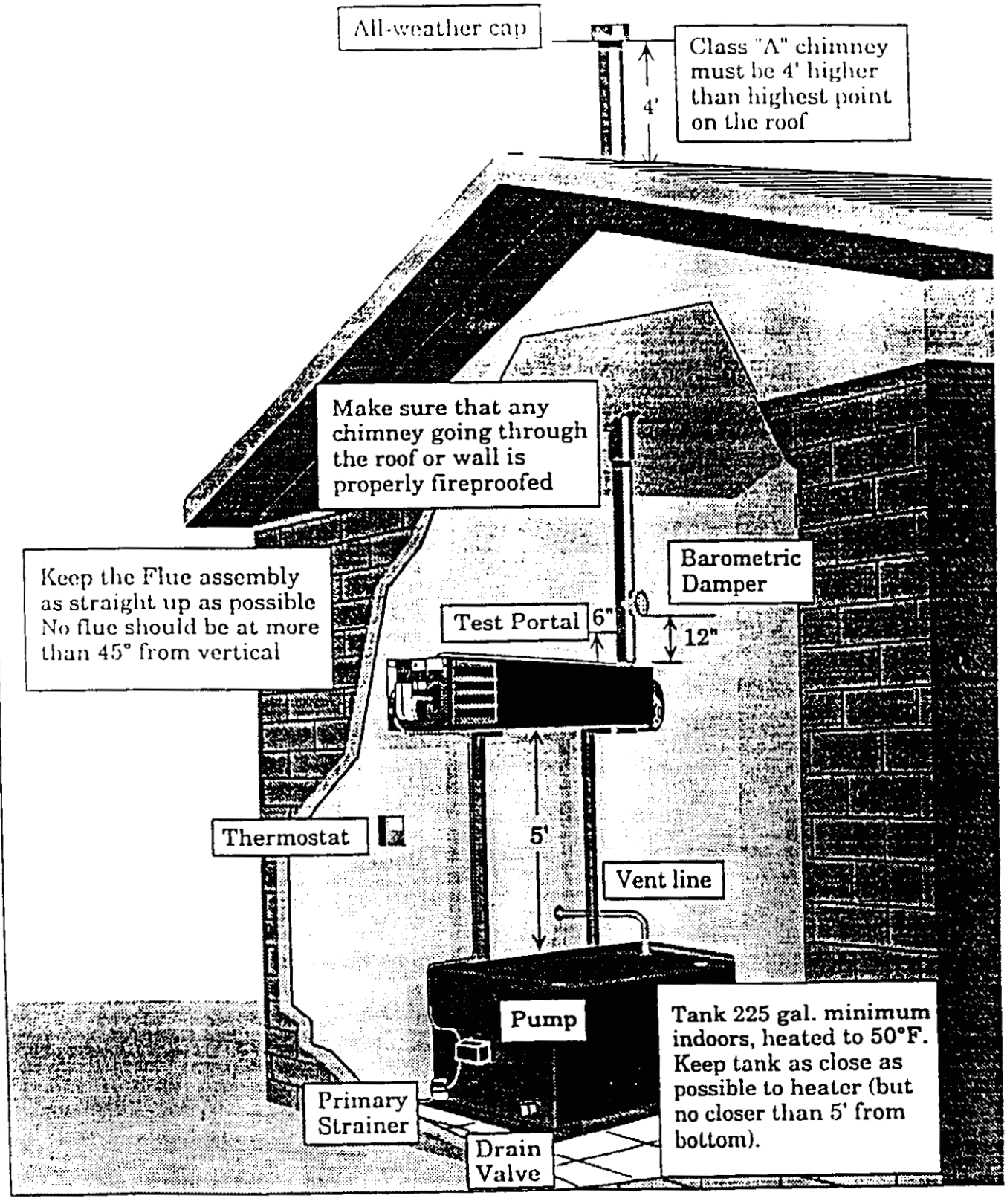
Cabinet weight with burner and blower: Appr. 200lbs
Tank weight empty: Appr. 400lbs
System electrical draw: Appr. 14 amps.
Flue diameter: 8 inches



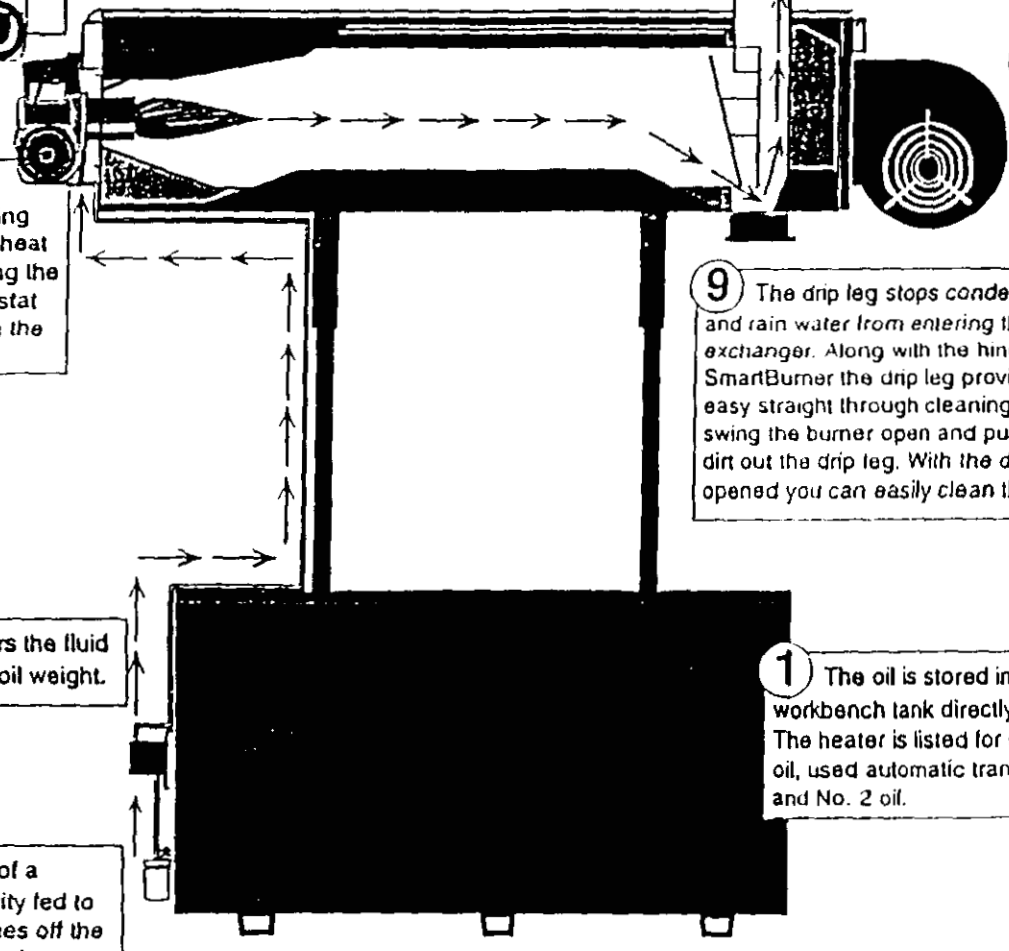


Typical Furnace Installation

This illustrates a typical furnace installation.
Use this page as a reference through out your installation.



Black Gold Process Schematic



5 The SmartBurner preheats the fluid to 170° F - 200° F then atomizes the fluid with 8 - 11 psi of compressed air from the integral air compressor. This allows the unit to burn at temperatures of 2400° F.

6 The Heat is distributed through the Stainless Steel heat exchanger which has no target wall to burn out and resists corrosion. It also stands up to constant exposure to temperatures 200° higher than regular steel

7 The exhaust is vented from the building after passing directly in front of the blower to get maximum efficiency. The exhaust has zero hydrocarbons and carbon monoxide which means that it burns cleaner than a new automobile.

8 The 10 inch squirrel cage blower can quietly scrub the heat exchanger and allow you to move the hot air through duct work up to thirty feet. The blower has a free air flow rating of 2000 cubic feet per minute.

4 The SmartBurner control saves energy and maintenance by only heating the fluid when the thermostat calls for heat and by cooling the block before shutting the SmartBurner off when the wall thermostat is satisfied. It even shuts off preheat in the case of safety control shut down.

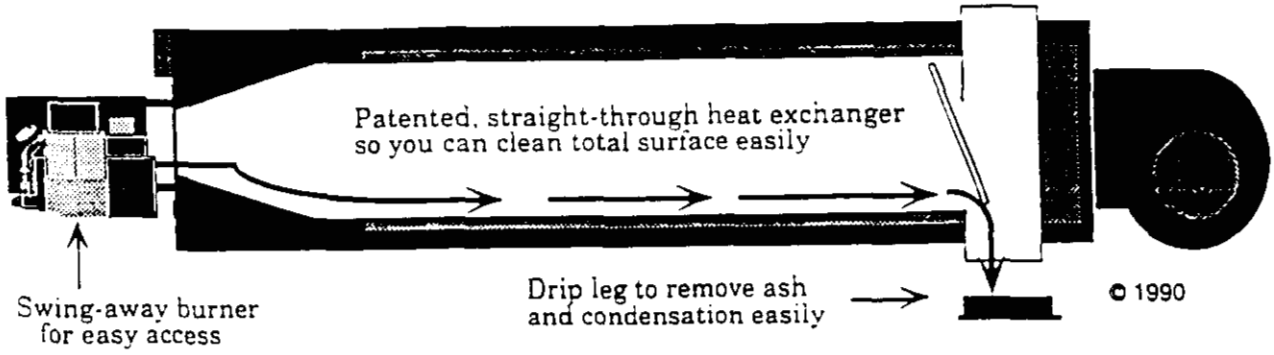
9 The drip leg stops condensation and rain water from entering the heat exchanger. Along with the hinged SmartBurner the drip leg provides for easy straight through cleaning. Just swing the burner open and push all the dirt out the drip leg. With the drip leg opened you can easily clean the flue.

3 The SteadyFlo pump meters the fluid flow to the burner regardless of oil weight.

1 The oil is stored in the UL listed workbench tank directly from the source. The heater is listed for used crankcase oil, used automatic transmission fluid and No. 2 oil.

2 To eliminate the possibility of a suction side leak the fluid is gravity fed to the strainer through a port 5 inches off the bottom of the tank. This will keep the water and dirt which settles to the bottom from getting to the pump. The tank has a drain valve to remove the water and sludge.

"Quickest and easiest waste oil system to install and maintain."
Auto Service Today



Why Black Gold is [illegible] the Best

Simple to Install, Use

- Turn-key system includes everything but the flue
- Toll-free customer support and "how-to" video
- No combustion chamber or target wall (see above) to replace
- Straight-through design (shown above) cleans in minutes, twice a season

Clean, Safe

- Quiet and odorless
- Unique hot filter (see lower right) cleans and pre-heats oil for efficient burning
- Praised by Oil Heating Institute for "zero smoke"
- UL-listed; exceeds UL, EPA, & NFPA requirements

Cost Effective

- Saves fuel and hauling costs; ends hauler liability
- Built-in air compressor (see lower right) —no shop air needed
- Very efficient burning means more heat per gallon
- Water heating option to recycle all year
- Above-ground workbench tank adds work surface, ends Underground Storage Tank (UST) costs
- Aluminized heat exchanger assures long life
- Fully tax deductible; tax guide included
- Accepting do-it-yourselfer oil makes you an environmental hero and gets more free fuel for you
- Lease-purchase plan for as little as $145 a month

Specifications

Black Gold Recycling System:

Power requirements: 115 volts, 60 Hz, 20 amps

Burner: Patented multi-oil, swing-away plug-in

Firing rate: 1.4 GPH; 200,000 BTUs/hr.

Outlet air temp: 200° F max.

Listed fuels: waste crankcase oil, lube oils, and ATF; Nos. 1 and 2 fuel oil

Heater: 200 lbs.; 81" L, 18"W, 18" H

Fuel tank and workbench with support stands: 450 lbs.

Tank: 62" L x 36" W x 36" H

Patent #s: US4487571, C1220127, US4955359

Massachusetts State Fire Marshal Approval #: WOHA16C

Safety tested and listed as UL's Waste Oil Burning Appliance #: MH15602.

Black Gold Options:

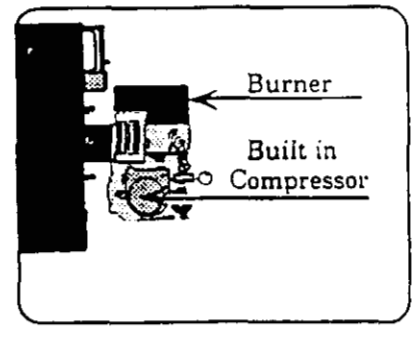
Water Heater for all-year use

The Shuttle™ for oil collection and transfer to your tank

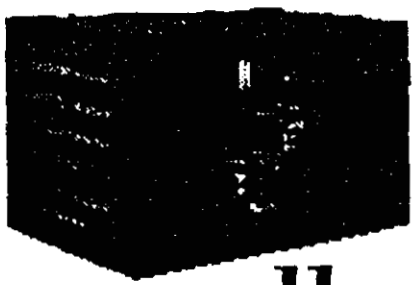
Through-the-Wall Flue to cut venting costs

Energy Recovery Unit for even greater heating efficiency

Specifications subject to change without notice



If you are comparing waste oil heaters



only one can give you all of these features built in!

Product Comparison

Write the other heater manufacturers name in empty heading and see if they can give you all of these features—— put a check mark in each box when the answer to that feature is yes

	Black Gold	
U.L. Listed Complete System, Furnace and Tank	✓	
Burns Clean—Zero Hydrocarbons and Carbon Monoxide (documented)	✓	
SmartBurner	✓	
SteadyFlo Metering Pump (adjusts automatically for fuel weight)	✓	
Squirrel Cage Blower	✓	
Draft Gauge	✓	
Barometric Damper	✓	
Hot Water Option (allows you to burn all year)	✓	
Fires Lengthwise (No Target Wall to burn out or replace)	✓	
Stainless Steel Heat Exchanger	✓	
Built In Compressor	✓	
Less Maintenance	✓	
Built in Moisture Trap (prevents rust and corrosion)	✓	
Easiest to Clean (under an hour)	✓	
Burner Exchange Program	✓	
Up Grade Available (when new technology is offered)	✓	
Installation Video Standard	✓	
Performance Guaranty	✓	
800 Number for Support	✓	
Environmental Attorney on Staff to Work with Fire Marshals & EPA	✓	

BLACK GOLD Waste Oil Furnaces

Adding Profit to Your Business

For more information
NuERA TECHNOLOGIES INC.
800-347-9575

Black Gold On-Site Waste Oil Recycling Systems Specifications

Heater Design Specification

Horizontal configuration made in the U.S.A.
Able to burn the following petroleum products:

a. waste crankcase oils
b. lubricating oils
c. automatic transmission fluids
d. No. 2 heating oils (ASTM D396)

Safety

1. UL tested and listed
2. Meets National Fire Protection Association standards
3. Every burner test fired with used oil and safety controls tested before shipping
4. All cabinet wiring safety tested before shipping
5. Automatic flame loss cut-off
6. High temperature limit switch for safety cutoff
7. Heat shield to prevent hot spots on cabinet
8. 165°F fuel shut off fire safety valve
9. Zero HC emission to prevent soot fires

Easy Installation and Maintenance

1. Right or left hand adaptation
2. Turnkey system includes everything needed for installation except flue
3. Air atomizing detachable hinged plug-in burner with fuel preheater
4. Unit can be ducted
5. Through the wall vent option for less installation cost
6. Built-in drip leg clean-out tee to keep moisture out of the heat exchanger and for ease of flue cleaning
7. Hour meter for run time maintenance intervals
8. Installation and maintenance video
9. Straight through cleaning on heat exchanger
10. Stainless steel heat exchanger to resist rust and corrosion
11. Spin-on stainless steel wire mesh fuel filter
12. No ceramic combustion chamber, chamber liner or target wall to replace
13. Metering pump that automatically handles fuels of viscosity from diesel fuel to crankcase oil without adjustment

Efficient, Clean and Quiet

1. Heat efficiency at least 75%
2. Warm air temperature rise of at least 100°F
3. Efficiency maintained by forced air through 73 sq. in. cross sectional area to scrub heat exchanger.
4. Flame temperature at maximum @g rate of at least 1,800°F at 7% Oxygen or 10% Carbon Dioxide, with Zero cancer-causing Hydrocarbons emissions burning used oil
5. Quiet squirrel cage blower
6. Zero hydrocarbons to maximize energy savings from system

Specifications

1. Shipping weight of ~~650 lbs.~~ w/Tank ~ 1,000 #
2. Input capacity of approximately 200,000 BTU per hour (1.4 GPH)
3. Standard 2000 CFM @.4 in. WC blower Heat
4. Heat exchanger, Stainless Steel, 14 in. diameter, 71 in. long
5. Heat shield, 17 in. diameter by 44 inches long
6. Automatic electronic ignition
7. Burner mounted integral air compressor rated 1.0 CFM at 10 PSI
8. Completely automatic thermostatic control
9. Self priming fuel metering pump that requires no adjustment to maintain flow
10. Electrical fusing requirement of 115 volts, 60 Hz 25 ampacity
11. 250 gallon workbench tank with telescoping heater support stands - UL Listed
12. Flue diameter of 8 inches
13. 8 inch barometric flue control to minimize draft variations
14. 1/2 inch tank drain valve
15. 3/8 inch copper fuel line for pump to burner connection
16. 120 volt power supply and fuel wiring harness connections
17. Unit may be suspended from the ceiling with clearance to combustible material not less than: top-6 in., warm air duct within 3 ft. of furnace-6 in., front-24 in., flue pipe-18 in., back-6 in., sides-6 in., furnace plenum-6 in., bottom-6 in.

Warranties

1. Heater and all components shall be warranted against defect or failure by manufacturer for one year from date of purchase; 10 year limited warranty on heat exchanger
2. Buy back guarantee-see attached literature
3. Burner exchange program

NuERA Technologies, Inc.

~ 16·96

NW REGIONAL OFFICE
P.O. Box 5357
Kent, WA 98064
(206) 630-0362/ 639-3630
(800) 347-9575

ALASKA OFFICE
P.O. Box 112332
Anchorage AK 99511
(907) 345-6411

PRICING
BLACK GOLD FURNACE & ACCESSORIES
FOB SEATTLE 9/1/95

*Sun 2 Furnace. Furnace included accessories: **AIR COMPRESSOR**, Ductable squirrel cage warm air blower, **STEADY-FLO** fuel metering pump, #100 mesh inline filter, Thermostat, Barometric damper, Time meter, and miscellaneous items.		$4,580
OPTIONS:		
250 Gallon workbench tank — "U.L." Listed (330 gallon workbench tank: $1297) (275 gallon oval tank: $495)		785*
*Furnace stand to tank		85*
*Tank gauge		65*
*Flue materials (standard thru ceiling-roof package with 6" Metalbestos)		385*
*Plumbing materials (copper tubing & fittings)		80*
Hot water heating module	$1200	
Technical assistance & certification for customer-installed package: set-up, tune and adjustment, warranty validation, *operational and service training to company personnel* (within reasonable driving access, otherwise, plus travel expenses).	295	
*Complete turn-key INSTALLATION package: materials and labor (variable with travel requirements and building parameters). CUSTOMER SUPPLIES 115 volt, 20 amp circuit to equipment and permitting if required.		$1,000*
*TOTAL TURN-KEY, Sun 2 Package with workbench tank & installation (typically) (items *'d above).		$6,980
*TOTAL CUSTOMER-installed Package System (Items *'d above)		$5,980

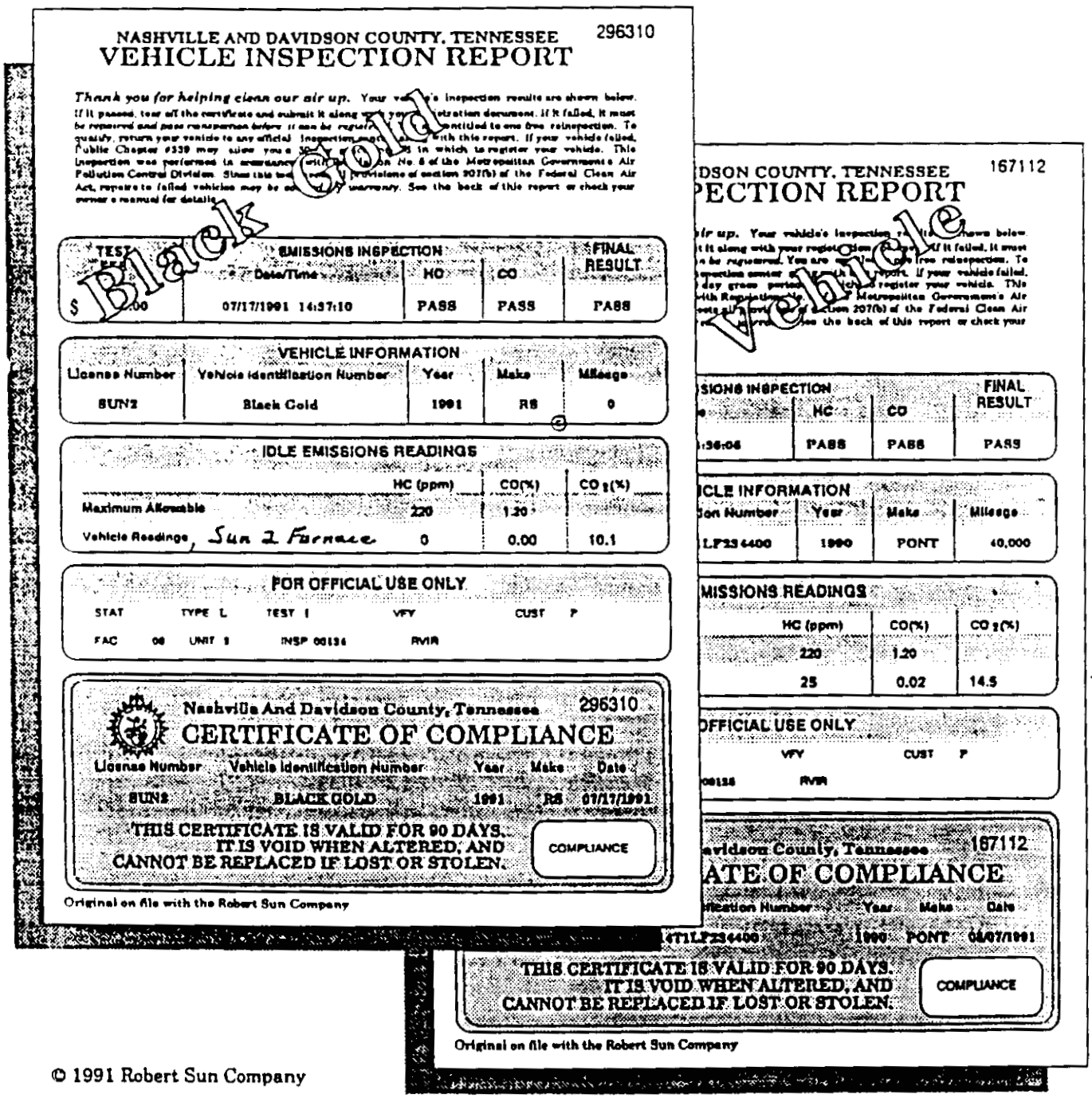
$5,450
+ 250 shipping to Fairbanks
$5,700 To

Terms: Initial 50% deposit per furnace; balance upon delivery/ installation. Lease/purchase programs also available.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

220 Times Cleaner Than A New Car

Black Gold was tested at an EPA emissions test center for air quality control. Results prove that we are the clean answer to a dirty problem, with zero HC and zero CO—220 times cleaner than the EPA standard set for new cars.



NASHVILLE AND DAVIDSON COUNTY, TENNESSEE 296310

VEHICLE INSPECTION REPORT

Thank you for helping clean our air up. Your vehicle's inspection results are shown below. If it passed, tear off the certificate and submit it along with your registration document. If it failed, it must be repaired and pass reinspection before it can be registered. You are entitled to one free reinspection. To qualify, return your vehicle to any official inspection station with this report. If your vehicle failed, Public Chapter #339 may allow you a 30 day grace period in which to register your vehicle. This inspection was performed in accordance with Regulation No 6 of the Metropolitan Government's Air Pollution Control Division. Since this test was performed in accordance with provisions of section 207(b) of the Federal Clean Air Act, repairs to failed vehicles may be obtained under warranty. See the back of this report or check your owner's manual for details.

Black Gold

TEST FEE	EMISSIONS INSPECTION Date/Time	HC	CO	FINAL RESULT
$ .00	07/17/1991 14:37:10	PASS	PASS	PASS

VEHICLE INFORMATION

License Number	Vehicle Identification Number	Year	Make	Mileage
SUN2	Black Gold	1991	RS	0

IDLE EMISSIONS READINGS

	HC (ppm)	CO(%)	CO_2(%)
Maximum Allowable	220	1.20	
Vehicle Readings, Sun 2 Furnace	0	0.00	10.1

FOR OFFICIAL USE ONLY

STAT TYPE L TEST I VFY CUST P

FAC 08 UNIT 1 INSP 00134 RVIR

Nashville And Davidson County, Tennessee 296310

CERTIFICATE OF COMPLIANCE

License Number	Vehicle Identification Number	Year	Make	Date
SUN2	BLACK GOLD	1991	RS	07/17/1991

THIS CERTIFICATE IS VALID FOR 90 DAYS. IT IS VOID WHEN ALTERED, AND CANNOT BE REPLACED IF LOST OR STOLEN.

COMPLIANCE

Original on file with the Robert Sun Company

DSON COUNTY, TENNESSEE 167112

PECTION REPORT

ir up. Your vehicle's inspection results are shown below. t it along with your registration document. If it failed, it must n be registered. You are entitled to one free reinspection. To inspection station with this report. If your vehicle failed, day grace period in which to register your vehicle. This with Regulation No 6 of the Metropolitan Government's Air ests of 207(b) of the Federal Clean Air see the back of this report or check your

Vehicle

SIONS INSPECTION	HC	CO	FINAL RESULT
:36:06	PASS	PASS	PASS

CLE INFORMATION

on Number	Year	Make	Mileage
LF234400	1990	PONT	40,000

MISSIONS READINGS

HC (ppm)	CO(%)	CO_2(%)
220	1.20	
25	0.02	14.5

OFFICIAL USE ONLY

VFY CUST P

00136 RVIR

avidson County, Tennessee 167112

ATE OF COMPLIANCE

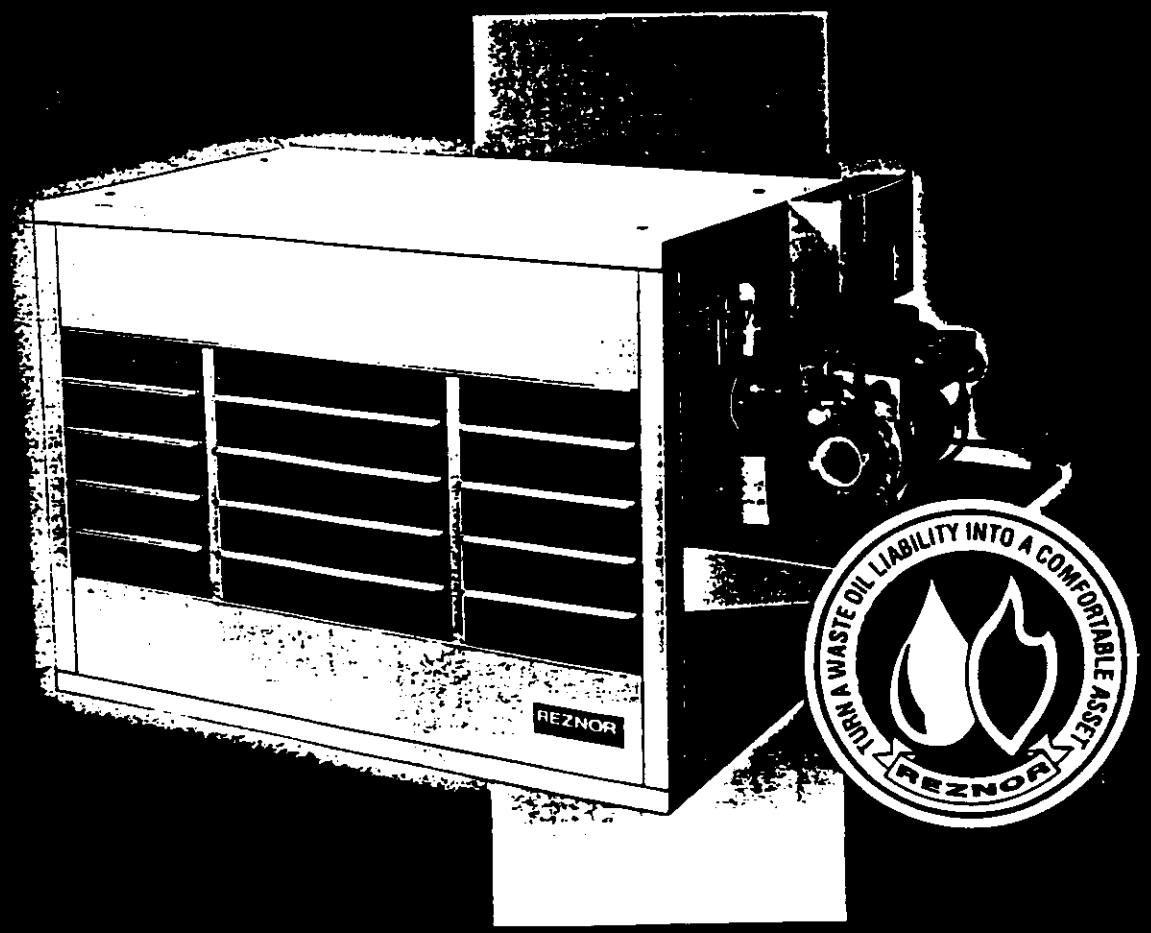
ification Number	Year	Make	Date
4T1LF234400	1990	PONT	06/07/1991

THIS CERTIFICATE IS VALID FOR 90 DAYS. IT IS VOID WHEN ALTERED, AND CANNOT BE REPLACED IF LOST OR STOLEN.

COMPLIANCE

Original on file with the Robert Sun Company

A New Standard Of Performance...



The Waste Oil Heater

From

REZNOR

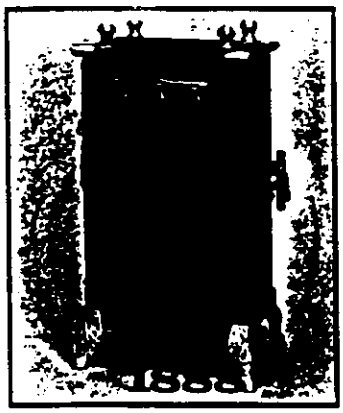
A Heritage Of Engineering Excellence

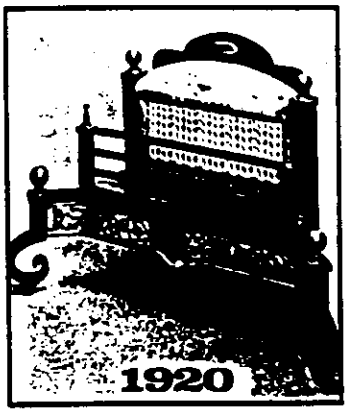
Reznor began its successful history in the heating industry over 100 years ago when natural gas became a viable fuel and George Reznor invented the reflector type gas heater. Over the years, Reznor has set standards for gas, oil, electric, hydronic and infra red heaters and heating systems.

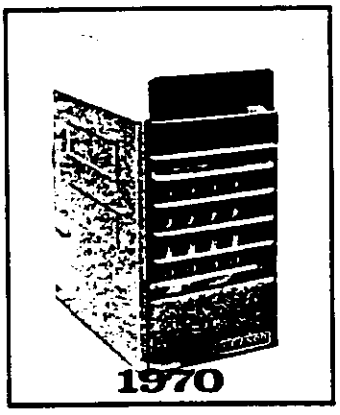
In recent years a new source of fuel has been created, not only by its abundance, but also by increased environmental concerns and regulations. Waste oil.

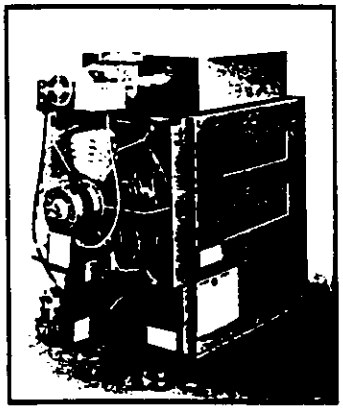
The idea of a reliable heater that could burn waste oil has been around for years, because it's the ideal way to convert an environmental liability into free heating fuel. Unfortunately, a reliable waste oil heater hasn't been around...until now!

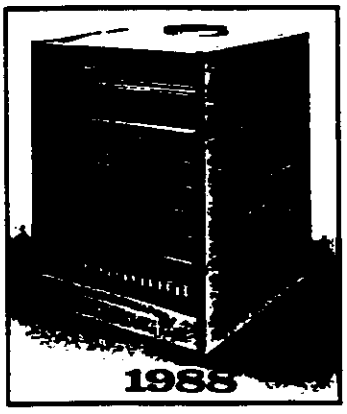
Reznor put its engineering staff and resources to the task of solving the problems of burning waste oil. It's a difficult fuel, with many impurities, and many different viscosities that must be handled. Other waste oil heaters demand constant attention and adjustment. Reznor engineers solved the problem early in 1990, with a patented remote flow control pump that constantly delivers the correct amount of oil and assures complete combustion without adjustments for viscosities ranging from #2 fuel oil through 50 weight waste oil. Reznor's new waste oil heater is now on the market, and it sets new standards for reliable, trouble-free service.

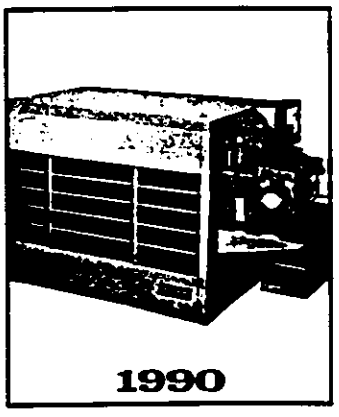






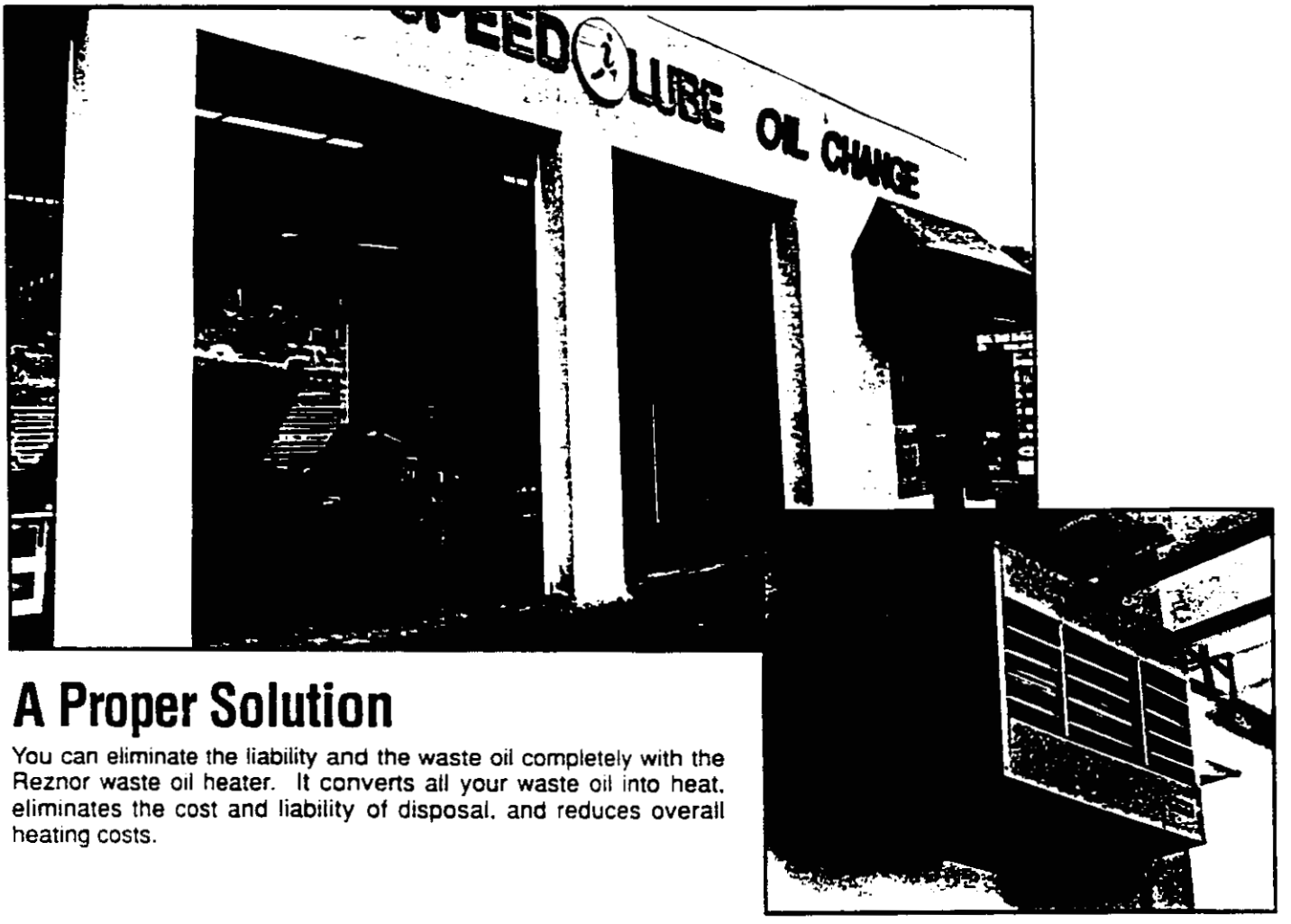






You Are Liable

EPA Regulations make you responsible for proper handling of waste oil at your place of business and even after it has been removed. No matter who generated the waste oil at your place of business, how it was removed, or who removed it, you are liable for it forever.



A Proper Solution

You can eliminate the liability and the waste oil completely with the Reznor waste oil heater. It converts all your waste oil into heat, eliminates the cost and liability of disposal, and reduces overall heating costs.

TURN A WASTE OIL LIABILITY INTO A COMFORTABLE ASSET

REZNOR

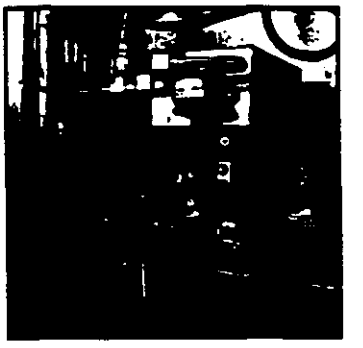
Highly Efficient

The unit uses the latest in combustion technology, atomization. The waste oil (crank case oil, gear case oil, transmission fluid, brake fluid, hydraulic oil) is preheated, atomized and sprayed into the combustion chamber where it is electronically ignited for complete, clean burning with high heat output. It is automatically controlled by a wall-mounted thermostat.

Why the Reznor Waste Oil Heater is Superior

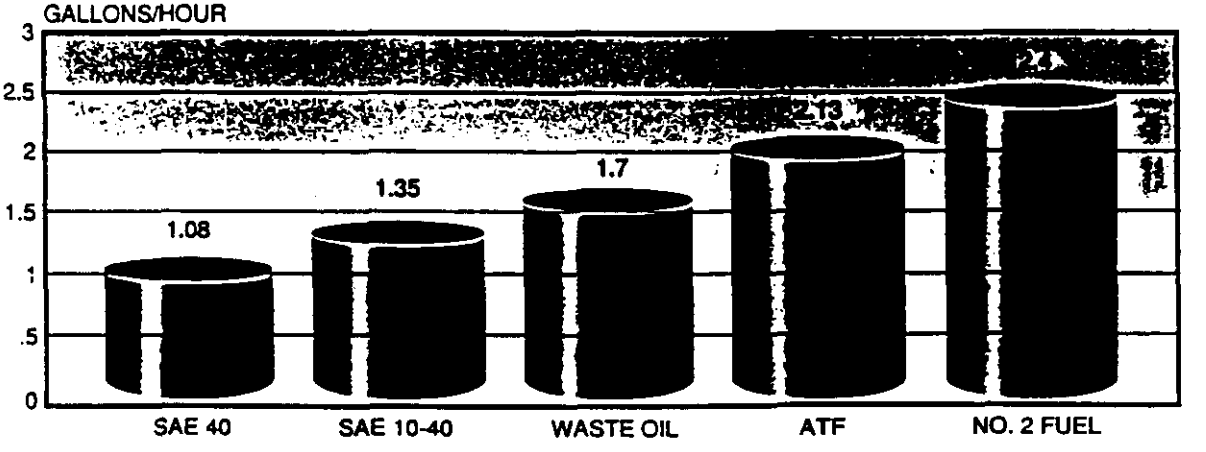
Remote Flow Control Pump

No other waste oil heater has this patented flow control pump which assures reliable operation. No matter what kind of fuel the heater is burning, #2 fuel oil or any combination of waste oils up to 50 weight, the pump regulates a constant flow of the right amount of oil to the burner. This eliminates all the problems and continual adjustments that have to be made with other types of waste oil heaters.



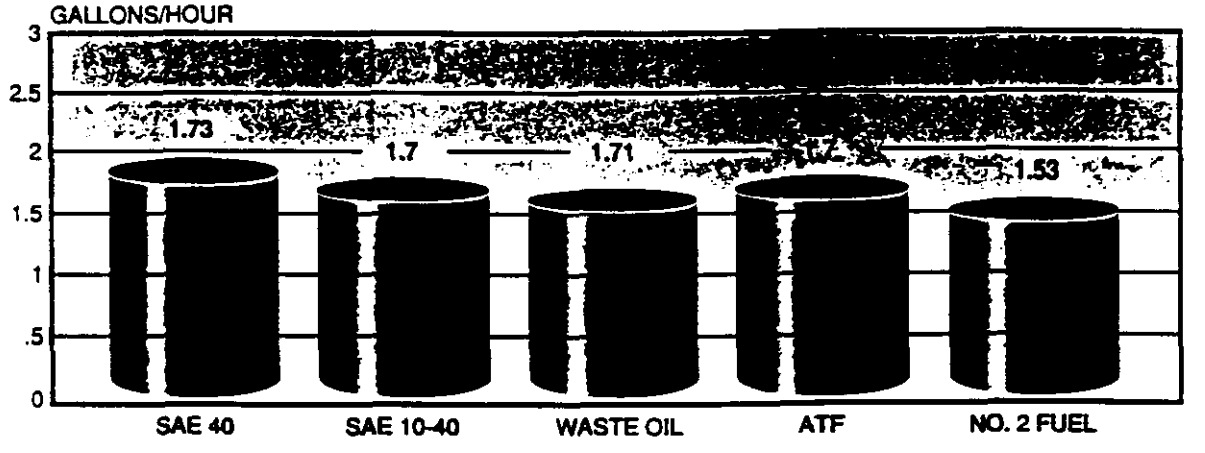
Pressure/Temperature System Of Other Waste Oil Heaters

This graph shows why other waste oil heaters need continual adjustment. They hold the temperature of the oil and the pressure constant, but the flow rate varies, and it can more than double, or be cut in half, depending on the viscosity of the oil. If not constantly adjusted, this results in overfiring which burns out and shortens the life of the unit, or underfiring, which produces insufficient heat.



Reznor Remote Flow Control Pump System

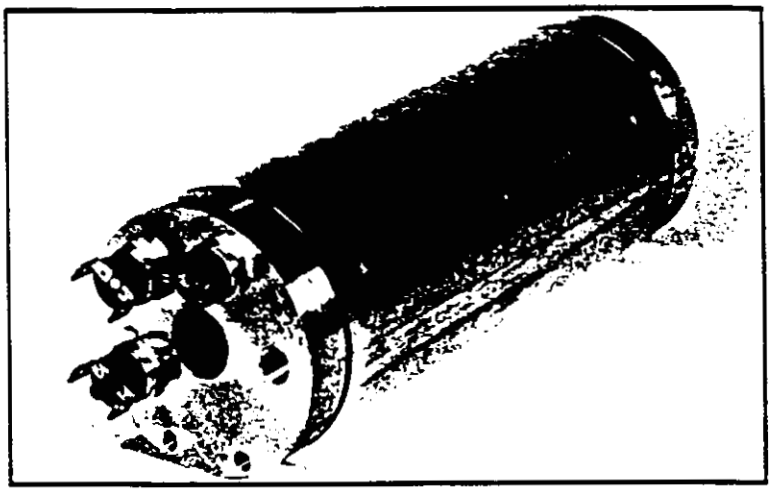
This graph shows how the Reznor flow control pump regulates the flow of the various oil viscosities, so there are insignificant changes in the oil flow rate. The correct amount of oil is constantly delivered to the unit, with no adjustments necessary.



Additional Design Features and Functions That Give This Unit Unmatched Reliability

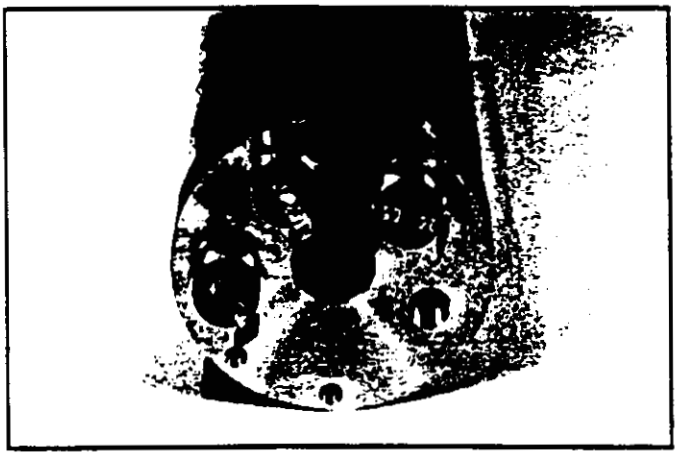
1. Better Control for Atomization and Immediate, Complete Combustion

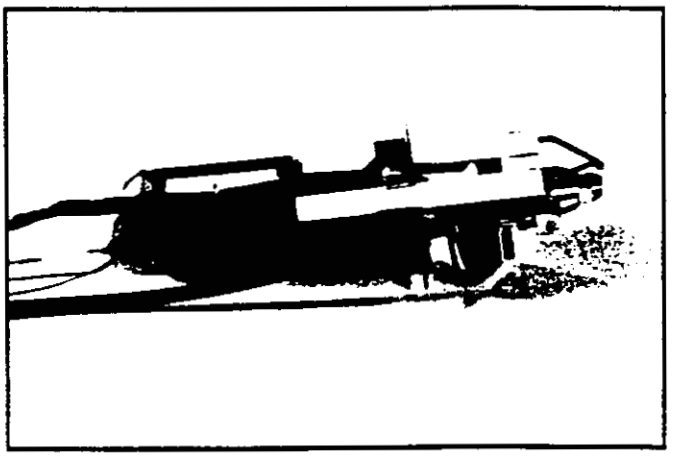
The proper burning of used oil depends on warming the oil to reduce its viscosity and permit atomization for complete combustion. Reznor's oil warming assembly is a large aluminum cylinder which is located outside the burner for easy access, and which warms the oil *slowly* to prevent overheating and clogging. A thermally balanced nozzle line then maintains the temperature of the oil on its way to the nozzle, which enables immediate ignition when there is a thermostatic call for heat. A shutoff valve between the oil warmer and nozzle line prevents oil drips which can cause carbon build-up within the combustion chamber. This easily accessible oil warming system which eliminates oil dripping is missing in other units which locate the oil heater in the burner.



2. Simplified Design of Controls for More Dependability

Because the Reznor remote pump flow system always delivers the proper amount of oil to the nozzle, no matter what the viscosity of the oil, there is no need for the intricate, trouble-prone temperature controls found on other models. Simple, reliable temperature controls located at both the oil warming assembly and at the nozzle regulate and maintain the correct temperature for atomization and combustion.

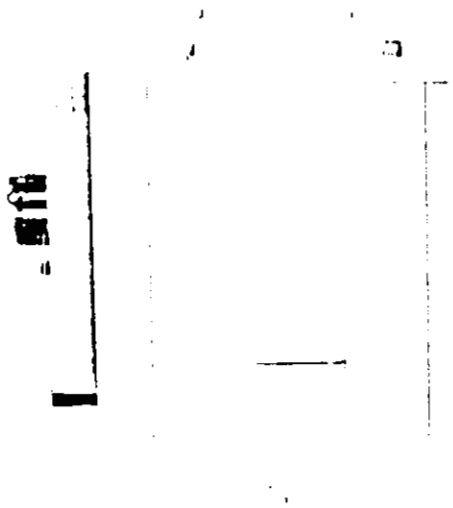




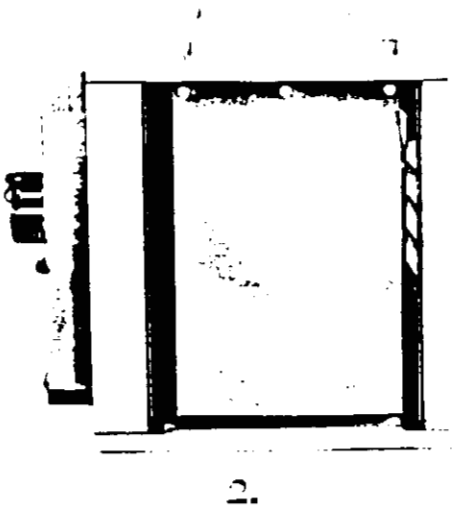
More Durable, Easy Access Combustion Chamber and Heat Exchanger

Although waste oil burns very clean, there is a residue of ash which collects over time in the combustion chamber. It is no problem in the Reznor unit, because the chamber has been designed for quick access and easy removal of ash. The combustion chamber is formed out of 13 gauge steel and the heat exchanger is 18 gauge. The combustion chamber is placed above the heat exchanger which forces a downward draft and prevents the natural tendency of the flame to rise. This maintains even temperatures throughout the combustion chamber walls and prevents thermal stress and cracking which could result from temperature variations in units that don't have this feature.

• *The combustion chamber and heat exchanger are easy to reach*



1. Lift and pull off the combustion access panel.

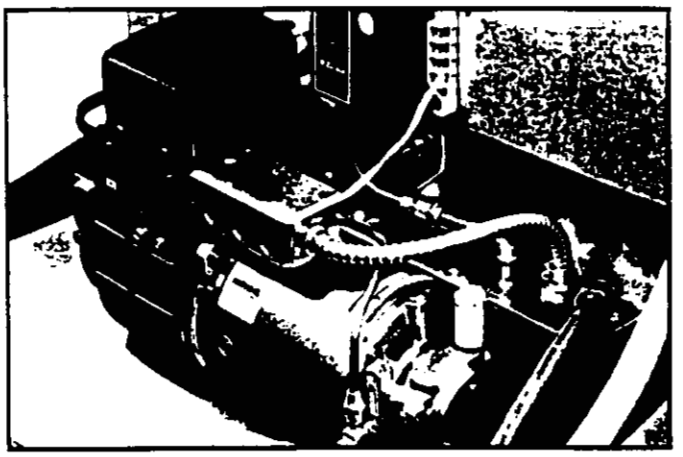


2. Remove nuts to lift off the combustion chamber plate.

3. This opens full access to the combustion chamber and heat exchanger for inspection and periodic cleaning.

No Need for Unreliable Shop Air

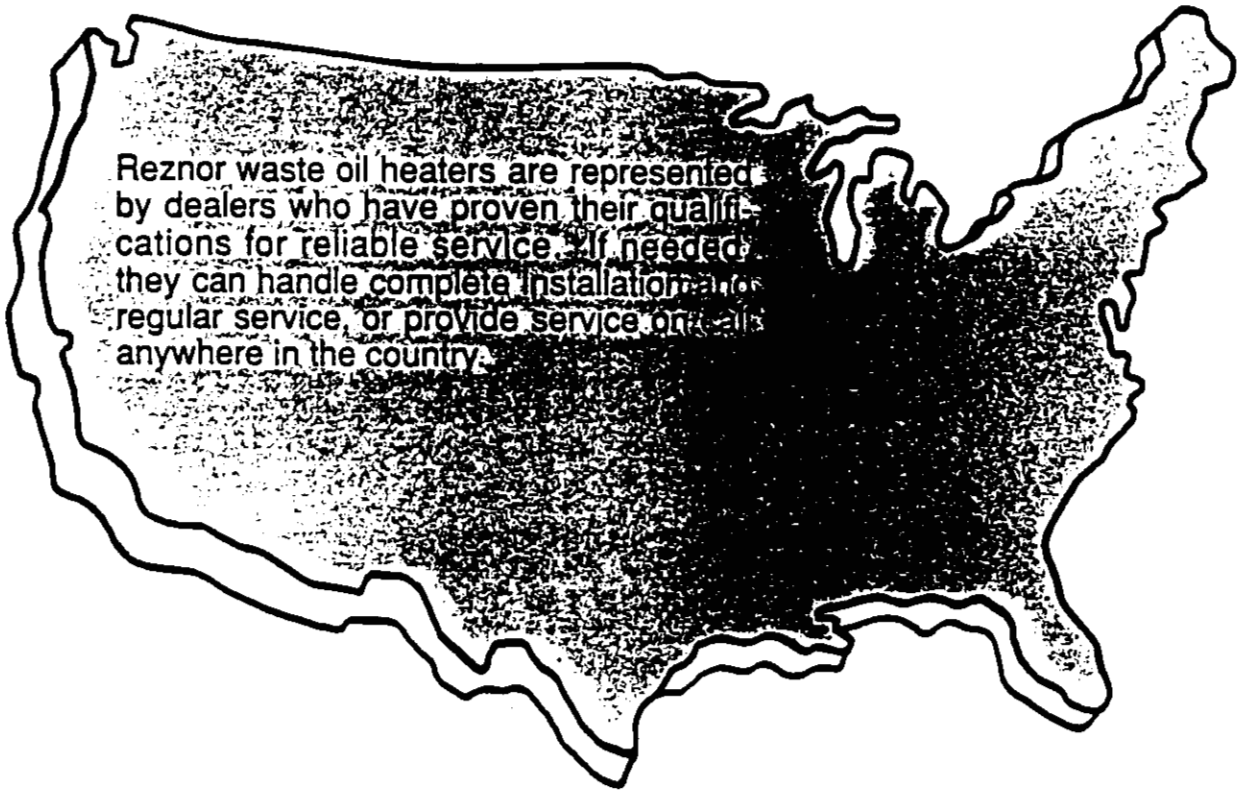
The atomization essential for burning waste oil depends on the injection of primary combustion air into the oil. Reznor provides a built-in air compressor on the burner assembly for a self-sufficient, reliable source of air. There is none of the inconsistency commonly found with units that utilize auxiliary air compressors or shop air.



10 Year Limited Warranty

The improved design and easy serviceability of the Reznor waste oil heater promise many years of trouble-free performance. Reznor also backs this unit with a ten year limited warranty on the heat exchanger and combustion chamber.

Strong Dealer Network



UL LISTED EPA

The Reznor waste oil heater meets all UL and EPA regulations.

CSA

No. 2 Oil Only

Remote flow control pump U.S. Patent #5,058,512 - Issued October 21, 1991

Technical Data

Listed or Certified By	UL	CSA	UL	CSA	UL	CSA	UL	CSA
BTUs per hour INPUT	235,000		235,000		110,000	140,000	110,000	140,000
BTUs per hour OUTPUT	188,000		188,000		88,000	112,000	88,000	112,000
Nozzle Input (GPH)	1.7		1.7		.8	1.0	.8	1.0
Fan Motor RPM	850		—		1050		—	
Blower Motor RPM	—		1750		—		1750	
Motor HP	1/4		3/4		1/8		1/2	3/4
AMPS Full Load 115 Volt	15		22		14		18	22
CFM (Free Air)	3200		3200		2000		2000	
CFM .25" w.c. ESP	—		2140		—		1425	
Effective Air 9 ft. Suspension	65 ft.		65 ft.		50 ft.		50 ft.	
Fan Diameter and Pitch	22–36		—		18–33		—	
Blower Size	—		15–11		—		12–9	
Flue Size	8 in.		8 in.		7 in.	8 in.	7 in.	8 in.
Net Weight (lbs.)	343		410		290		352	
Shipping Weight (lbs.)	405		495		340		417	

Notice to Canadian purchasers of Reznor Heaters

The Reznor heater (Models RA140-C, RA235-C, RAD140-C, RAD235-C), has been certified by the Canadian Standards Association ("CSA") for the burning of Number 2 (furnace) oil. CSA has not yet certified any heaters for the burning of used oil, but the Reznor heater has successfully passed CSA's oil safety tests outlined in standards B140.0-M87 and B140.4-1974, using automotive used lubricating oil and used transmission oil. CSA is in the process of seeking provincial approval of the said CSA standards.

Some Canadian provinces have laws and regulations which prohibit the burning of used oil, and other provinces require a permit for the burning of used oil. You will need to check with your local provincial authorities regarding the building code requirements and the laws regulating the burning of used oil in your area. Reznor makes no representations or warranties with the respect to a purchaser's legal right in Canada to use the Reznor Heater for the burning of used oil.

Dated: November 19, 1991

REZNOR®

Experience...sets us apart

1-800-647-1572

J. C. TERPAK
Mechanical Maintenance
1221 East 70th Avenue
Anchorage, Alaska 99518
(907) 562-1258 • Fax 349-1257

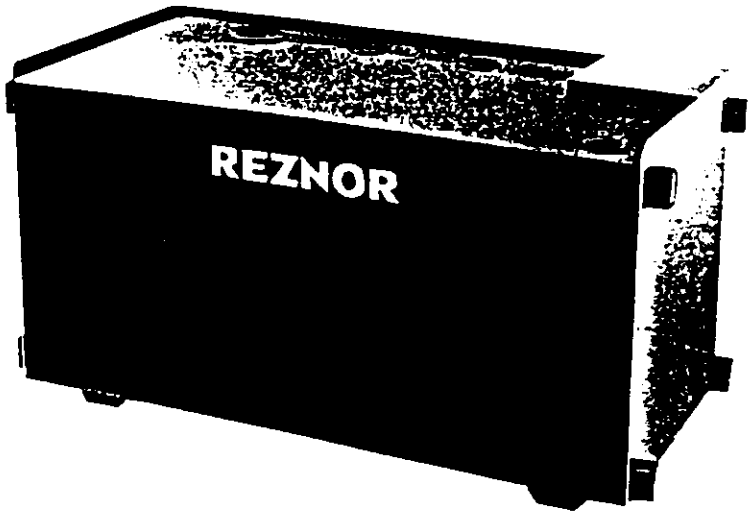
Form No. WOH 8P 25M 1/92 YL 1977 PRINTED IN U.S.A

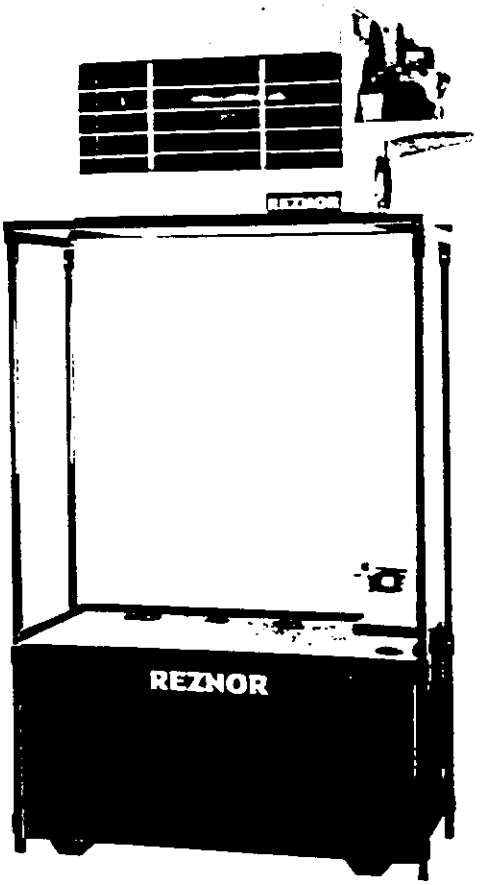
REZNOR

Work Bench Tank

New multi-purpose oil tank for use where work and storage space are at a premium. They serve a triple purpose–a desk and work table, as well as a storage tank.

Furnished with an attractive enamel finish they have a toe space to provide comfortable operator working conditions. It is engineered and constructed of 12 gauge carbon steel with a durable top working surface, having provision for a pump base and fill openings.





Specifications

Model	Capacity (Gallons)	Length	Width	Height	Weight
OT-250	250	64"	30"	35"	290 lbs.

Standard Equipment

- UL Listed (UL 142 Standard)
- All welded construction
- Two-inch retainer lip on back and sides
- Pump mount
- Toe space (minimum 3")
- Heavy duty forged threaded connections (2" supply, 2" gauge, 2" vent, 4" emergency vent, 1" drain)

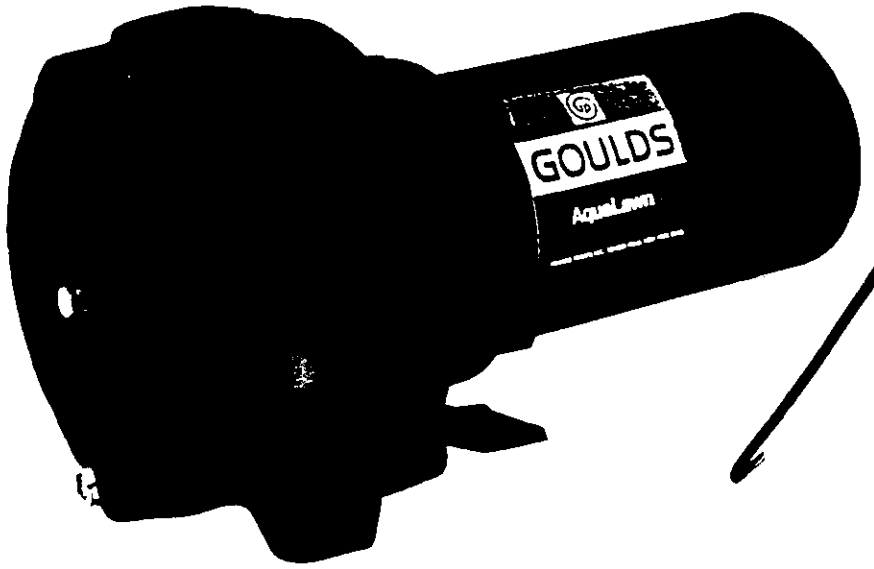
Optional Equipment

- Easily assembled furnace stand (actual weight 75 lbs.)

Goulds

Close-Coupled Self-Priming

MODEL XSH



Bilge pump option.

APPLICATIONS

Specifically designed for the following uses:
- Lawn Sprinkling
- Irrigation
- Air Conditioning Systems
- Heat Pumps
- Water Transfer

SPECIFICATIONS

Pump:
- Capacities: to 114 GPM
- Heads: to 127 feet
- Reprime capabilities: to 25' suction lift
- Pipe connections:

MODEL	SUCTION	DISCHARGE
XSH07	1½"	1"
XSH10		
XSH15		1¼"
XSH20	2"	
XSH30		

- Temperature: 160° F. (71° C) maximum.
- Rotation: right hand ie; clockwise when viewed from motor end.

Motor:
- NEMA Standard, Open Drip Proof
- 60Hz, 3500 RPM
- Stainless Steel Shaft
- Single Phase: ¾-2 HP, 115/230 V; 3 HP, 230 V only. Built-in overload with Automatic Reset. Capacitor Type
- Three Phase: 2 and 3 HP, 230/460 V. Overload protection must be provided in starter unit. Starter and Heaters (3) must be ordered separately.

FEATURES

Self-Priming Design: Water is retained in the casing while the pump dispels air. Once primed, this pump stays primed.

Impeller: 20% glass filled thermoplastic (Noryl®) on ¾-2 HP Models. Bronze impeller on 3 HP Models. Enclosed design for high efficiencies. Threaded directly on motor shaft.

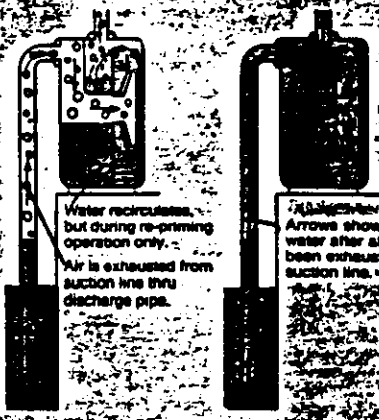
Casings: Cast iron construction. 4 bolt, back pull out design. Tapped openings provided for vacuum gauge and casing drain.

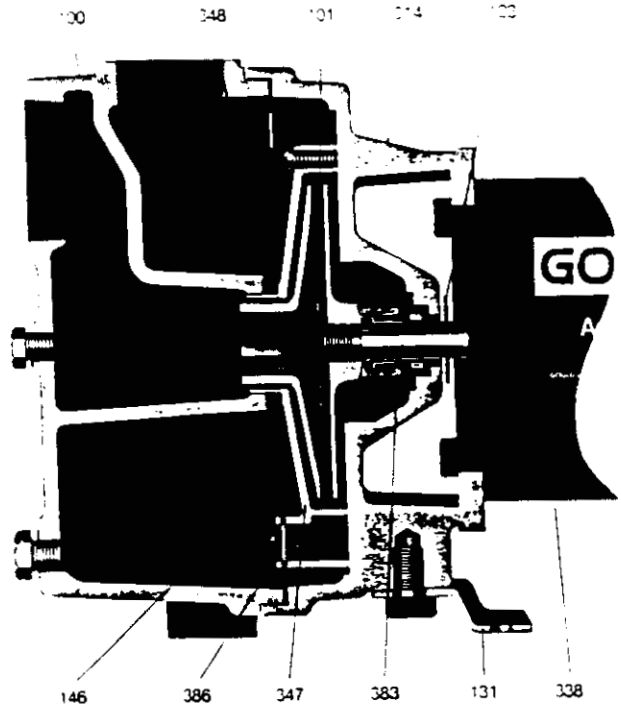
Mechanical Seal: Carbon/ceramic faces, BUNA elastomers, 300 Series stainless steel metal parts. Exclusive casing design prevents the seal from running dry.

Motor: Designed for continuous operation. All ratings are within the working limits of the motor.

Corrosion-resistant Coating: Electro-coat paint process applied inside and out, and baked on.

SELF-PRIMING





Goulds

Close-Coupled Self-Priming

MODEL

XSH

PARTS

Item No.	Part Name
100	Casing
101	Impeller
123	Deflector
131	Pump Foot
146	Diaphragm (Except 3 HP)
304	Impeller Nut — Three Phase Only (Not Shown)
314	Motor Adapter
338	Motor
347	Guide Vane
348	Guide Vane Seal Ring
383	Shaft Seal
386	Guide Vane Flange

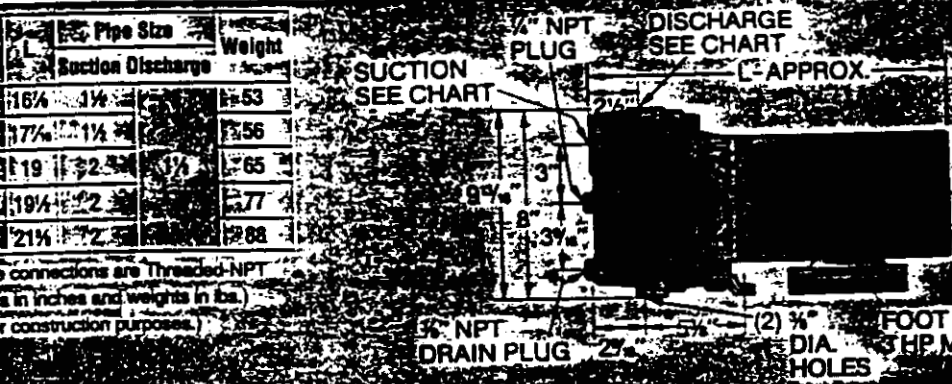
PERFORMANCE RATINGS (In gallons per minute)

Item No.		XSH07			XSH10			XSH15			XSH20			XSH30		
HP		½			1			1½			2			3		
Discharge Pressure PSI		20	30	40	20	30	40	20	30	40	20	30	40	20	30	40
Suction Lift In Feet	10	39	30	11	47	39	27	57	54	34	73	71	57	89	75	58
	15	34	27	0	45	37	23	52	49	27	66	65	50	85	71	50
	20	28	23	0	41	34	18	48	45	20	56	55	43	82	68	0
	25	22	19	0	33	31	0	41	40	0	44	44	33	72	64	0

DIMENSIONS AND WEIGHTS

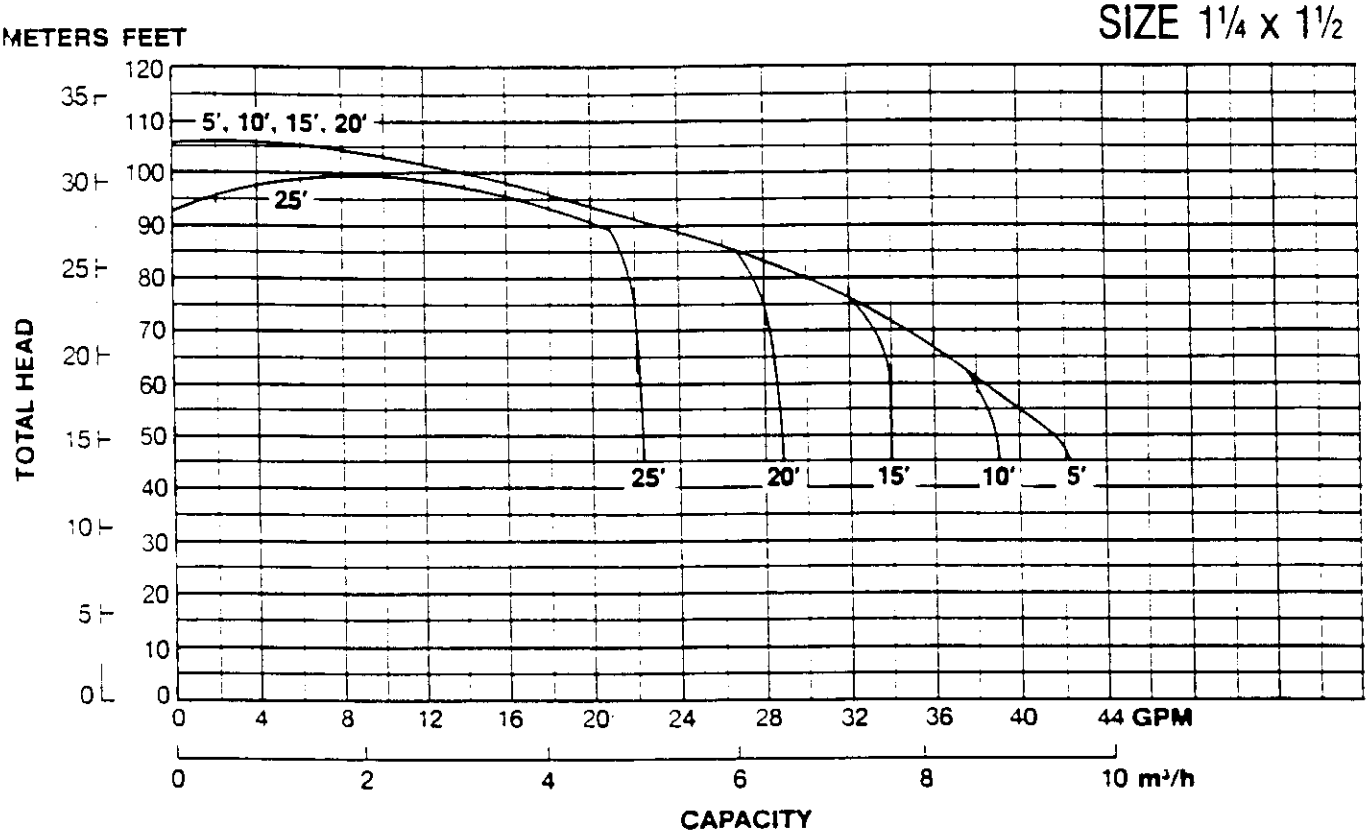
Model	HP	L	Pipe Size Suction	Pipe Size Discharge	Weight
XSH07	½	16¼	1½	1	53
XSH10	1	17⅞	1½	1	56
XSH15	1½	19	2	1¼	65
XSH20	2	19¼	2		77
XSH30	3	21¼	2		88

NOTE: All pipe connections are Threaded-NPT
(All dimensions in inches and weights in lbs.)
(Do not use for construction purposes.)



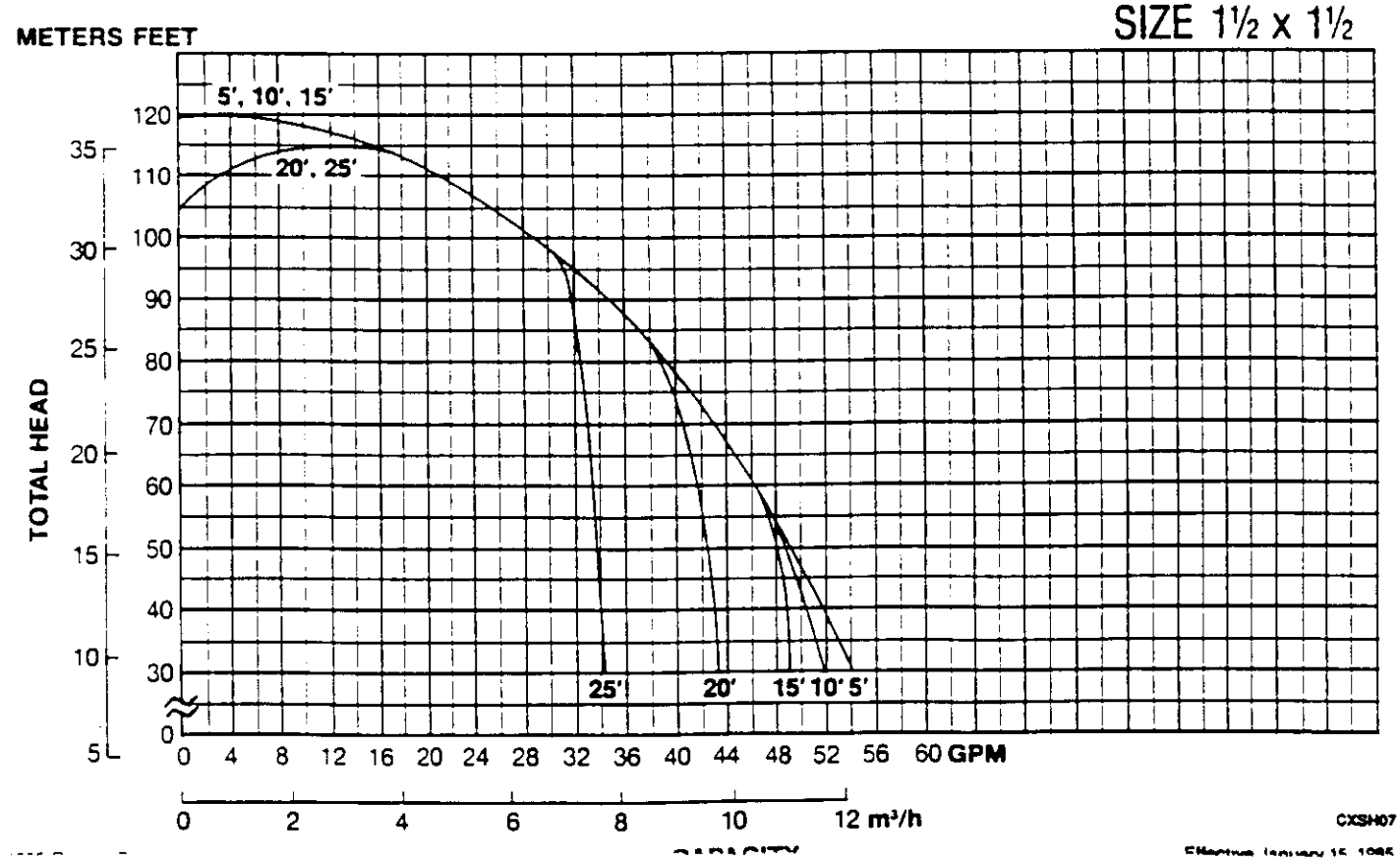
Close-Coupled Self-Priming Pumps

MODEL XSH07
SIZE 1¼ x 1½



GOULDS PUMPS, INC.
SENECA FALLS, NEW YORK 13148

MODEL XSH10
SIZE 1½ x 1½

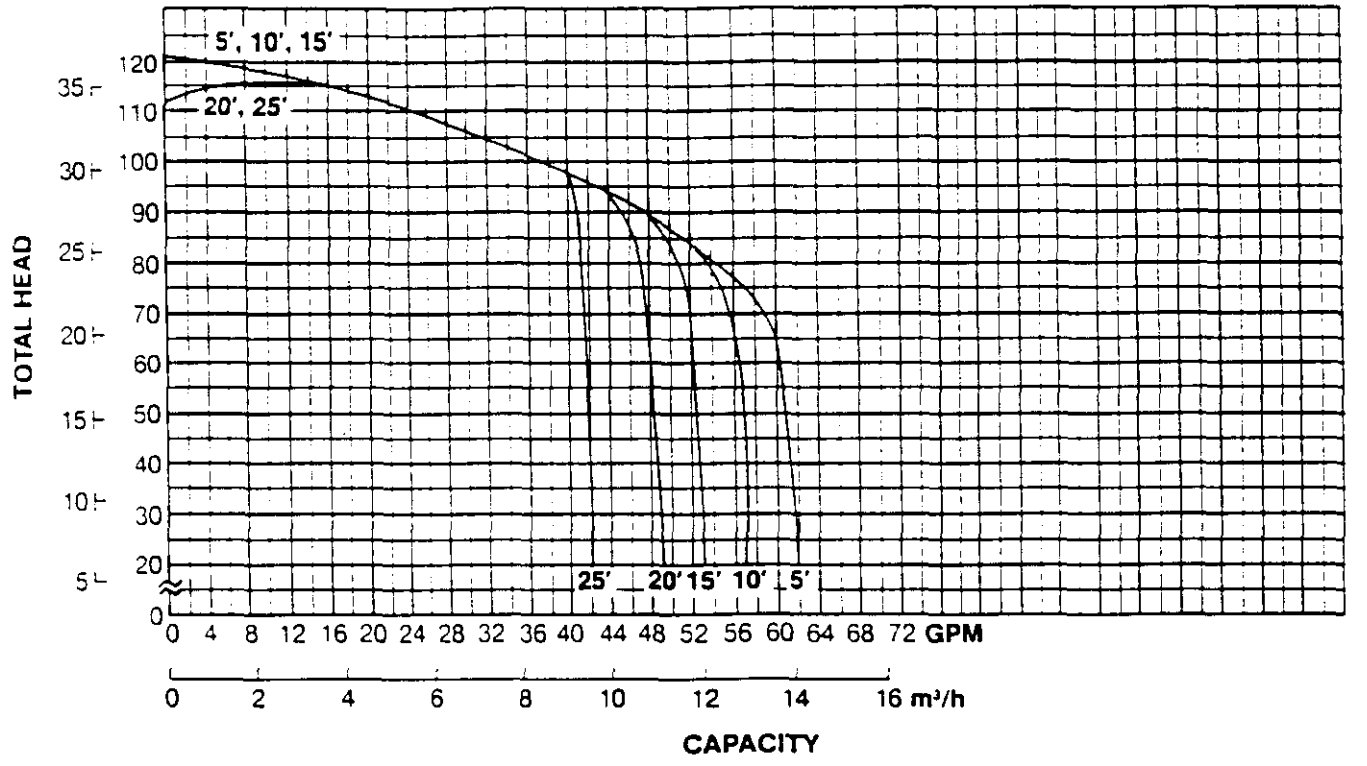


CXSH07

Effective January 15, 1995

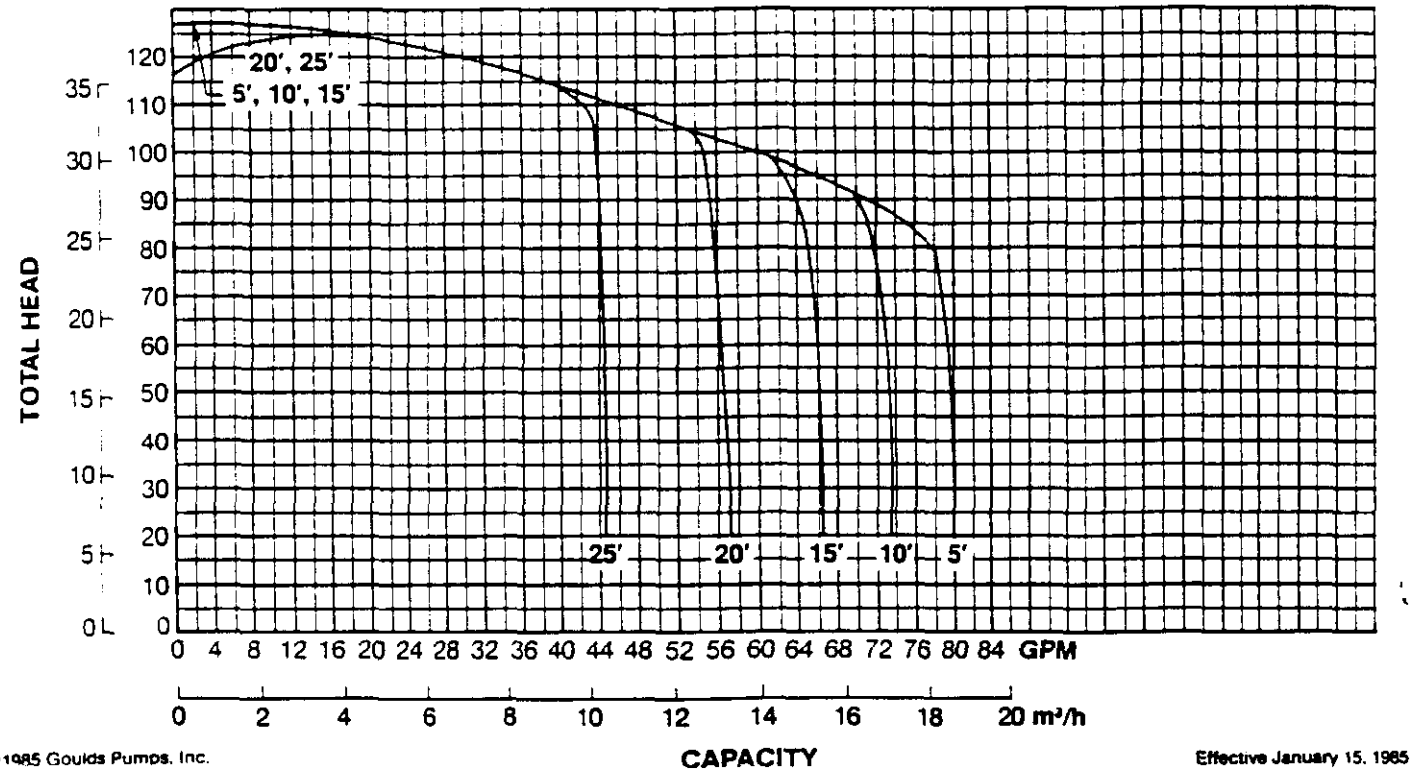
Close-Coupled Self-Priming Pumps

MODEL XSH15
SIZE 2 x 1½



GOULDS PUMPS, INC.
SENECA FALLS, NEW YORK 13148

MODEL XSH20
SIZE 2 x 1½

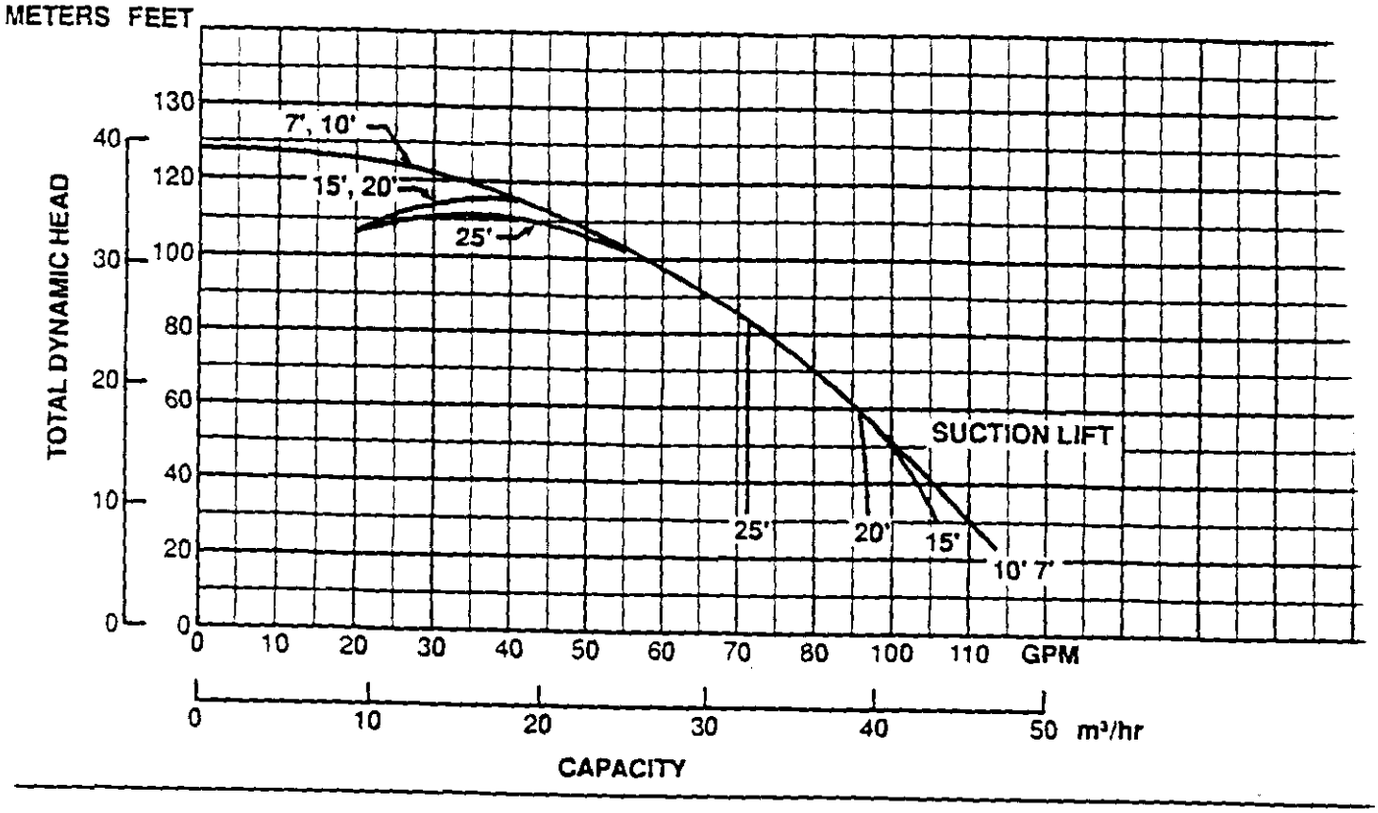


Effective January 15, 1985

G&L
A GOULDS PUMPS COMPANY

Close-Coupled Self-Priming Pumps

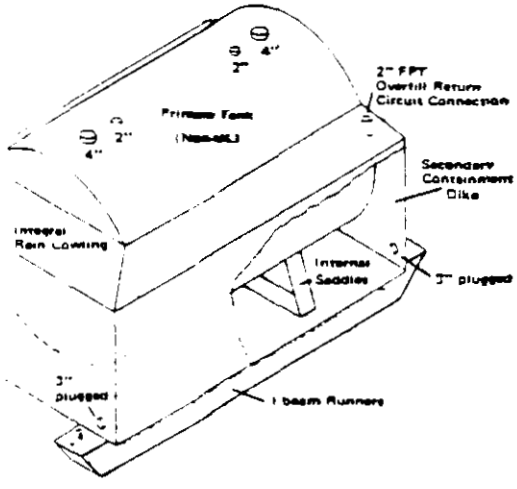
Performance Curve — SECT
Model: XSH30, Size: 1½ x 2
RPM: 1550, HP: 0.5



Customer _____ Pump Item _____	Condition of Service Imp. Dia. _____ _____ GPM _____ TDH _____ EFF%	Certified for: By _____ Date _____ Approval Record ☐

NK & EQUIPMENT Tanks

Dike Tanks

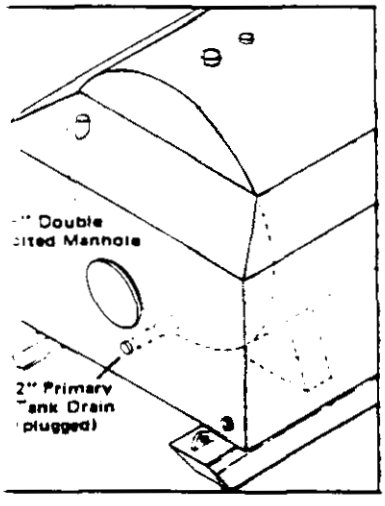


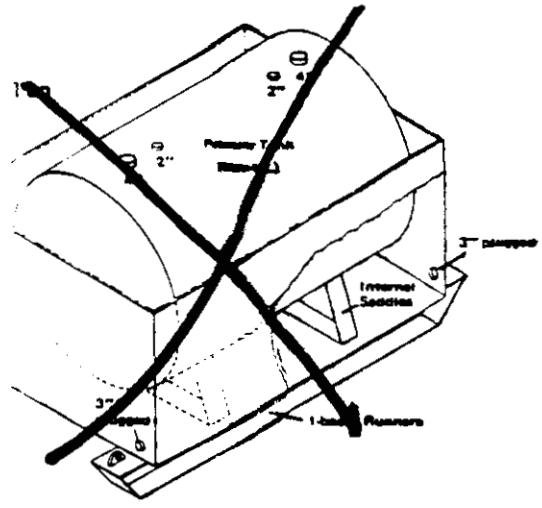
Aboveground storage tanks with integral secondary containment for those situations where a permanent spill containment berm is not practical. These "dike" tanks consist of a horizontal storage tank mounted on steel saddles, encased in a steel dike, and mounted on heavy I-beam skids. Two different styles of dike containment are offered. One type is a closed top, connected to the upper portion of the primary container. In this configuration, the containment area is protected against filling due to rain. This design provides for containment of 100% of the storage capacity of the primary vessel. Both primary and secondary containment areas of the tank will be independently tested to 5 psi. The second type is an open top containment dike. In this configuration, the dike is designed to hold 150% of the storage capacity of the primary container, plus a 4" rainfall. The primary tank will be air tested. The secondary containment area could be tested by filling it with water if desired.

Standard external coating is red iron oxide primer. Other opening arrangements are available at additional cost; please specify arrangements other than standard.

Standard opening arrangements are as pictured. Other opening arrangements are available at addtional cost; please specify arrangements other than standard.

nal Gravity Opening and
ole for Closed or Open Top





CLOSED TOP DIKE TANK (DIMENSIONS)

SUBJECT TO CHANGE WITHOUT NOTICE

Nominal Gallons	Overall Approximate Dike Dimensions Height x Width x Length	Approximate Total Wt. (Tank & Dike)
300	44" x 50" x 9'	1248
340	52" 62" 8'	1288
425	52" 62" 9'	1436
500	52" 62" 10'	1595
550	53" 62" 10'	1609
675	52" 62" 12'	1893
1000	70" 86" 10'	2469
1001	52" 62" 16'	2718
1500	70" 74" 15'	4757
2000	74" 86" 16'	5609
2001	86" 86" 13'	5320
2500	86" 86" 15'	6042
3000	86" 86" 17'	6803
3500	86" 86" 19'	7526
4000	86" 86" 21'	8286
5000	105" 110" 18'	10442
6000	105" 110" 21'	11951
6001	129" 146" 15'	11406
6500	105" 110" 22'	12820
7000	105" 110" 23'	13322
7500	105" 110" 24'	13924
8000	105" 110" 27'	16689
8001	129" 146" 18'	13228
10000	105" 110" 33'	18030
10001	129" 146" 22'	15678
12000	105" 110" 39'	21122
12001	129" 146" 25'	18076
15000	129" 146" 30'	23659
20000	129" 146" 40'	30504
25000	142" 158" 41'	39097
30000	142" 158" 47'	45450

Open Top Dike Tanks (Dimensions)

AL-142

Nominal Gallons	Overall Height	Overall Width	Overall Length	Approx. Weight
300	50"	[illegible]	9'	1248
550	62"	53"	10'	1609
1000	[illegible]	70"	10'	2469
2001	86"	86"	13'	5320

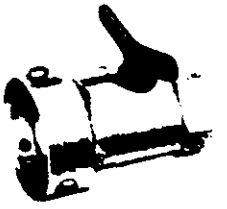
EMCO WHEATON "Dry Breaks"

HOSE FITTINGS

UP TO 75 U.S. G.P.M. FLOW

COUPLERS

EWJ1400
Aluminum Coupling Valve with 1" female N.P.T. inlet available with Viton or Buna N seals.



Model No.	Size	Description
EWJ1400-001	1"	Buna N, Female AL
EWJ1400-002	1"	Viton, Female AL

ADAPTERS

EWJ1300
Brass Adapter with 1" male N.P.T. inlet with Viton seals.

Model No.	Size	Description
EWJ1300-001	1"	Viton, Male BR

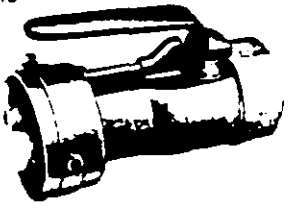
EWJ1301
Brass Adapter with 1" female N.P.T. inlet with Viton seals.

Model No.	Size	Description
EWJ1301-001	1"	Viton, Female BR

UP TO 200 U.S. G.P.M. FLOW

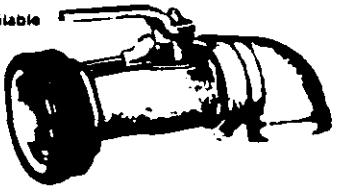
COUPLERS

EWJ1401
Coupling Valves can be furnished in either aluminum or stainless steel. The aluminum coupler can be provided in either of the following: aluminum with 1½" or 2" female N.P.T. with Buna N or Viton seals, or stainless steel coupler can be provided with 1½" or 2" female N.P.T. with Viton seals.



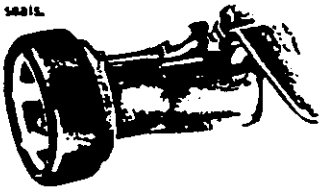
Model No.	Size	Description
EWJ1401-001	1½"	Buna N, Female AL
EWJ1401-002	1½"	Viton, Female AL
EWJ1401-009	2"	Buna N, Female AL
EWJ1401-010	2"	Viton, Female AL
EWJ1401-015	2"	Viton, Female SS

EWJ1405
Aluminum Coupling Valve with 90° swivel elbow. Available with 2" female N.P.T. with Buna N or Viton seals.



Model No.	Size	Description
EWJ1405-001	2"	Buna N, Female AL
EWJ1405-002	2"	Viton, Female AL

EWJ1402
Aluminum Coupling Valve with 90° rotated handle. Available with 1½" or 2" female N.P.T. with Buna N or Viton seals.



Model No.	Size	Description
EWJ1402-001	1½"	Buna N, Female AL
EWJ1402-005	2"	Buna N, Female AL
EWJ1402-006	2"	Viton, Female AL

EWJ1406
Aluminum Coupling Valve with 90° swivel elbow and 90° rotated handle. Available with 2" female N.P.T. with Buna N seals.

Model No.	Size	Description
EWJ1406-001	2"	Buna N, Female AL

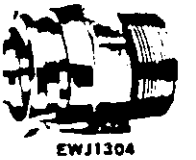
UP TO 200 U.S. G.P.M. FLOW

ADAPTERS

EWJ1302
Adapter can be furnished in either aluminum or brass. Aluminum adapters with 2" female N.P.T. only, are available with Viton, Thiokol, Butyl, Pure Gum, Neoprene, Buna N, or Teflon seals. Adapter is also available in aluminum with stainless steel trim.

Brass Adapters with 1½" or 2" female N.P.T. are available with Viton, Thiokol, Butyl, Pure Gum, Neoprene, Buna N, or Teflon seals.

Model No.	Size	Description
EWJ1302-001	1½"	Viton, Female BR
EWJ1302-009	2"	Buna N, Female BR
EWJ1302-010	2"	Viton, Female BR
EWJ1302-017	2"	Buna N, Female AL
EWJ1302-018	2"	Viton, Female AL



EWJ1304

EWJ1305

EWJ1304
Brass Adapter with 2" male N.P.T. inlet with Viton seals.

Model No.	Size	Description
EWJ1304-001	2"	Viton, Male BR
EWJ1304-003	2"	Viton, Male BR includes dust cap EWJ1201-004

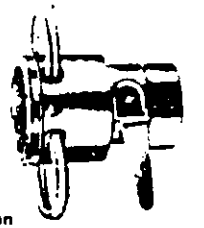
EWJ1305
Stainless steel adapter available with Buna N or Viton seals.

Model No.	Size	Description
EWJ1305-003	2"	Viton, Female NPT
EWJ1305-004	2"	Buna N, Female NPT

Emco Wheaton Stainless Steel "Dry Breaks"

Stainless steel *"dry breaks" are designed especially* for handling particularly hazardous or valuable fluids. Pressure losses with "Dry Breaks" are extremely low.

Operating temperature range of -4° F to 248° F permits handling of a wide range of fluids.



EWJ0004
Stainless steel coupler with Teflon seals, and dust cap.

Model No.	Size	Description
EWJ0004-004	3"	Teflon, Female NPT

EWJ0003
Stainless steel adapter with Teflon seals, and dust cap.

Model No.	Size	Description
EWJ0003-004	3"	Teflon, Female NPT

EMCO WHEATON "Dry Breaks"

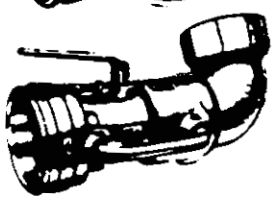
UP TO 500 U.S. G.P.M. FLOW

COUPLERS

EWJ1407
Aluminum Coupling Valve with 3" female N.P.T. inlet available with Buna N, Butyl or Viton seals.

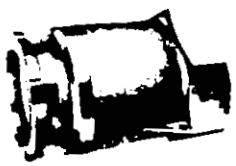
Model No.	Size	Description
EWJ1407-001	3"	Buna N, Female AL
EWJ1407-002	3"	Viton, Female AL

EWJ1404
Aluminum Coupling Valve has 90° swivel elbow with 3" female N.P.T. Available with Buna N or Viton seals.



Model No.	Size	Description
EWJ1404-001	3"	Buna N, Female AL
EWJ1404-002	3"	Viton, Female AL

EWJ1302
Adapter with 3" female N.P.T. inlet available with Viton seals.

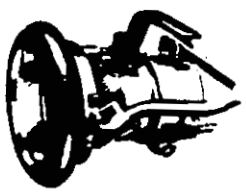


Model No.	Size	Description
EWJ1302-035	3"	Viton, Female BR
EWJ1302-071	3"	Viton, S.S. Trim, Female AL-SS with Plastic Dust Cap

UP TO 1000 U.S. G.P.M. FLOW

COUPLERS

EWJ1410
Aluminum Coupling Valve with 4" female N.P.T. swivel is available in Viton or Buna N seals.



Model No.	Size	Description
EWJ1410-001	4"	Buna N, Female AL
EWJ1410-003	4"	Viton, Female AL

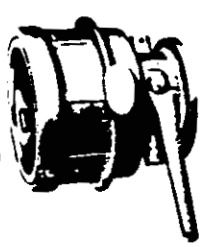
EWJ1417
Tank Adapter with 4" female N.P.T. are available in aluminum with Buna N or Viton seals.

Model No.	Size	Description
EWJ1417-001	4"	Buna N, Female AL
EWJ1417-007	4"	Viton, Female AL

EWJ3472
Tank Adapter with latest design in break away shear section is available with tank truck flange and Buna N or Viton seals.

Model No.	Size	Description
EWJ3472-001	4"	Buna N, Flanged AL
EWJ3472-004	4"	Viton, Flanged AL

LOADING RACK COUPLER, BOTTOM LOADING TYPE



Model No.	Size	Material	Inlet	Wt.	Seal
EWJ451-001	4" API	Aluminum	T.T. Flange	18.2 lbs.	Viton
EWJ451-002	4" API	Aluminum	T.T. Flange	18.2 lbs.	Buna
EWJ451-003	4" API	Aluminum	T.T. Flange	18.2 lbs.	EPR

Note: See page 223 for A.P.I. Adapters


EWJ1409


EWJ1201

"Dry Break" Accessories
Component parts and accessories available for all couplers and adapters, including dust caps, adapter openers, adapter mounts, coupler handles, coupler hangers and repair kits.

Aluminum dust caps

Model No.	Size	Description
EWJ1200-001	1"	Dust Cap for 1" Dry Break Adapters AL.
EWJ1201-004	2"	Dust cap for 1½" and 2" dry break adapters
EWJ1409-001	3"	Dust cap for EWJ1302 and EWJ1303 adapters. Alum.
EWJ1419-001	4"	Dust cap, 10" chain. (Do not use on EWJ3413 series of adapters
EWJ1419-002	4"	Dust cap, 18" chain.
EWJ1205-001	2"	Neoprene dust cap for 1½" or 2" dry break coupler
EW491223	3"	Plastic dust cap for 3" Dry Break adapter.

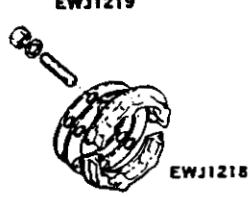

EWJ1204

EWJ1204
Adapter openers, aluminum.

Model No.	Size	Description
EWJ1204-001	2"	Adapter opener for 1½" and 2" Dry Breaks, AL
EWJ1204-002	3"	Adapter opener for 3" Dry Breaks, AL


EWJ1212

EWJ1219


EWJ1218

EWJ1212
Flush mounting adapter housing with dust cap.

Model No.	Size	Description
EWJ1212-001	2"	Adapter, flush mounting, AL. 2" size with EWJ1202-002 AL dust cap included
EWJ1218-001	T.T. Flange	Back-up flange assembly with 2 gaskets and studs, nuts, and lock washers
EWJ1219-001	T.T. Flange	Welding flange with studs, nuts, lock washers and gaskets. This aluminum unit is used when welding flange is welded to skin of tank on vehicle

NuERA Technologies, Inc.

NW REGIONAL OFFICE
P.O. Box 5357
Kent, WA 98064
(206) 639-3630
FAX 206-639-3622

ALASKA OFFICE
P.O. Box 112332
Anchorage AK 99511
(907) 345-6411

DATE: 6/5/96

FAX TRANSMITTAL TO: Tom Fisher
USKH
FAX # 452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 8 PAGES

MESSAGE: Ref: Oil Filter Crusher Info.
Elements > 16" Tall

Herkules - 3 pgs

Oberg - 4 pgs.

Tom,

Give me a call if you have any questions.

Tks.

Steve

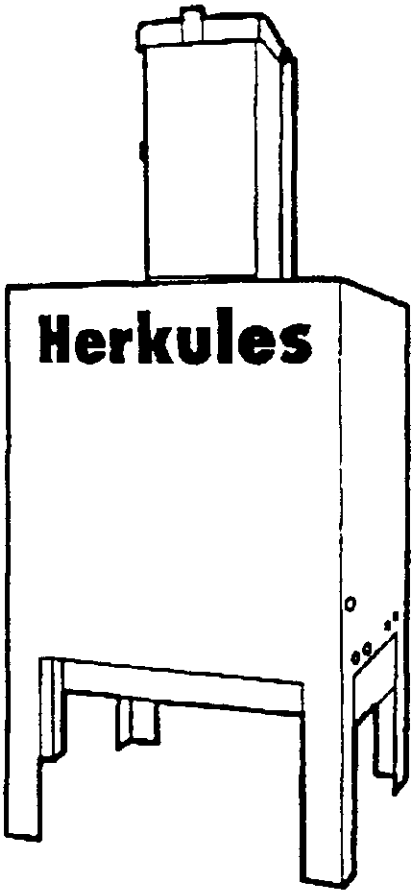
RECEIVED
JUN-6-5 1996
USKH
FAIRBANKS, ALASKA

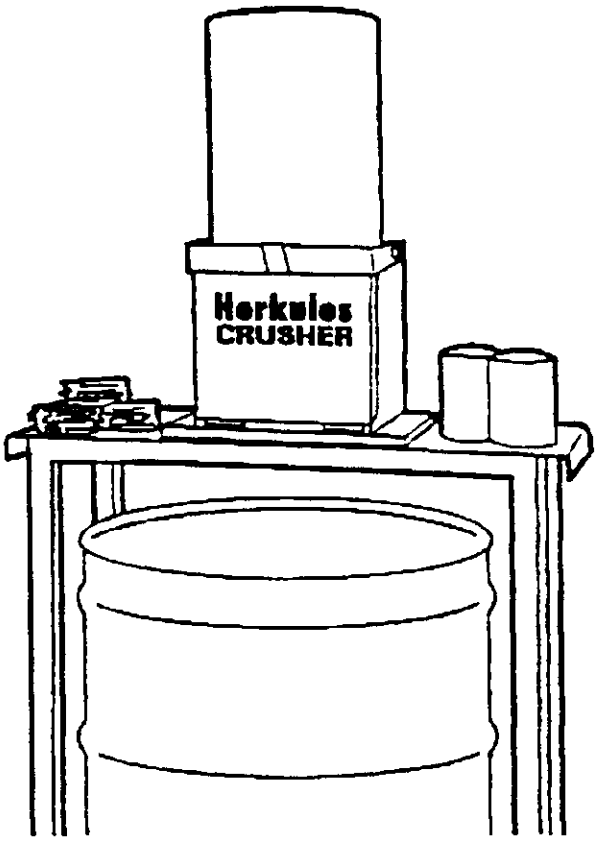
NuERA Technologies, Inc. Steven R. Ransom
Profitable Waste Management
· Waste Oil Furnaces
· On Site Disposal/Recycling Eq.
· Waste Assessment & Minimization Programs

N.W. REGIONAL OFFICE
P.O. Box 5357
Kent, WA 98064
(206) 630-0362 / 639-3630

ALASKA OFFICE
P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411

Herkules Oil Filter Crushers Does Them All ... Big 'n Small.





Herkules has an **effective** and **economical** solution to handling used oil filters. Herkules oil filter crushers squeeze out 95 – 98% of the liquid oil by crushing the filter media 80% using a multi-ton air powered ram. Then, oil filters are declassified as hazardous and transferred to a metal recycler or disposal site with no long term toxic cleanup liability. Or simply, crushed filters can be properly disposed at 50 – 70% less than whole filters.

Either way, shops can be both environmental and economical with one of the four job specific, Herkules Oil Filter Crushers.

OFC-1 An economical single filter crusher using a 3-ton air cylinder piston ram.

OFC-3 A production crusher, doing multiple filters at once, using a 15-ton air bag crushing plate.

OFC-4 Handles a heavy-duty filter to 20" or is a production crusher of multiple automotive filters. Uses a 17.5-ton air bag crushing plate.

OFC-5 Handles a heavy-duty filter to 30" or is a production crusher of multiple automotive filters. Uses a 17.5-ton air bag crushing plate.

NuERA Technologies, Inc. Steven R. Ransom

Profitable Waste Management

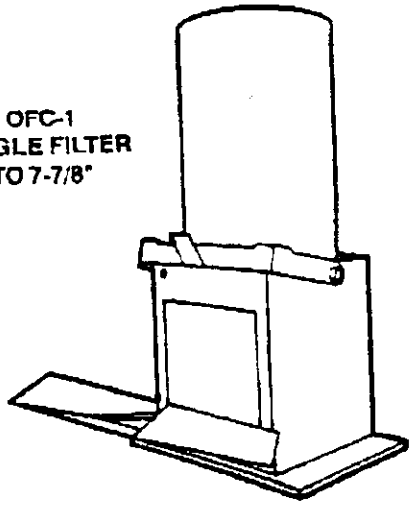
- Waste Oil Furnaces
- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs

800-347-9575

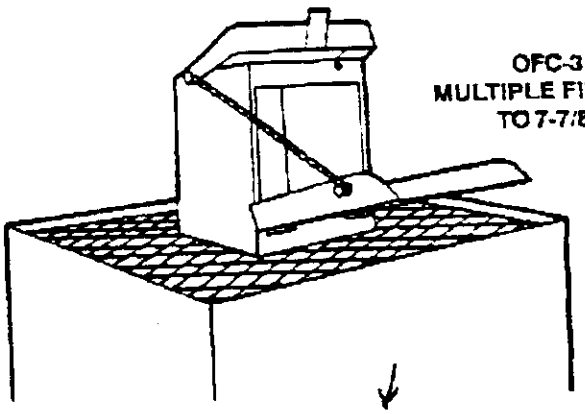
N.W. REGIONAL OFFICE
P.O. Box 3357
Kent, WA 98064
(206) 630-0362 / 639-3630

ALASKA OFFICE
P.O. Box 113353
Anchorage, AK 99511-3353
(907) 348-6411

OFC-0995

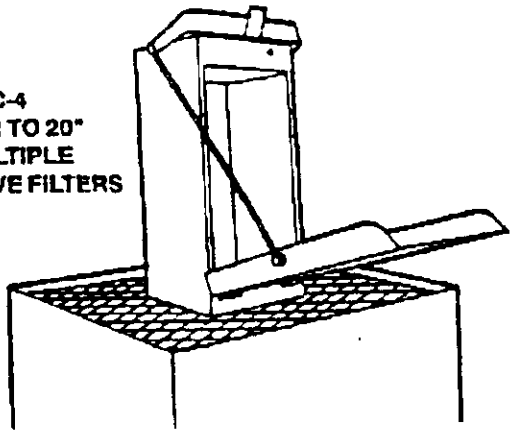


OFC-1
SINGLE FILTER
TO 7-7/8"

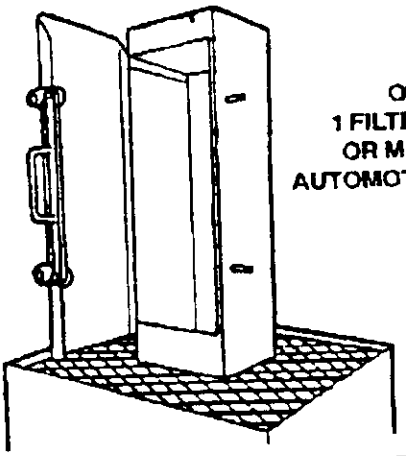


OFC-3
MULTIPLE FILTERS
TO 7-7/8"

	OFC-1	OFC-3	OFC-4	OFC-5
Filter Type	Car/Light Truck	Car/Light Truck	Heavy-Duty	Heavy-Duty
Crushing Strength	3-tons	15-tons	17.5-tons	17.5-tons
Percent Filter Crushed	70 – 79%	70 – 79%	70 – 79%	70 – 79%
Percent Oil Squeezed	95 – 98%	95 – 98%	95 – 98%	95 – 98%
Capacity	1 Filter	Multiple Filters	1 Heavy-Duty	1 Heavy-Duty
Cycle Time	15 seconds	35 – 55 seconds	35 – 55 seconds	1 – 2 minutes
Timer	Yes	Yes	Yes	Yes
Crushing Chamber Height	7-7/8"	7-7/8"	20"	30"
Crushing Chamber Width/Depth	9"	9"	9"	9"
Overall Dimensions:				
Depth	11"	27-3/4"	27-3/4"	27-3/4"
Width	14-1/2"	32"	32"	32"
Height	71" w/stand	57"	67"	77"
Air Input	120 – 150 psi	120 psi	120 psi	120 psi
Filter-Regulator, Gauge	Yes	Yes	Yes	Yes
Weight	250 lbs.	550 lbs.	640 lbs.	700 lbs.



OFC-4
1 FILTER TO 20"
OR MULTIPLE
AUTOMOTIVE FILTERS



OFC-5
1 FILTER TO 30"
OR MULTIPLE
AUTOMOTIVE FILTERS

Herkules 2760 Ridgeway Court • Walled Lake, MI

Air Lifts
Air Jacks

Gun Washers
Pail Washers
Can Washers

Crushers for
Cans, Filters,
Drums, Aerosol,
Cardboard, Paper

Partsmobiles
Work Tables

Vacuum
Systems

NuERA T[illegible]
P.O. Box [illegible]
Anchorage, AK 99511-2332
800-347-9575 (907) 345-6411

CRUSHING EQUIPMENT

FOB Factory

Catalog Number	Description	Price $	Weight (pounds)
	Oil Filter Crusher		
OFC-1	Single oil filter crusher. 7-7/8" maximum filter height. 3 tons of pressure.	1,699.00	265
OFC-3	Multiple oil filter crusher. 7-7/8" maximum filter height. 15 tons of pressure.	2,699.00	550
OFC-4	Heavy duty oil filter crusher. 20" maximum filter height. 17.5 tons of pressure.	3,699.00	840

MATERIAL HANDLING EQUIPMENT

Catalog Number	Description	Price $	Weight (pounds)
	X-Frame Work Stands		
XT-200	200 lb. capacity folding X frame workstand. Equipped with double chain hold.	37.00	13
XT-300	300 lb. capacity folding X frame workstand. Equipped with double chain hold, and polyfoam covers. 35"H X 30"W X 40"L.	44.50	15
XT-300-RL	Same as XT-300 except with removable legs for compact shipment and storage.	50.00	15
XT-500	500 lb. capacity extra heavy duty folding X frame workstand. Other features same as XT-300.	50.00	16
	Flexi-Work Tables		
FT-1	Flexi-Table. Space saving, six angle work table with three heights for supporting and positioning of doors, bumpers, and glass. 500 lb. capacity. 30" X 38" table @ 34" height.	199.00	47
	PartsMobiles		
PM-1	PartsMobile - 4 shelves. All purpose storage and transportation cart for body panels and p		
PM-2	PartsMobile - 2 shelves. All purpose sto transportation cart for body panels and p		
	Vise and Grinder Stands		
VGF	Vise/grinder stand. Floor mounted for e and no bench clutter.		
VGW	Vise/grinder stand. Wall mounted for ea and no bench clutter.		

NuERA Technologies, Inc. Steven R. Ransom

Profitable Waste Management

- Waste Oil Furnaces
- On Site Distillation/Recycling Eq.
- Waste Assessment & Minimization Programs

800-347-9575

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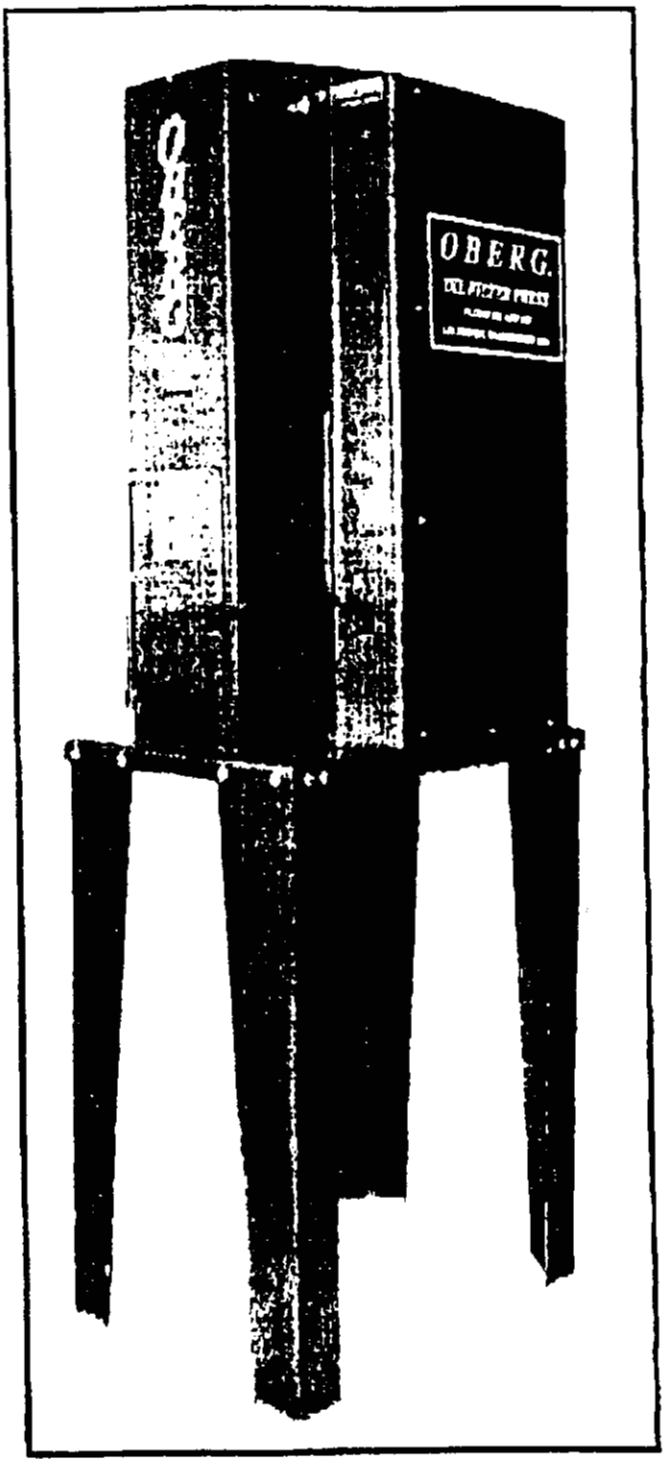
Kent, WA 98064
(206) 630-0382 / 639-5630

ALASKA OFFICE
P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411

OBERG™

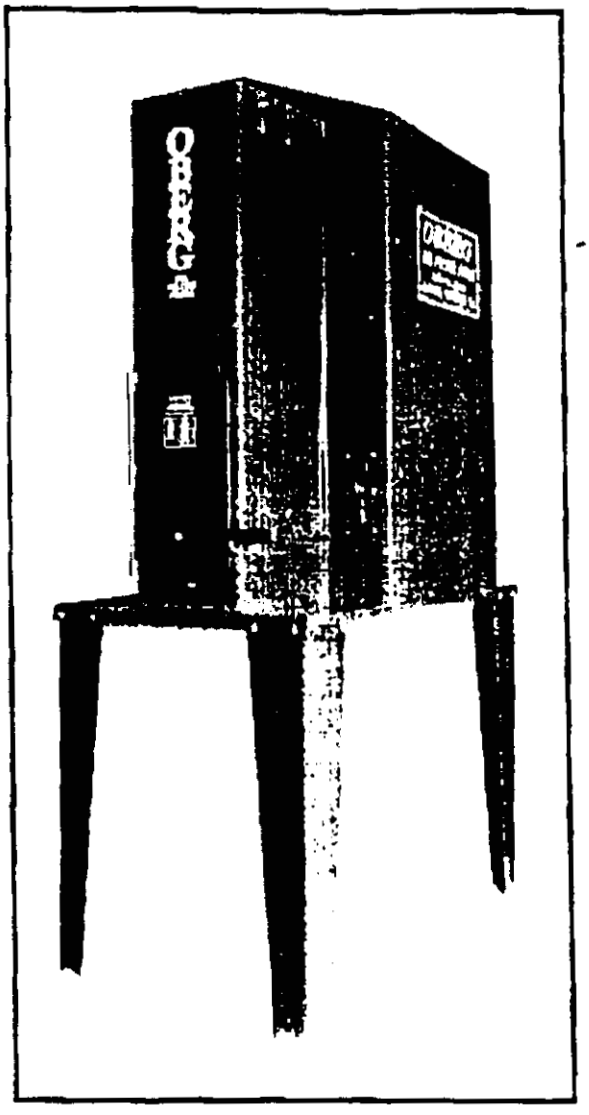
America's #1 Quality Filter Press



Models For Automotive, Heavy Truck And Industrial Filters

MODEL P-300

#1 CHOICE FOR CRUSHING INDUSTRIAL SIZE FILTERS



The *OBERG* Model P-300 provides more crushing force than any competitor, crushing filters up to 20" tall, multiple smaller filters at once, and oily shop rags. The large crushing chamber also allows crushing five gallon paint cans into thin wafers. With over 70,000 pounds of crushing force, the P-300 removes the maximum oil possible from used filters! This eliminates the fabric mess and disposal problem typical when cutting filters.

Crushed filters are deposited through a trap door in the rear of the crushing chamber directly into a transport drum. The P-300 includes legs to house two 55 gallon drums under the machine. One drum can be used for crushed filters and the other for waste oil. A drain located under the crushing chamber allows for waste oil to be plumbed directly to a drum or bulk tank.

All operation is provided by a fully self-contained electric/hydraulic power unit. This provides consistent crushing force without the need for high volume air supply, condensation filters and lubricators necessary with air units.

A push button control activates the system and a built in safety mechanism prevents the machine from operating when the loading door is open.

DIMENSIONS

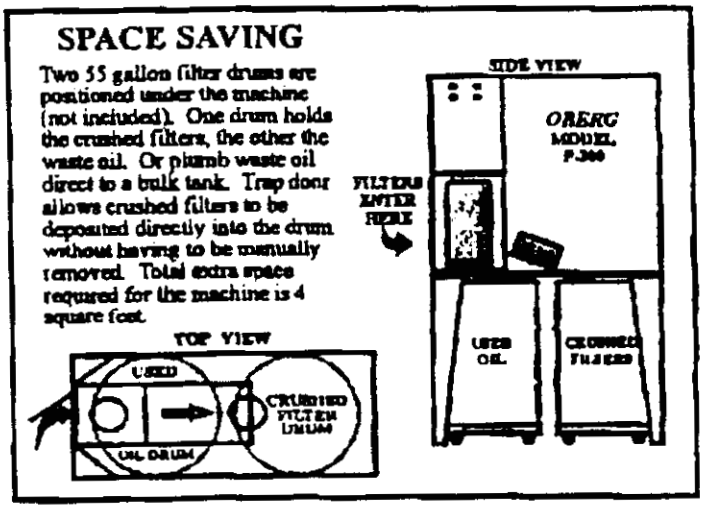
Overall Height	*104"*
Overall Width	*36"*
Overall Length	*60"*
Shipping Weight	*1,380 Lbs.*

SPECIFICATIONS

Cycle Time	*57 sec.*
Cavity Size	*15"w x 15"d x 20"h*
Electrical	*208-220v. 15 amp. Single Phase*
Crushing Force	*70,650 Lbs.*

SPACE SAVING

Two 55 gallon filter drums are positioned under the machine (not included). One drum holds the crushed filters, the other the waste oil. Or plumb waste oil direct to a bulk tank. Trap door allows crushed filters to be deposited directly into the drum without having to be manually removed. Total extra space required for the machine is 4 square feet.



OBERG International Inc.

NuERA TECHNOLOGIES
P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411

800-347-9575

Manufacturer of Quality Waste Reduction Equipment

OBERG OIL FILTER PRESS
USER PRICE SHEET

OBERG PART #	PRODUCT DESCRIPTION	USER PRICE	SHIPPING WEIGHT
P100WM	**FILTER PRESS** Automotive and Light Industrial Filter Press Mounts To Wall	1,695.00	360 lbs
P200L	**FILTER PRESS** H.D. Truck Filter Press (Note: Model P-200 Will Also Crush Multiple Automotive And Light Industrial Filters) With Legs To House One 55 Gallon Drum	3,880.00	615 lbs
→ **P300**	**FILTER PRESS** H.D. Industrial Filter Press (Crushes Filters Up To 20" Tall) (Also Crushes 5 Gallon Size Cans) With Legs To House Two 55 Gallon Drums	5,495.00	1380 lbs
P350	**FILTER PRESS** H.D. Industrial Filter Press (Crushes Railroad Type Filters Up To 40" Tall) (Also Crushes Multiple 5 Gallon Size Cans) Includes Bins For Collection Of Filters And Waste Oil	14,950.00	3000 lbs

SHIPMENTS: F.O.B. ARLINGTON, WASHINGTON
TERMS: 2%10 NET30

Prices effective September 1, 1995

OBERG™ FILTER PRESS

The American Standard For Crushing All Size Filters

Auto - Heavy Duty Truck - Industrial - Railroad

Used Filter Recycling Across America

PARTIAL COMMERCIAL CUSTOMER LIST

Cummins Service Products - Detroit Diesel
Volvo GM Heavy Truck - PACCAR
Rollins Truck Leasing - Ryder Truck Leasing
Penske Truck Leasing - United Parcel Service
Waste Management - Coca Cola - Boeing
Chicago Transit - Milwaukee Transit
Peabody Coal - Mobil

Weyerhauser
Puget Power
Tri-Met Oregon
City of Torrance
City of San Diego
Los Angeles Water & Power
Pacific Gas & Electric
Northrop
Long Beach Transit
City of Huntington Beach
City of Anaheim
United Airlines
Sacramento Transit
Mini-Lube
Sam Trans
Southern Pacific Railroad
Exxon
Lockheed

Textron Lycoming
Wash. D.C. Airport
City of Philadelphia
Jiffy Lube Franchisees
Penn. Dept. of Trans.
Atlantic City Int'l Airport
Texas Gulf
Fleetguard Filters
Southeastern Freightways
Florida Power
Disney World
City of Miami
City of Lakeland

Louisiana Pacific - Chevron USA - Pepsi Cola
Atlantic Richfield - Borden
Mason & Hanger - Capitol Metro Austin
Consolidated Freightways - J.B. Hunt Transport

AND THOUSANDS MORE, REFERENCES UPON REQUEST

OBERG Also Supplies Federal Government Facilities Under Contract

GSA Contract #GS-07F-71950

ARMY - NAVY - AIR FORCE - MARINES
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BUREAU OF PRISONS - AIR NATIONAL GUARD - NAVAL AIR STATIONS
DEPARTMENT OF TRANSPORTATION - U.S. PROPERTY - F.A.A.

Call Or Fax To Request Complete Catalog And Video

OBERG International, Inc., Arlington WA U.S.A.

"America's #1 Quality Filter Press"

NuERA Technologies, Inc.

NW REGIONAL OFFICE
P.O. Box 5357
Kent, WA 98064
(206) 639-3630
FAX 206-639-3622

ALASKA OFFICE
P.O. Box 112332
Anchorage AK 99511
(907) 345-6411

DATE: 7/29/96

FAX TRANSMITTAL TO: Tom Fisher, USKH

FAX # 907/452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 1 PAGES

MESSAGE:

REF: Bid specs: Kerkules oil filter crusher (manufacturer's written bid sheet not located)

Sample spec for Model OFC-4

Capable of crushing filters 20" high by 9" diameter, minimum crushing pressure 17.5 tons, maximum 55 second cycle time, air operated; supplied with air filter-regulator & gauge, and timer.

NuERA Technologies, Inc. **Steven R. Ransom**

Profitable Waste Management

- Waste Oil Furnaces
- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs

800-347 9575

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(206) [redacted]/639-3630

ALASKA OFFICE
P.O. Box 112332
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NuERA Corporation

PACIFIC NW OFFICE
P.O. Box 5357
Kent, WA 98064-5357
(206) 639-3630
Fax (206) 639-3622

ALASKA OFFICE
P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411
1-800-347-9575

SMART ASH

Date: 1/10/97

To: Tom Fisher - USKH

Page 1 of 5 Pages

Fax # 452-4225

From: Steve Ransom, NuERA Corporation Fax 206-639-3622

Message:

Tom,

Here's the Smart Ash information I was able to copy for you. Original Brochure Slicks enroute via US Mail, (and associated data)

List Price on Incinerator @ $3,295

"Smart Heat" Energy Recovery Unit @ $4,700

Thanks for your call

Sincerely,

Steve R.

NuERA Corporation Steven R. Ransom

Profitable Waste Management

- Waste Oil Furnaces
- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs

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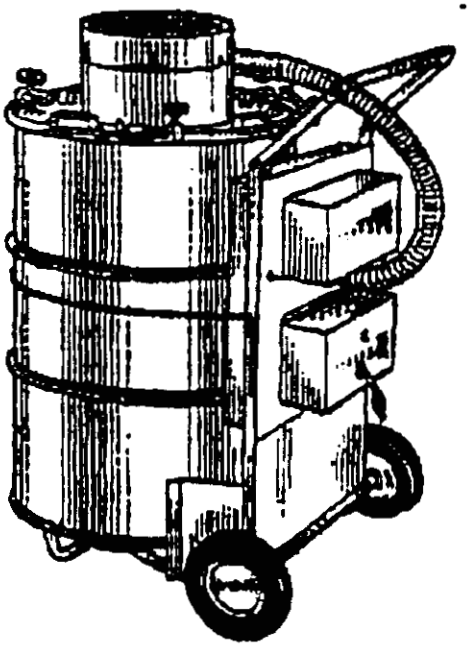
ELASTEC INC

POLLUTION CONTROL SYSTEMS

SmartAsh Power to Burn

This innovative combustion system meets EPA requirements for burning non-hazardous refuse.



SmartAsh uses no fuel. Simply load a 55 gallon, open head, steel drum; light it and clamp on the lid.

Two 120v electric high-velocity blowers create a cyclone of intense heat. Combustion is so complete the volume of materials is reduced to an average of 3% ash. Portable and convenient, SmartAsh rolls out of sight when the job is done.

The air powered SmartAsh reduces disposal cost while elimintng possible long term environmental liabilities.

SmartAsh gives you the power to burn!

REPORTED FUELS:

Absorbent Materials
(Natural & Synthetics)
Classified Papers
Office Waste
Filters
Packing Materials
Clothing

Specifications

Construction:
*Stainless Steel Lid
*Plated Tubular Steel Frame
*2-Blowers, Axial Vane 120 V Standard
or 220 V optional
*Requires: 55 Gallon Steel Open Head Drum

Height: 43"
Floor Space: 32" x 32"
Weight: 76 lbs. Without Drum
115 lbs. With Drum
Burn Rate: 50 LBS./HR.

NuERA Corporation
P.O. Box 5357
KENT, WASHINGTON 98064-5357
(206) 639-3630
800-347-9575

Product #100

SMART ASH MODEL 100A

This innovative combustion system meets EPA & DEC requirements for burning non-hazardous oily waste and other combustible refuse. The Smart Ash uses no fuel. Simply load a 55 gal. open-head steel drum; light it and clamp on the lid. Two 120V electric high velocity blowers create a cyclone of intense heat. Combustion is so complete, the volume of materials is reduced to an average of 3% ash. Portable and convenient, the Smart Ash rolls out of sight when the job is done.

SMART Ash®

POWER TO BURN!

OVER 100 UNITS IN USE STATEWIDE

Attn: Tom. 5 of 5

List of burnable's for Smart Ash

1.) Absorbent types
- a.) Cellulose base types
- b.) Cotton
- c.) Polypropylene & Cotton mix
- d.) Corn cob
- e.) Saw dust
- f.) Peat moss

2.) Hydrocarbons
- a.) All types of crude's
- b.) Waste oils
- c.) Used motor oils
- d.) Transmission oils all types and weights
- e.) Lubricating greases
- f.) Hydraulic oils
- g.) Diesel fuels #1 and #2
- h.) Kerosene's
- I.) Jet fuels (flash point above 100 degrees Fahrenheit.)

All **liquids must** be absorbed in a burnable absorbent, to be incinerated.

3.) Filters
- a.) Spin on and cartridge oil filters from cars and trucks, heavy equipment
- b.) Air filters of all types, car, truck, industrial types
- c.) Poly & Fiberglass filters
- d.) Natural Gas pipeline filters (glycol filters)

4.) Paper Products
- a.) Newspapers
- b.) Office wastes
- c.) Cardboards
- d.) Fast food paper wastes
- e.) Computer papers
- f.) Sensitive documents

5.) Wood products
- a.) Saw dust
- b.) Scrap at construction sites
- c.) Tree limbs & leaves
- d.) Shipping Pallets
- e.) Any type of wood products will fit this category

6.) Plastic's

This unit will incinerate a wide variety of plastic's. The volatile emission's emitted by these types of material are not acceptable in the permitting requirements.

7.) Miscellaneous
- a.) Clothing
- b.) Gloves
- c.) Oily rags
- d.) Packaging material

WAUBAUSHENE MACHINE & WELDING

January 9, 1997

Bilge pump option

Mr. Matt Stephl
Stephl Engineers
2525 Blueberry Suite 203
Anchorage, AK 99503

Dual capacity - sewage & bilge water

Dear Mr. Stephl:

Thank you for inquiring about Waubaushene Pump Out Systems. We manufacture four standard models. Waubaushene pumps are a true vacuum pump which uses difference in air pressure to move sewage. These pumps NEVER NEED PRIMING and they will work with very long plumbing systems.

The pumping action is smooth, fast and dependable. Suction lifts to 25' and horizontal distances of 1000' and more are attainable. In many marinas, updating to a vacuum system has meant the elimination of clumsy portable pumps and offensive lift stations on the docks. Above all, it virtually eliminates messy pump maintenance associated with other designs.

Standard models are the AVR60, which will serve a freshwater marina up to about 200 permanent slips and the AVR125, which is suited to larger marinas or marinas that occasionally serve a few larger boats such as houseboats.

The BVR300 system is a larger system designed specifically for municipal marinas, live aboard boats or commercial houseboat operators. The BVR300 can maintain vacuum on an intake plumbing system 2000' long on each branch. It will give peak flow rates of 100 gallons per minute on four hoses simultaneously if desired.

Our newest model, the DPK240 is a practical solution to mobile pump outs.

Enclosed is a general brochure and price list. Feel free to contact us for any technical or other questions you may have or our sales representative in your area: Bill Moses, 5917 173rd Place SW, Lynnwood, WA 98037 Phone ~~(206) 742-4225~~ hm

Mobile - 206-742-4225
Field office - 800-669-1390

Sincerely,

Jennifer Tregenza

Jennifer Tregenza
Sales Manager

Box 99 111 Coldwater Rd. Waubaushene, ON Canada L0K 2C0 800 663-1624 Fax (705) 538-1776

Waubaushene Machine & Welding

Phone 1 800 663-1624 *Prices in US Funds* *Effective September 1, 1996*

PUMPS

AVR60

Includes 60 gallon cycle tank, 33' intake hose, couplings, ball valve, 2 sizes of deck fittings (1 1/4" & 1 1/2"), universal deck fitting, and a potty wand. Single 1/3 Hp rotary vane pump $4,195.00

Optional Hot Dipped Galvanizing $200.00
Optional 3/4 Hp rotary vane pump $750.00
Optional Push Button Operation $120.00

AVR125

Includes 125 gallon cycle tank, 33' intake hose, couplings, ball valve, 2 sizes of deck fittings (1 1/4" & 1 1/2"), universal deck fitting, and a potty wand. Single 3/4 Hp rotary vane pump $5,150.00

Optional Hot Dipped Galvanizing $250.00
Optional Push Button Operation $120.00

LD125

Includes 125 gallon cycle tank for long intake runs, 33' intake hose, couplings, ball valve, 2 sizes of deck fittings (1 1/4" & 1 1/2"), universal deck fitting, and a potty wand. Single 1.5 Hp rotary vane pump : $6,695.00

Optional Hot Dipped Galvanizing $250.00

AVR300 Constant Vacuum System

Includes 300 gallon cycle tank of 1/4" steel plate shell, intake and outlet valves 3" NPT, solid state components are modular plug-in design, dual 2 Hp rotary vane pumps, 6 min. cycle time. Standard hot dipped galvanized . . $16,000.00

Optional Remote Stand with vacuum gauge only $400.00
Optional Dock Flange Assembly $80.86

DPK240

Includes 240 gallon cycle tank with 2 Hp Honda gasoline engine, 2 mounting skids running along its length, 33' intake hose, couplings, ball valve, 2 sizes of deck fittings (1 1/4" & 1 1/2"), universal deck fitting, and a potty wand. Standard painted white finish $4,400.00

DPK240E

Includes 240 gallon cycle tank with 3/4 Hp rotary vane pump, 2 mounting skids running along its length, 33' intake hose, couplings, ball valve, 2 sizes of deck fittings (1 1/4" & 1 1/2"), universal deck fitting, and a potty wand. Standard painted white finish $5,550.00

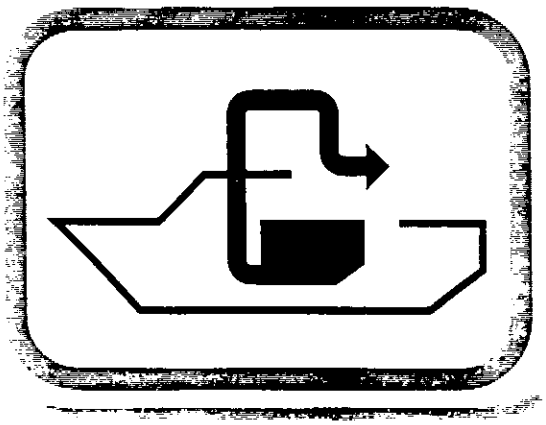
Optional Hot Dipped Galvanizing for pump $300.00
Optional Galvanized Trailer for DPK240 & DPK240E $1,200.00
Optional Hydraulic Surge Brakes $314.00

Use these w/ adjacent storage tank

CHR425

Includes 425 gallon cycle tank of 1/4" boiler plate steel, 33' intake hose, couplings, ball valve, 2 sizes of deck fittings (1 1/4" & 1 1/2"), universal deck fitting, and a potty wand. Single 2 Hp rotary vane pump. Standard hot dipped galvanized $8,950.00

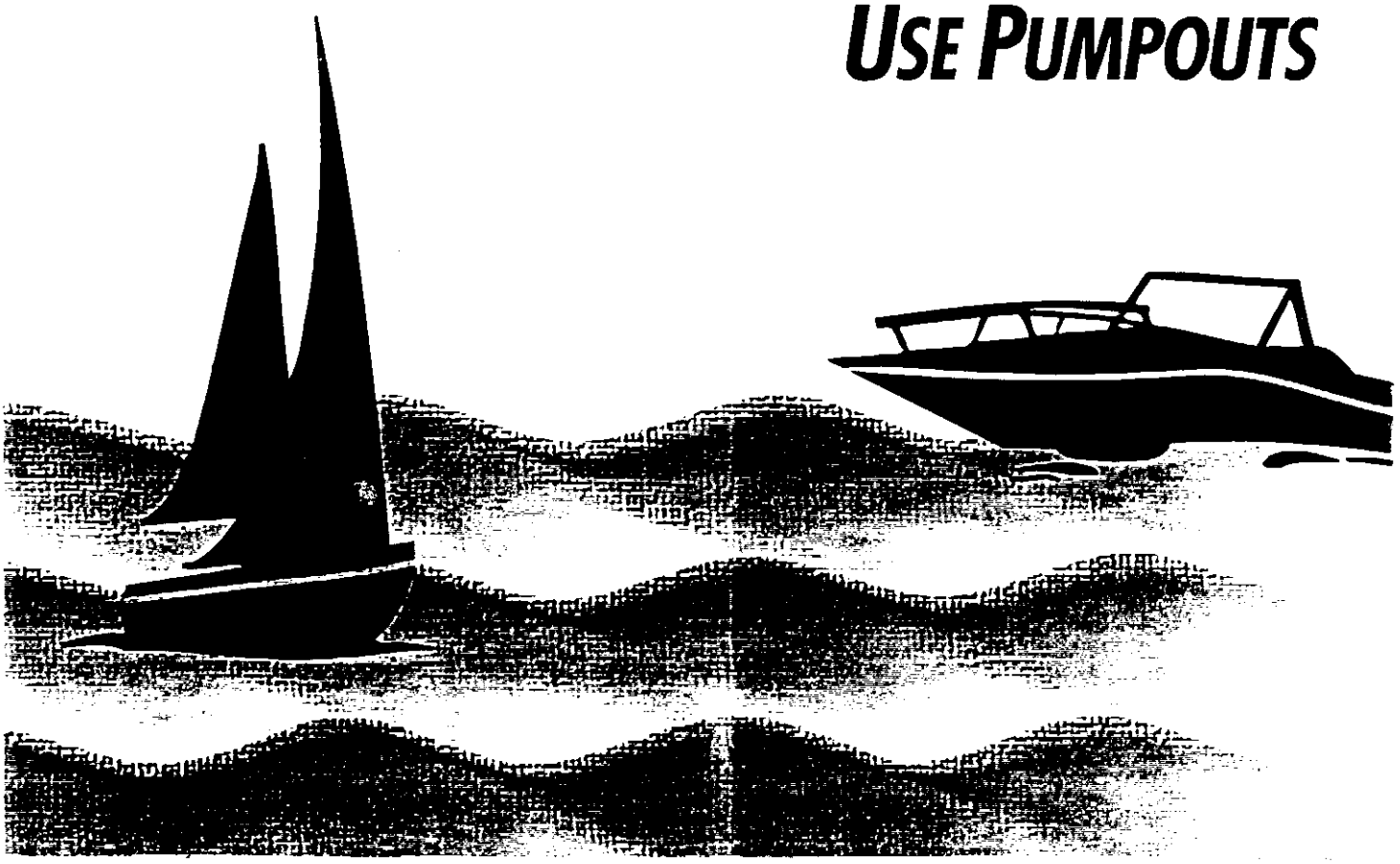
THE CLEAN VESSEL ACT



KEEP OUR WATER CLEAN– USE PUMPOUTS

For further information:
U.S. Fish and Wildlife Service
Division of Federal Aid
Room 140 ARLSQ
4401 North Fairfax Drive
Arlington, VA 22203
703-358-1845

For information on pumpout and dump station locations, call
1-800-ASK-FISH



What is the Clean Vessel Act?

- Congress passed the Clean Vessel Act in 1992 (CVA) to help reduce pollution from vessel sewage discharges. The Act established a five-year federal grant program administered by the U.S. Fish and Wildlife Service and authorized $40 million from the Sport Fish Restoration Account of the Aquatic Resources Trust Fund for use by the States. Federal funds can constitute up to 75% of all approved projects with the remaining funds provided by the States or marinas.

What Happens When You Dump

- Raw or poorly treated sewage can spread disease, contaminate shellfish beds and lower oxygen levels in water. Waterborne diseases including hepatitis, typhoid and cholera can be transmitted by shellfish. Organic matter in sewage is decomposed in the water by bacteria. During this process, the bacteria use oxygen. As a result, sewage in the water may deplete the water's oxygen level, causing stress to fish and other aquatic animals.

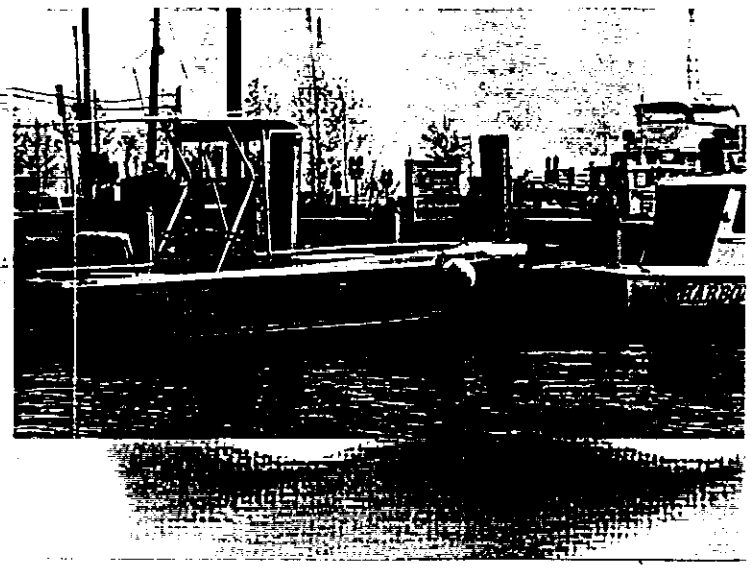
- Shellfish are filter feeders that eat tiny food particles filtered through their gills into their stomachs, along with bacteria from sewage. Shellfish can convey nearly all waterborne pathogens to humans.

- Sewage contamination is measured in terms of fecal coliforms – bacteria produced in the intestines of all warm-blooded animals. Test results are expressed as the number of bacteria per 100 milliliters (ml) of water. Shellfish beds are closed when the coliform count reaches 14 per 100 ml of water. Public beaches are closed to swimmers when the coliform count reaches 200 per 100 ml of water.

- In January 1995, the *Journal of the American Medical Association* reported that outbreaks of viral gastroenteritis in Florida, Georgia and Texas, resulting from the consumption of raw oysters, was traceable to marine sewage disposal on or near oyster harvesting areas in Apalachicola and Galveston Bays. In February 1995, the journal concluded the outbreak resulted from disposal of sewage by commercial and recreational boaters which contaminated the oyster beds. Studies also show the possibility of viral transmission in cooked oysters.

- Areas most likely to be affected are sheltered waters with low flushing rates, waters with significant recreational value, areas set aside for shellfish harvesting, State and Federally designated significant habitats such as those in Coastal Zone programs, as well as waters designated by the Environmental Protection Agency as "No Discharge Areas."

- Currently, vessels use four types of sewage disposal systems. Many boaters use portable toilets which can be

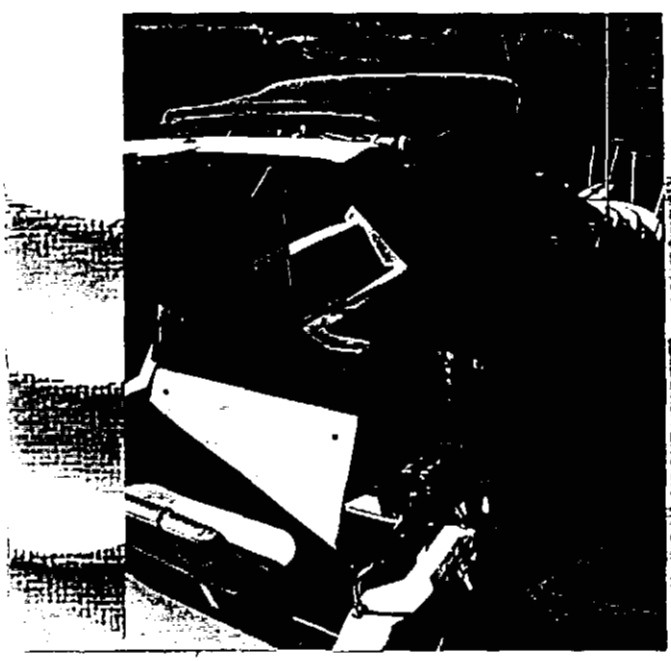


drained at dump stations, however vessels over 26 feet in length typically have Marine Sanitation Devices (MSDs). MSDs are available in three forms, all of which can hold waste for disposal at a pumpout station.

What We Are Doing To Educate Boaters

- The Clean Vessel Act provides a portion of its total funding for educational outreach regarding the effects of boater sewage and the means by which boaters can avoid improper sewage disposal.

- The first goal is to make boaters aware of the importance of proper sewage disposal. The awareness campaign kicked off at the February 1996 Miami Boat Show. The U.S. Fish and Wildlife Service released its awareness campaign products including the pumpout symbol, slogan, and brochure and also announced the pumpout grant awards. The Act provided $10 million for 1996 grants, bringing the total amount awarded since 1993 to $30 million.



Alexis Graml, MD DNR

- The kickoff included representatives from the Department of the Interior, Fish and Wildlife Service, Environmental Protection Agency, National Oceanic and Atmospheric Administration, U.S. Coast Guard, Florida Department of Environmental Protection, and the National Marine Manufacturers Association. These agencies and organizations continue to work with marine interests to distribute materials and educate boaters on the use of pumpout and portable toilet dump stations. States also held similar events. Other agencies and marine community groups may join this partnership.

- The second goal informs boaters and marina operators of sewage disposal problems, educates them on the use and advantages of pumpout and dump stations, and where to best locate such stations. This program will complement and unify existing State programs, sending one clear message: "Keep Our Water Clean – Use Pumpouts."

- Major national CVA educational products include a poster for distribution to more than 22,000 marinas, press and training packets, and various public service announcements for radio, television and print media. States are producing their own education products.

- Boaters and anglers, by calling 1-800-ASK-FISH, a toll-free number established by the Sportfishing Promotion Council, can find the location of pumpout and dump stations, and can report malfunctioning facilities.

What the Act Does

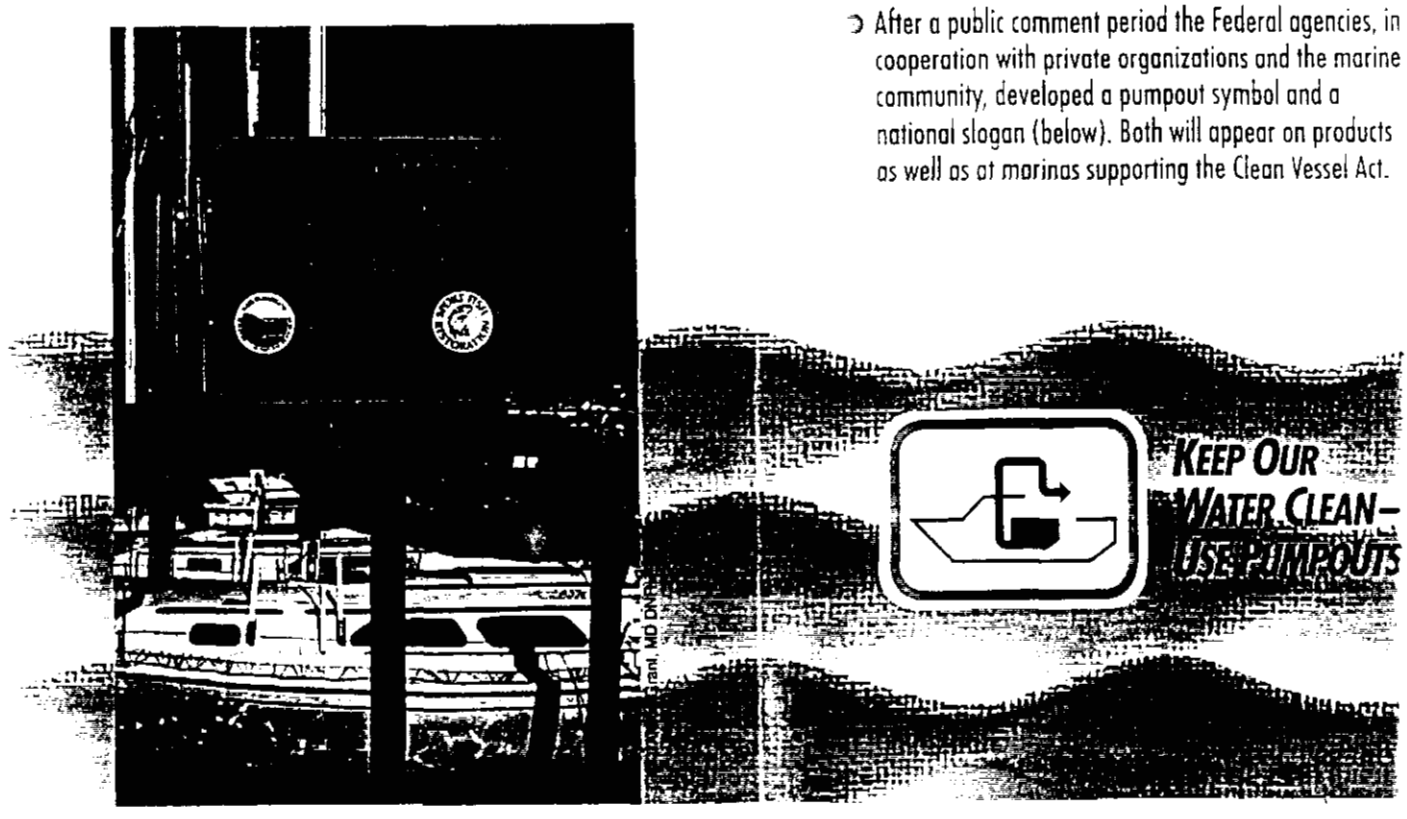
- Grants are available to the States on a competitive basis for the construction and/or renovation, operation, and maintenance of pumpout and portable toilet dump stations.

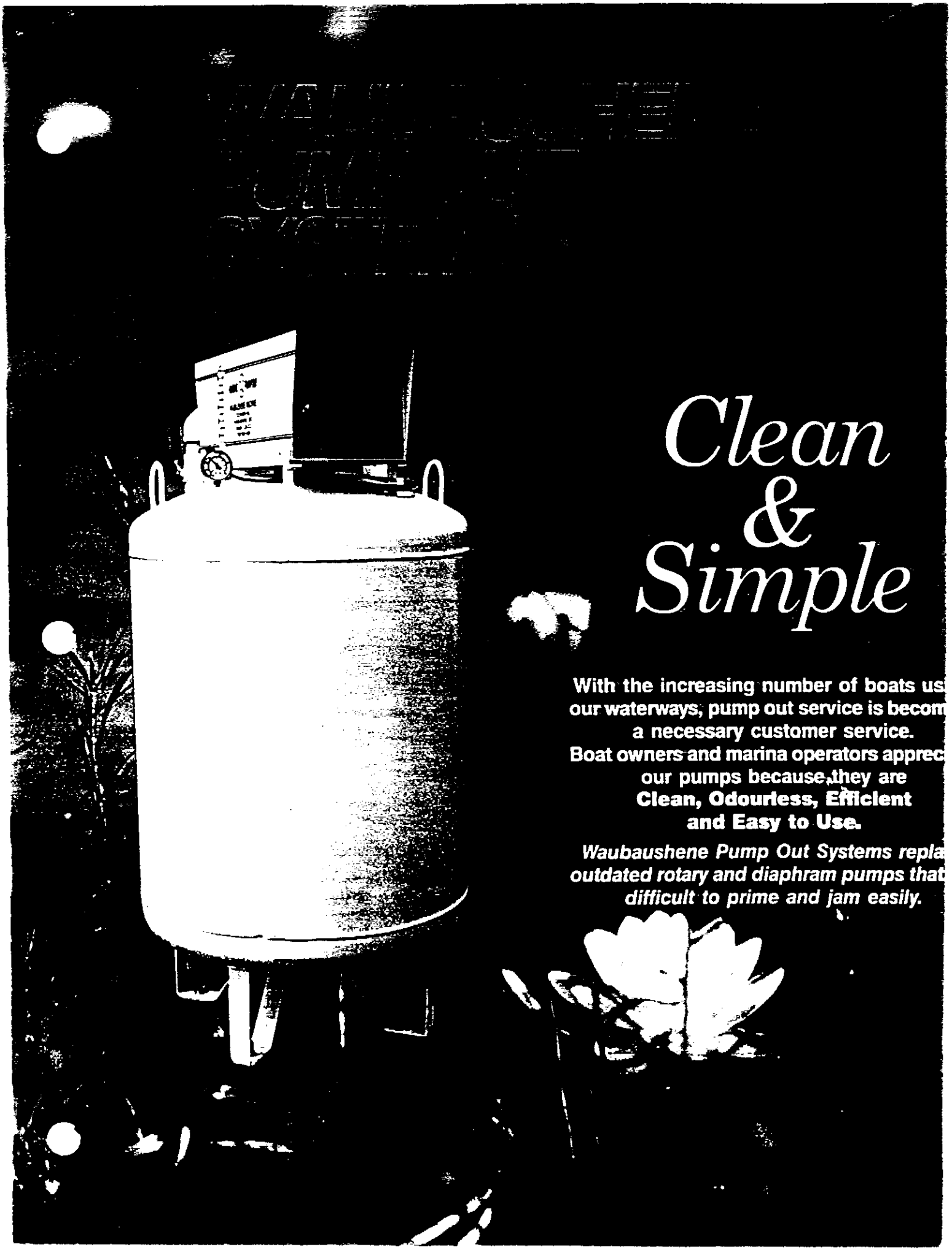
- Currently States submit grant proposals, by May 1 of each year, to one of seven Fish and Wildlife Service regional offices for review and submission to the agency's Washington, DC headquarters. The Service's Division of Federal Aid then convenes a panel including representatives from the Service's Washington Office of the Division of Federal Aid, the National Oceanic and Atmospheric Administration (NOAA), the Environmental Protection Agency, and the U.S. Coast Guard. The panel reviews, ranks and makes funding recommendations to the Director of the Fish and Wildlife Service.

- The Director gives priority consideration to grant proposals which provide installation and/or operation of pumpout and dump stations under Federally approved State plans. Proposals offering the greatest benefit to the intended waters and the general public also take precedence.

- All recreational vessels must have access to pumpouts funded under the Clean Vessel Act. NOAA will mark pumpout and dump station locations on its nautical charts. Halfway through the program, grants have been awarded to install 1,200 pumpout stations and 630 dump stations. A maximum fee of $5.00 may be charged for use of pumpout facilities constructed or maintained with grant funds.

- After a public comment period the Federal agencies, in cooperation with private organizations and the marine community, developed a pumpout symbol and a national slogan (below). Both will appear on products as well as at marinas supporting the Clean Vessel Act.





Clean & Simple

With the increasing number of boats us our waterways, pump out service is becom a necessary customer service. Boat owners and marina operators apprec our pumps because they are Clean, Odourless, Efficient and Easy to Use.

Waubaushene Pump Out Systems repla outdated rotary and diaphram pumps that difficult to prime and jam easily.

THE WAUBAUSHEN

*Requires No Priming *EVER* — It works on a hydro pneumatic system, using difference in air pressure to move fluids in and out of a tank.

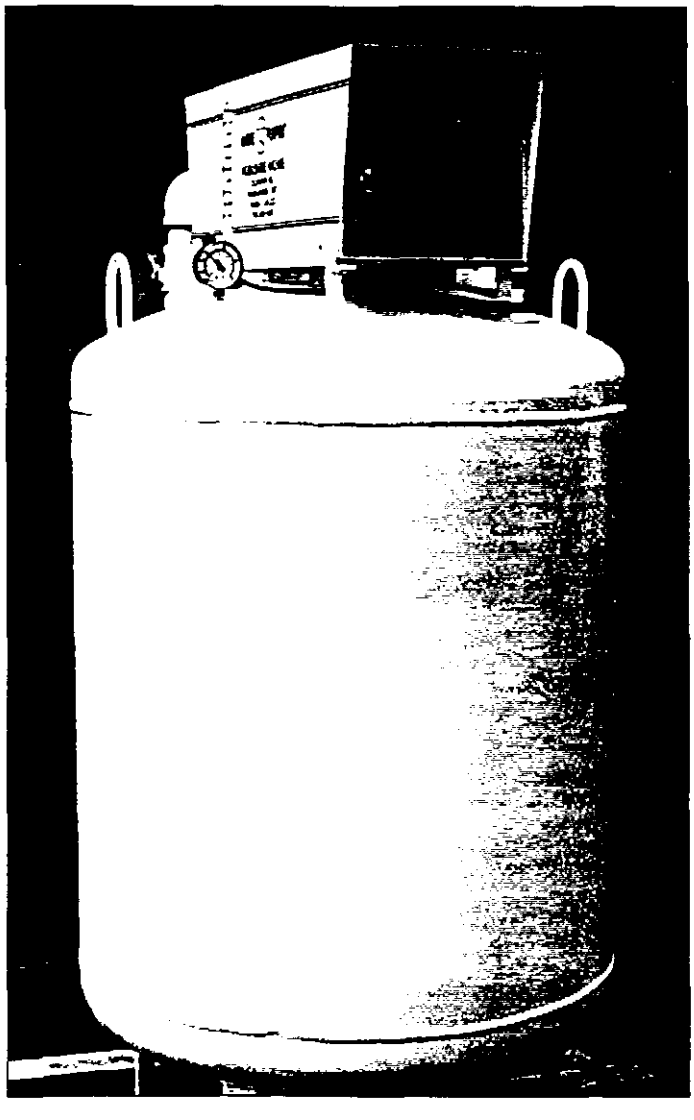
*Will Not Jam — There are no moving parts in contact with the sewage, which means no broken diaphrams, jammed impellors or flapper valves.

*No Spills — The suction hose is emptied by the air flow. If a hose is left open nothing happens.

*Automatic Shut Off — The pump will automatically shut off when the tank is full and discharge contents into the sewage facility.

*Easy to Use. — Push a switch, connect the hose to the boat and thats it.
As easy as using a gas pump.

*Easy to Install — Standard models are self-contained and free standing, they require 120 volt power and a hose or pipe to the sewer.

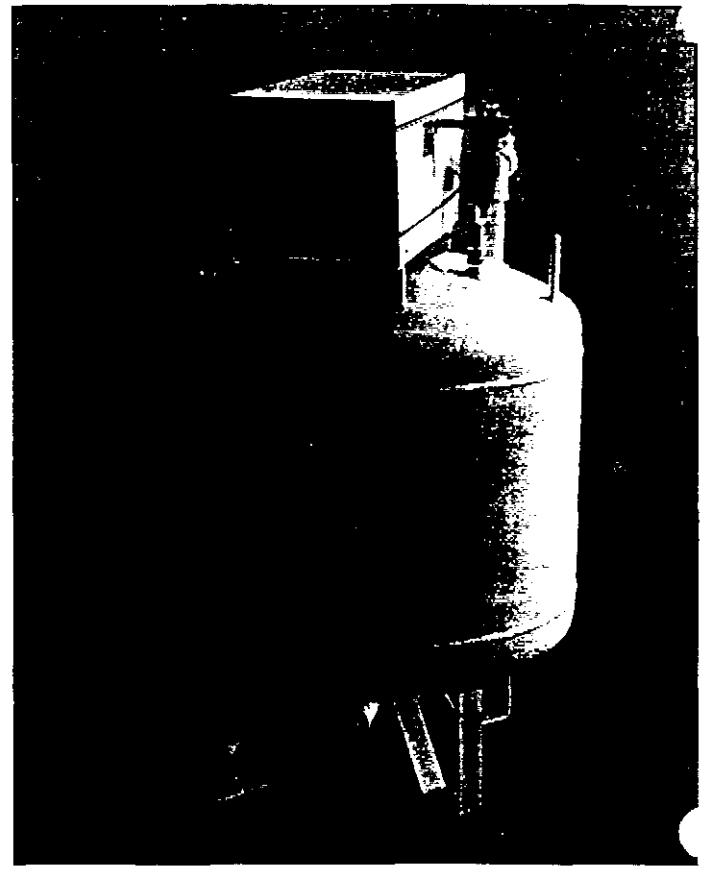


*Longer Distances — Pumping distances of several thousand feet eliminates the need for extra lift stations.

*Easily Serviced — Our custom designed solid state controls are reliable and eliminate the need for any mechanical floats, switches or valves inside the tank. The controls and pump assembly are located inside a single housing which can be removed easily for repair or replacement.

OPTIONS AVAILABLE:

—Other voltage.
—Hot dip galvanizing.
—Remote control(s).
—Card reader operation.
—Token operation.
—Counter
—Trailer for mobile pumpout.



▲**AVR 60** — 60 gallon capacity per cycle.

TWO STANDARD MODELS TO CHOOSE FROM:

◄ **AVR 125** — 125 gallon capacity per cycle.

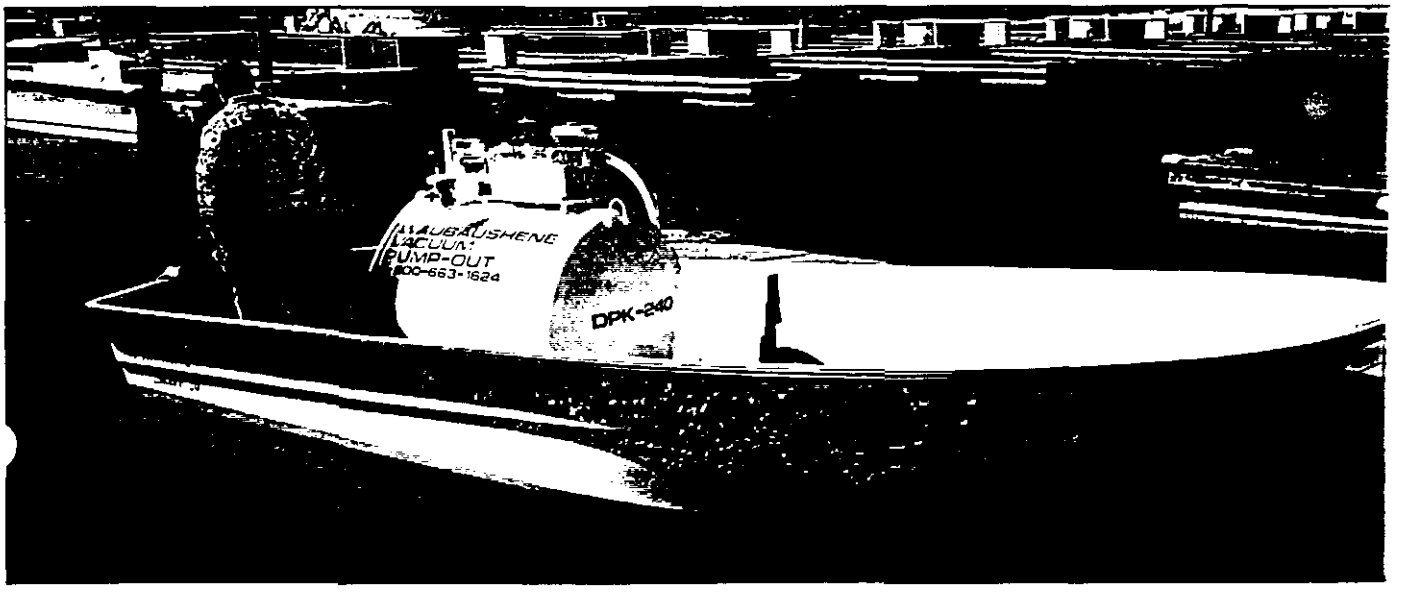
WAUBAUSHENE MOBILE PUMPOUT SYSTEMS

The **DPK240** is a practical solution to mobile pumpouts. The Mobile System is based on the same principals of operation that have made the well-known Waubaushene Shore Mount systems so popular over the past few years. The integrated vacuum pump design overcomes many of the shortcomings of conventional impeller and diaphragm type pumps. It is simple, reliable, easy to maintain, and powerful.

The **Waubaushene Mobile Pumpout System** is a self-contained vacuum operated system consisting of a 240 gallon internally baffled steel tank on which is mounted a vacuum pump driven by a 2.2 HP Honda gasoline engine.

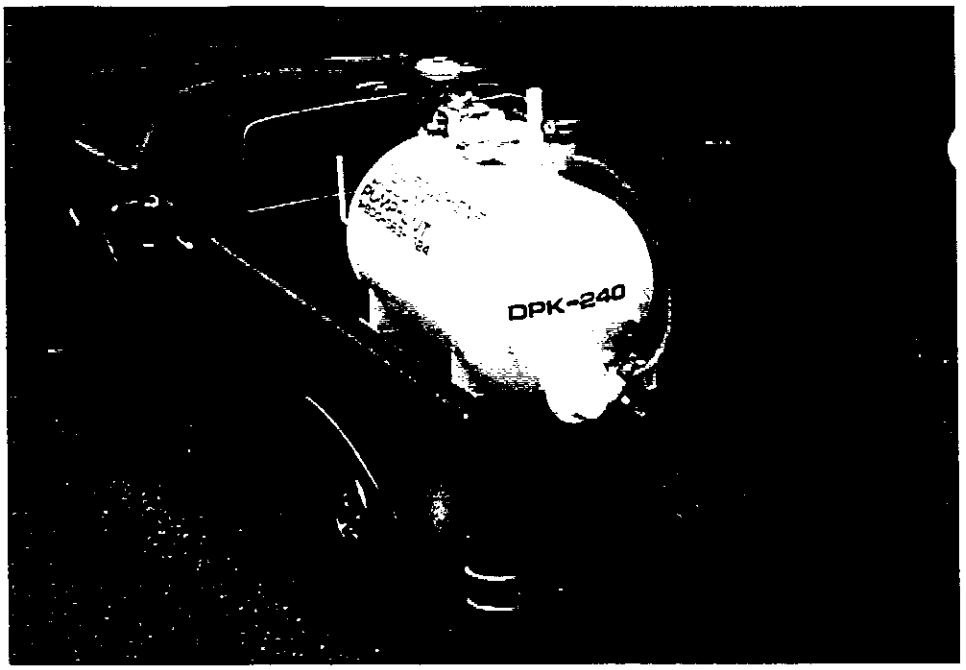
The tank is 60" long × 36" diameter. It is furnished with 2 mounting rails running along its length. It is designed to be lowered into a boat or truck onto two matching rails and bolted or pinned in place. It can also come assembled as a road trailer with 14" tires, fenders, lights, and tongue jack with caster. Hydraulic surge brakes are available as an option. The system is simple, reliable, easy to maintain, and powerf

The vacuum tank is welded steel constructi with two 8" access ports. A PVC sight tube is p vided to monitor the tank's fluid level. The st dard system is furnished white paint fini Lifting rings are provided for ease of handli A 33' PVC reinforced inlet hose with a br lever-operated ball valve is supplied. A stora bracket is supplied for convenient securing of hose. The system comes standard with 1-1/4" a 1-1/2" deck fittings, and a universal deck adap



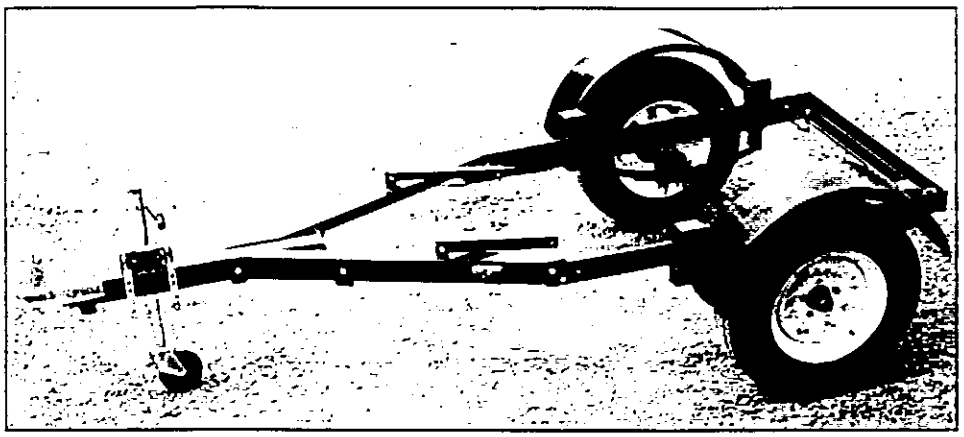
The system will pump and discharge at rates up to 60 gallons per minute. It will handle heads greater than 25' with ease.

In operation, when the tank reaches the full level, the engine stops automatically. The discharge lever is manually moved to the *"discharge"* position. This configures the system for the discharge operation and re-energizes the engine's ignition. When the tank is empty, the lever is moved to the *"pump"* position, and the unit is again ready to pump out tanks.



The Waubaushene system offers many advantages over conventional pumpouts:

- It is a true vacuum system - Proven best for handling sewage (same system used by commercial sewage pumping trucks).
- Will not jam - Sewage never touches the pump.
- The system never needs priming - Vacuum pumps are designed to suck air.
- No spills - Vacuum overcomes any small suction leak.
- Versatile - The system can be easily removed and the vessel used for other purposes.
- Powerful - Pumps and discharges high volume, high heads, and long distances.
- Civilized maintenance - All service items are above the level of sewage.
- Low maintenance - No diaphragms or impellers to replace.



For More Information Please Contact:

WAUBAUSHENE MACHINE & WELDING

Box 99, 111 Coldwater Road, Waubaushene, Ontario, Canada, L0K 2C0

Telephone: **(705) 538-1459** Fax: **(705) 538-1776**

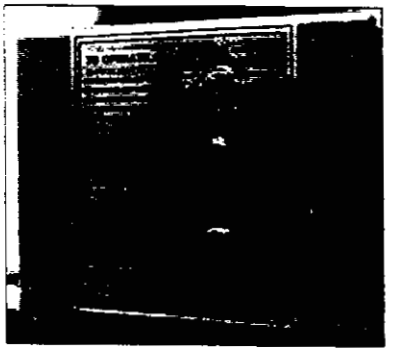
USA & Canada Toll Free 1-800-663-1624

PUMPOUT SYSTEMS

REMOTE CONTROL OPTION

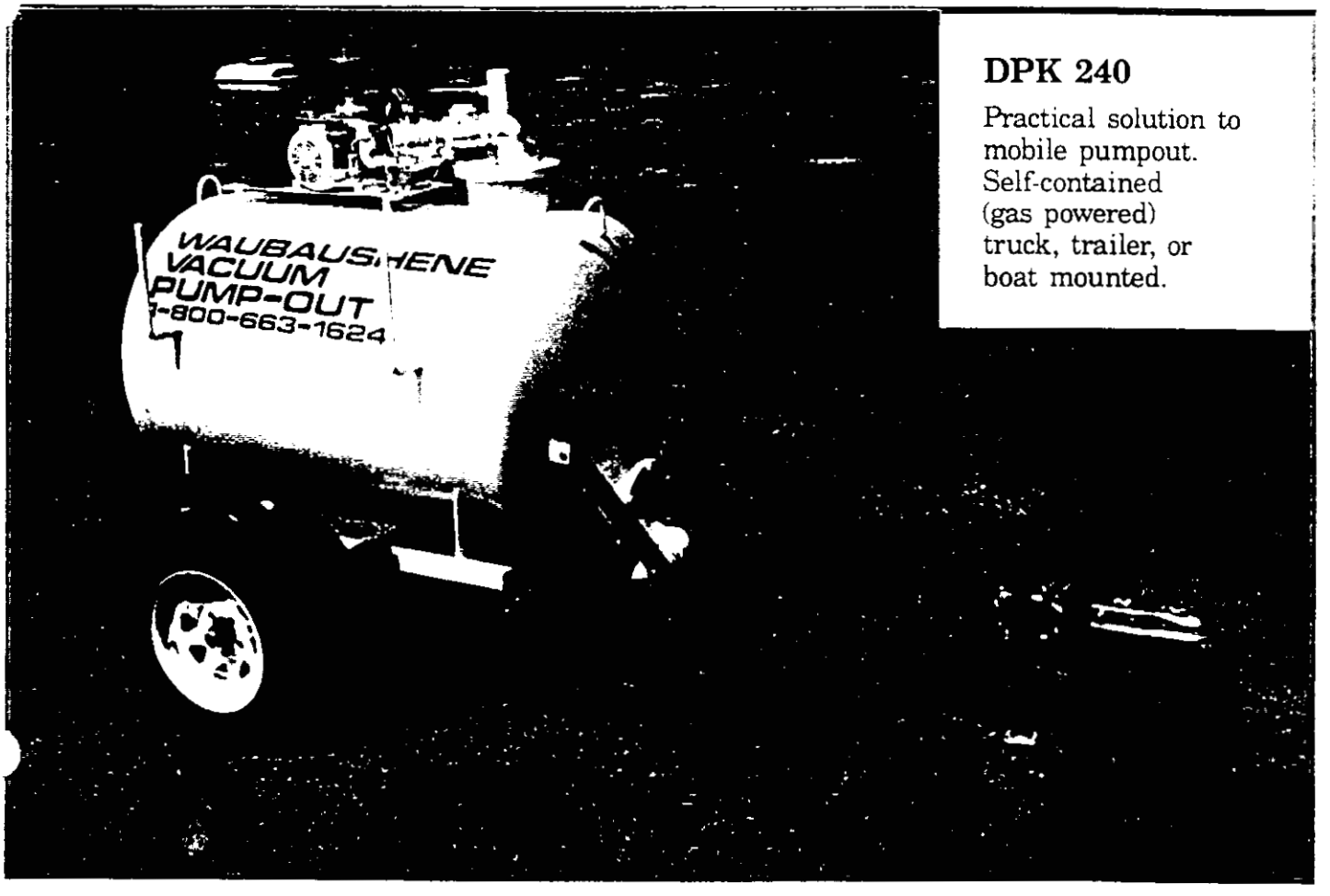
The remote stand enables the pump to be located a distance away from where the actual pumping is being done, freeing up space on a crowded service dock.

A suction line runs from the remote inlet on the dock to the pump (located on shore or in a little used area of the dock), the pump is controlled by a switch on the remote stand at the dock. One or more remotes can be used off the same pump, similar to a central vac in a house.



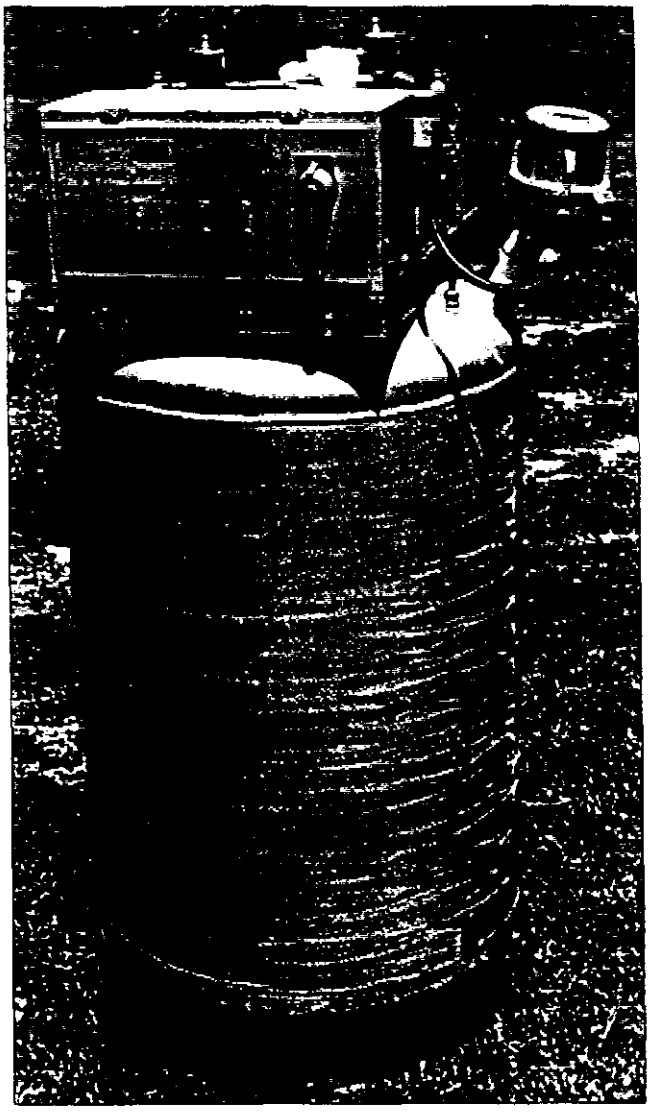
Two remote control options - a remote control stand *(left)* or remote control box *(right)* - enable you to pump from several different locations to a centrally located pump.

A remote stand at the end of each finger dock is a popular installation. Remote wiring is low voltage and is colour coded for easy connection.



DPK 240

Practical solution to mobile pumpout. Self-contained (gas powered) truck, trailer, or boat mounted.



BVR-300 PUMP

The BVR-300 is a fully automatic vacuum sewage pump designed for marina's that service large volumes of boats, houseboats and live-aboard boats. The BVR-300 pump runs quietly with no odour and can service a typical boat in a few minutes.

The system will operate 4 suction hoses simultaneously, maintaining a vacuum on all dockside piping, many inlet points can be installed and there is no extra wiring to the docks. The usable suction distance is 2000 feet with 2" pipe, flow rates of 45 gallons per minute can be attained at 2000 feet with a vertical lift of 25 feet. When the operator opens the hose, the boat tank is pumped quickly, with the vacuum pump maintaining suction as required.

The design is versatile, eliminating priming and clogging problems at dockside.

Pumping a boat is a simple procedure of connecting the hose and opening the valve, there is no odour from the pump and it runs very quietly.

In situations with permanent moorings, there can be a separate suction hose for each slip, the operator simply opens the hose valve to pump the boat as required.

This system eliminates the need for clumsy portable pumps on the docks. It is very cost effective and offers a saving in overall installation and operating costs.

FOR MORE INFORMATION CALL OR WRITE TO:

WAUBAUSHENE MACHINE AND WELDING

111 COLDWATER ROAD,
WAUBAUSHENE, ONTARIO,
CANADA, L0K 2C0
Telephone: **(705) 538-1459** Fax: **(705) 538-1776**

1-800-663-1624

Printed in Canada

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To [redacted] | From Ron West

Co./Dept. [redacted] | Co.

Phone # | Phone #

Fax # | Fax #

[redacted]

Waste Cans, Bins & Containers

Oily Waste Cans


Apache


Comanche


Cherokee

These cans are handy to have in the shop for holding combustible materials until they can be disposed of permanently. Use them for solvent cloths, oily waste, rags, swabs, shavings, and other materials subject to spontaneous combustion. Cans are made of terne plate (lead-coated steel). Apache and Cherokee have an enamel finish. Comanche has a powder coat paint finish. Open cover with lever. Automatically closes when released. A raised ventilated bottom helps air to circulate to disperse heat and prevent spontaneous combustion. Containers are easily identified to encourage proper disposal of flammable refuse on the job and are labeled "Empty every night." Cans shown at left are foot-operated. All units meet OSHA requirements and are UL listed. Comanche and Cherokee cans are Factory Mutual approved.

Gal. Cap.	Size	Ht.	Hand Operated 1-3 Each	Hand Operated 4-Up Each	Foot Operated 1-3 Each	Foot Operated 4-Up Each
Apache Round Yellow Cans						
6	12⅛" Dia.	19¾"	4074T31 $39.17	$34.11	4074T41 $42.71	$37.53
10	13¾" Dia.	20¾"	4074T32 45.38	39.52	4074T42 48.63	40.98
12	15" Dia.	21"	4074T33 50.08	43.62	4074T43 53.71	46.89
15	16" Dia.	24"	4074T34 54.71	47.65	4074T44 57.23	49.96
21	18" Dia.	25"	4074T35 89.39	77.77	4074T45 99.14	85.75
Comanche Round Red Cans						
6	11⅞" Dia.	15¾"	4070T1 42.00	36.57	4070T5 43.14	36.41
10	13¾₁₆" Dia.	18¼"	4070T2 48.48	43.21	4070T6 48.83	43.48
14	16⅛" Dia.	20¼"			4070T7 60.11	53.58
21	18⅛" Dia.	23⅞₁₆"	4070T3 96.89	84.89	4070T8 92.78	82.82
Cherokee Triangular Red Cans						
6	15¼"e, 16" ◆	18"			4090T5 49.72	43.60
10	17¼"e, 18¼"◆	19"			4090T6 56.96	49.08
14	19⅛"e, 20" ◆	21"			4090T7 62.82	55.09
21■	22"e, 22¼"◆	24"	4090T4 96.84	87.86	4090T8 96.84	84.92

■ Has side carrying handles. e Back side. ◆ Front to back.

Liquid-Waste Disposal Cans

Wide spout openings make filling and emptying these cans easy. The spout cap can even be locked open to let you empty many containers without using a funnel. Use the cans for leftover chemicals, solvents, and liquid wastes that could be hazardous if not contained. They're excellent as intermediate storage stations for laboratories and factories.

The cap assembly opens automatically to relieve excess vapor pressure that builds up inside the can. The cans also have a flame-arrester screen to help prevent contents from igniting by external spark. Cans are Factory Mutual approved and meet OSHA requirements.

Gallon Cap.	Dia.	Ht.	Spout ID		Each 1-2	3-Up
Terne Steel (Lead-Coated Steel)						
2½	11½"	12"	4"	4103T21	$91.85	$84.89
5	11½"	18"	4"	4103T22	97.62	90.20
Polyethylene						
2	12"	14¾"	3⅛"	4103T14	117.13	106.42
5	12"	20"	3⅛"	4103T15	127.35	116.82
5	12"	20"	3¼"	4103T16■	190.80	171.72
Stainless Steel—Type 316						
2½	11½"	12"	4"	4100T11■	239.86	221.48
5	11½"	18"	4"	4100T12■	257.42	238.41

■ Flame arrester and hardware are stainless steel; all others are plated steel.

Mobile Oily Waste Bin

This bin can be wheeled anywhere in the plant for safe, easy disposal of oily waste, rags, and paper. It's made of steel with gray enamel finish and bin rolls on four swivel casters with 2" steel wheels. A drop handle makes steering easy. There is a foot lever on the front of the bin to raise the cover. Capacity is 42 gallons. Size is 18" square x 30" high. Bin is not liquid tight. Bin is shipped unassembled.

	Each 1-2	3-Up
4076T11	$213.90	$188.67

Polyethylene Oily Waste Cans

Noncorroding, impact-resistant polyethylene cans have a foot pedal to open and close lid—keeps your hands free and away from the can. Polyethylene is impervious to many liquid chemicals and corrosives—great for disposing of solvent-saturated and oily rags and other materials subject to spontaneous combustion.

Cans are available in 6- and 14-gallon sizes. Both are red. FM approved.

Cap., Gal.	Overall Size Ht. x Wd. x Dp.		Each
6	16" x 13½" x 16½"	4086ST2	$34.83
14	21" x 18" x 22"	4086ST4	44.52

Leakproof Polyethylene Waste Containers

These high-density polyethylene containers feature an attached lid with clamp that ensures safe storage and shipping of dangerous waste without spilling or leaking. Single-piece polyethylene containers are puncture and chemical resistant, making them suitable for use with a variety of materials. The interior has no crevices to catch waste and permits easy cleaning. The lid integrates a neoprene seal to trap odors in and ensure a tight, leakproof seal.

Containers have a slim design to fit through standard doors, and are easy to maneuver. Containers are stackable—the bottom of the container fits the contours of the lid. Wheels are 6" in diameter with solid rubber tires. Color is red.

Capacity, Gal.	Size Ht. x Wd. x Dp.		Each
38	42" x 19" x 22"	4146ST81	$87.11
96	43" x 24" x 38"	4146ST82	137.99

Oil-Filter Crusher

Reduce oil filters to 20% of their original size and extract 95% of the waste oil with this pneumatic-powered oil-filter and paint-can crusher.

Crushing chamber is 13" high x 10" wide x 8" deep—big enough to handle the largest spin-on truck and auto filters as well as gallon-size paint cans. A removable, ¾" female-connection catch basin can be hooked up to a variety of waste oil containers.

Crusher has a ¼" female air inlet and requires 100 to 200 PSI air pressure to operate. Unit is furnished with a mounting stand. Overall size: 77½" high x 20½" wide x 16½" deep.

4086ST11 ..... Each $2380.00

Drip and


A


B


Drip Can


Spill Tray


F

A DRAIN CAN—This can is perfect for draining flar vids from drums, crankcases, and containers to risk of fire. Also known as a recycle can. The can is made seamless terne plate steel and has a wire pail handle. wide-mouth funnel is 6⅞" in diameter and made of cadr steel. Built-in flame arrester keeps fire from contents. A ' plug allows safe disposal of contents. Color is red.

Gal. Cap.	Dia.	Ht.		1-3
5	11¼"	12½"	9667T13	$34

B OIL DRIP PAN—Shallow, black polyethylene pan and grease from automotive engines and machin prevent staining of concrete and erosion of blacktop. weatherproof and virtually unbreakable.

Gal. Cap.	Overall Size L x W x H	Carton Qty.		Pk Ct
½	36" x 24" x 1½"	18	4206T1	$1

C GALVANIZED DRAIN PANS—These big pans a draining oil, as well as parts cleaning and rinsing. is galvanized steel without a cover or handles. No. 4 dipped, galvanized steel with a sturdy quarter cover, pol top and rear handles.

Gal. Cap	Top Dia.	Ht.	Carton Qty.		Sh Ct
3½	16"	3¾"	12	4204T4	$3
7	18¾"	6½"	2	4204T3	1

D DRAIN PAN/CAN—Fluid flows onto the pan and i attached drain tray and into the carrying can. Ut threaded, and coolants. The black polyethylene pan can b transported upright without spilling. Includes drain tra and can cap.

Gal. Cap.	Overall Size L x W x H	Carton Qty.		Sh Ct
2	13½" x 10½" x 3½"	6	4839T22	$6

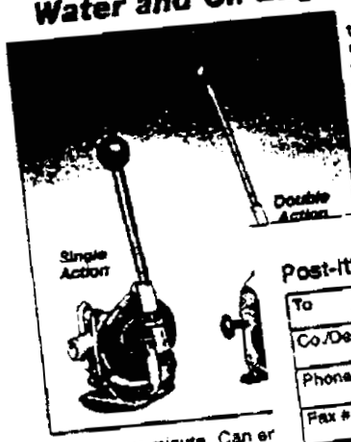
Air-Powered Indust

Save time, space, and effort with these pneumatic trash compactors that are as powerful as they are easy to use. Just connect them to any compressed ai source (up to 250 psi) and you're ready to unleash up to 7,000 pounds of force to compact anything from garbage to recyclable materials in seconds. Compactors are op erated with a two-handed safety lever that keeps hands and face away from the barrel. Overall size is 29" wide x 27" deep x 75" high. With optional wheel kit, compactors can easily be moved wherever they're needed.

Single-size compactors can be used with either 30- or 55-gallon drums (not included). Compactors for 30-

[redacted]

Water and Oil Bilge Hand Pumps



Compact and efficient, these self-priming, high-capacity pumps virtually drink up water and oil for easy transfer—their GPMs are 19 and 36.

Pumps have a stainless steel handle that requires minimal energy to operate. The body is made of anodized, diecast aluminum alloy that's coated with epoxy.

gallons per minute. Can er
4325K14 .....

Double Action—Pumps (ions per minute (with a "panic rate" output of 47 GPM).
4325K18 ..... Each $311.54

Double-Action Diaphragm Hand Pumps

These self-priming pumps deliver smooth flow on both the in and out-stroke. Flow rate is 4/5 quarts per stroke.

UL-LISTED PUMPS

Heavy cast-aluminum pumps have a nylon-reinforced molded Buna-N diaphragm supported by a heavy-gauge steel plate. They have no ...ndling such fluids as gaso-...ne, and naphtha. Pumps are ...with a self-venting adjustable ...adapter, built-in strainer, ...eaker, and 1" telescoping in-...hat adjusts from 22" to 39" in ...y.

...are stainless steel, nylon-...so cast iron for the dispens-...le—Furnished with 8 ft. x ⅝"

.....Each $122.46

...arge Nozzle—Comes with 6 ...utoff discharge nozzle.
.....Each $127.98

4226K3 .....
Repair Kit—Consists of a diaphragm, valve assembly, O-ring, shaft seals, and assorted hardware. .....Each $22.40
4380K36 .....

HIGH-VAC PUMPS

These pumps produce enough vacuum intake to pump liquids up to a 12-foot vertical lift. Use them for a variety of liquids including fuel oil, gasoline, kerosene, and other petroleum products as well as water solutions, mild soaps, and detergents.

Pumps have an aluminum body with stainless steel shaft, self-adjusting seal, and Buna-N diaphragm. Four independent check valves keep pump constantly primed. Pumps include a 2" bung adapter, a built-in strainer, and a telescoping 1" x 42" PVC intake pipe. Handle is lockable.

Materials in contact with solution are aluminum, Buna-N, stainless steel, PVC, and nylon.

Transfer Pump—Furnished complete with 8 ft. x ⅝" rubber discharge hose with nonsparking nozzle and hose hanger. .....Each $103.13
4380K4 .....

Dispensing Pump—Has no-drip discharge spout for easy filling. .....Each $108.66
4380K6 .....

Repair Kit—Consists of a diaphragm, valve assembly, O-ring, shaft seals, and assorted hardware. .....Each $22.40
4380K36 .....

Diaphragm Hand Pump For Food Handling

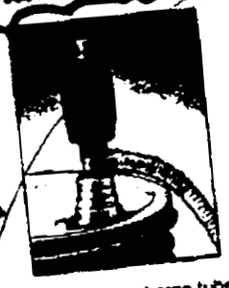
FDA-approved materials make this pump the choice for food-handling, pharmaceutical, medical, and laboratory applications. It's non-toxic, nonsparking, and self-priming. Pump is made of natural-colored Delrin with a silicone diaphragm.

The handle is made of anodized-aluminum and has a comfortable nonslip grip. The flapper valves reduce siphon-...

ing. Intake and discharge are 1" slip-on hose connections. Flow rate is 10 GPM.

Materials in contact with solution are Delrin, Buna-N, silicone, and stainless steel. .....Each $61.61
9864K17 .....

Small-Container Polyethylene Bulb Siphon Pump

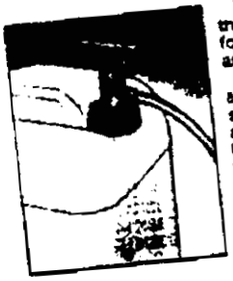


Whatever liquid you're dispensing, a simple squeeze of the polyethylene bulb delivers just the right amount—no drum taps or funnels needed. This 100% polyethylene pump handles water-based fluids, light oils, mild acids and corrosives, liquid waxes, detergents, and petroleum products. Not for use with thinners, hot water, and concentrated solutions of acids and caustics. Pump includes a 20" flexible polyethylene discharge tube and hose hook. Intake tube is approximately 15" long. Pump fits one- to five-gallon containers.

	Each	
	1-5	6-Up
	$3.32	$2.83

9864K32 .....

61mm Threaded Container Siphon Pump



This pump fits any 5-gallon container that has a threaded 61mm opening. Use it for transferring soaps, detergents, waxes, and alkalies at flows up to 1 GPM.

Siphon pump doubles as a lift pump with a capacity of approximately 5 ounces per stroke. It's made of rigid and flexible PVC and comes complete with three feet of ⅛" ID flexible PVC discharge tubing. Intake tube is polyethylene; valves and seals are Hypalon.

Materials in contact with solution are PVC, polyethylene, polypropylene, and Hypalon. .....Each $17.48
43795K79 .....

Metering Drum Pump

8.4 to 52.8 gpd Metering Drum Pumps

• 90 to 250 psi

Pumps allow you to meter liquids from the original shipment container. Pump heads are at the bottom to ensure a flooded suction, reducing loss of prime and damage due to leakage. Units provide a constant feed rate and are continuously lubricated, even when run dry. They have fan-cooled, 115-VAC, 60 Hz gear motors and roller-bearing drives for continuous operation.

Micrometer feed adjustments are graduated in 2% increments for accurate feed rate changes over full capacity range. Wetted parts are PVC with Viton O-rings and self-cleaning ceramic ball valves. Pumps fit 55-gallon drums with 2" bung opening and come with 8-ft. power cord, 10-ft. ¼" discharge tube, and an injection check valve. Shaft is 36" long. Max. liquid temp. is 140° F.

Capacity, Gal./Day	Strokes Per Min.	Max. Discharge Pressure, psi		Each
8.4	30	250	4341K21	$246.49
16.8	60	200	4341K22	252.42
28.8	80	150	4341K23	258.56
52.8	60	90	4341K24	264.78

Rotary Drum Pumps

FM-Approved Flammable-Liquid Rotary Drum Pumps

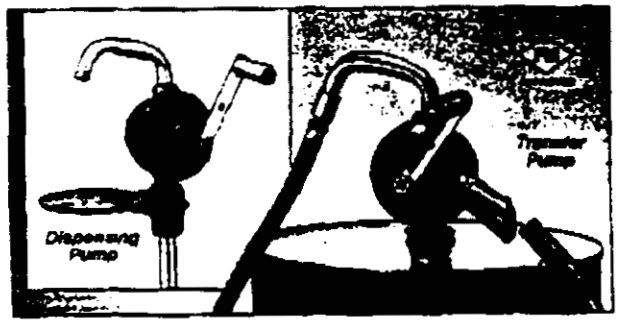
These pumps meet standards and regulations for handling Class I flammable liquids like gasoline, naphtha, and many solvents and thinners. They deliver 10 gallons per minute. Body is cast iron with carbon sliding vanes that adjust for wear. To drain fluid left in pump back into drum, reverse crank rotation for a few turns. Pumps have ¾" FPT intake and discharge connections. Materials in contact with solution are iron, carbon, and Buna-N.

Dispensing Pump—Equipped with discharge spout, flame-arresting screen and baffle, drip pan, 2" bung adapter, and a ¾" x 40" telescoping intake pipe with strainer.
4852K61 ..... Each $113.08

Transfer Pump—Has spout w/vacuum breaker, ¾" x 8-ft. antistatic hose, nonsparking aluminum nozzle, nozzle hanger, 2" bung adapter w/baffle, and ¾" x 40" telescoping intake pipe w/strainer basket.
4852K62 ..... Each $117.11

Solvent O-Ring Kit—Use with more aggressive chemicals. Contains 2 ethylene polypropylene teflon-coated o-ring and one viton o-ring.
4852K63 ..... Each $6.81

Repair Kit—For both models. Includes three carbon vanes and rings, shaft nut, pack nut, and packing.
4852K11 ..... Each $31.15



Water-Operated Mixing Drum Pumps

No measuring, no mess—these pumps mix soluble oil and coolants with water and dispense them instantly and accurately. To use, just insert the pump into a 15-, 30-, or 55-gallon drum and connect it to the plant water line using the quarter-turn shutoff valve included.

Adjustable needle-valve dial delivers any ratio you need in a uniform emulsion. Pumps handle materials with viscosities up to 400 Saybolt Seconds Universal (SSU) at 100° F and require 25-lb. water pressure to operate. 1 intake tube and a 2" sliding bung adapter that accommodates various-sized drums are included. Materials in contact with solution are brass, galvanized steel, and zinc-plated steel.

GPM	Inlet	Outlet		Each
3	½" FPT	½" MPT	9877K1	$250.05
10	¾" FPT	¾" MPT	9877K2	409.78

Oil Transfer and Drain Pumps

Transfer liquids from 2½-gallon cans to 55-gallon drums. Container is not furnished. Materials in contact with solution are plastic, nitrile, neoprene, and polyethylene.

OIL TRANSFER PUMP—For pumping oil and other liquids directly from drum into tank. Includes an 8' vinyl discharge hose. Not intended for use with flammable liquids.
4324K31 ..... Each $28.84

DRAIN PUMP—For cleaning out crankcases and transmissions through dipstick holes, and pumping other liquids into drums. Includes a 1¼" x 36" suction hose and a dipstick probe. Polyethylene probe is ⅛" x 36".
4894K34 ..... Each $28.16

Toolbox Hand Pump

Small enough to fit into a toolbox. Multi-purpose pump drains engine crankcases through dipstick hole, fills small tanks, drains water lines, and transfers fuel.

Pump is 12" long and has a 1¼" diameter cylinder. Pump includes two ⅛" ID x 36" long neoprene hoses, two dipstick probes (size ⅛" x 40" and ¾₁₆" x 40"), neoprene intake adapter, and tube connector. Not intended for gasoline or other flammable liquids.
9811K11 ..... Each $33.86

Portable Drill-Powered Transfer Pumps

Connects to your ½" drill for small jobs up to 6 GPM. Pumps fresh and salt water, as well as light oil. ½" tube connection unit comes with ½" x 36" suction tube and ¾" x 36" discharge tube. Max. temp. is 120° F. Materials in contact with solution are neoprene and stainless steel. Pumps must be primed before using.

Connection	Each
½" npt Hose Connection	3870SK21 ... $7.96
½" Tube Connection	3870SK25 ... 8.97

Engineered Thermoplastic Rotary Drum Pumps

Light in weight and tough enough to stand up to chemicals, these durable pumps are available in polypropylene and Ryton. Both deliver 8 GPM and weigh only 3½ lbs. They come with a 2-piece, ¾" NPT discharge spout, 3-piece, 1" x 47" intake tube, 2 intake tube unions, a strainer, a handle and knob assembly, and a 2" polyethylene bung adapter.

Polypropylene Pump—Use for water-based solutions of acids, alkalies, and salts. Also good for a number of organic solvents. Materials in contact with solution are polypropylene, phenolic, Viton, and polyethylene.
67515K71 ..... Each $63.76

Ryton Pump—For many aggressive chemicals including chlorinated solvents and aromatic and aliphatic hydrocarbons. Materials in contact with solution are Ryton, Viton, and Teflon.
67515K81 ..... Each $124.05

ACCESSORIES

48" Polyethylene Discharge Hose
67515K72 ..... Each $9.27

Repair Kits—Include Viton seal, vane, Type 316 stainless steel spring, spring shaft, two gaskets, and a set of nuts and bolts.
67515K83—For polypropylene pump ..... Each $21.95
67515K83—For Ryton pump ..... Each $46.16

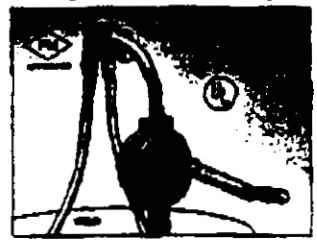
Flo-Master Rotary Drum Pumps

Here's an economical way to dispense gasoline, kerosene, diesel fuel, and low-viscosity oil from a drum to other containers. These pumps are self-priming and have a cast-iron housing with carbon vanes. They fit 2" standard drum bungs. A 50" length of polyethylene discharge hose is included. Materials in contact with solution are neoprene rubber, cast iron, carbon, polyethylene, steel, and carbonized resin.

7-GPM Pump—Has a 1" x 39¼" steel intake tube and a ¾" discharge outlet.
4385SK47 ..... Each $53.33

10-GPM Pump—Has a 1¼" x 41" steel intake tube and a 1" discharge outlet.
4385SK48 ..... Each $59.50

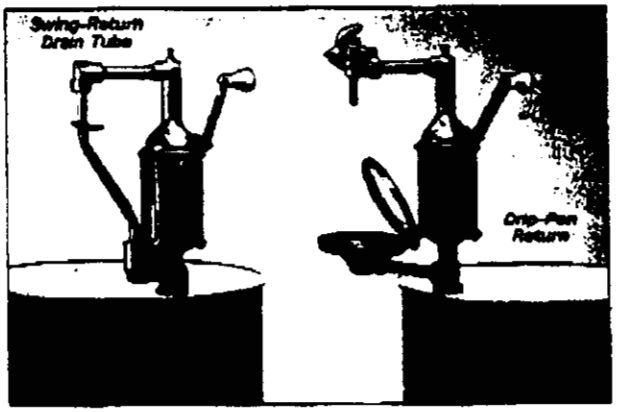
Stainless Steel Rotary Drum Pump



Use this Type 316 stainless steel pump for dispensing high-purity acids, solvents, and chemicals that are compatible with stainless steel and Teflon. The stainless steel body houses a diecast rotor and carbon vanes. Pickup tube is stainless steel and so is the 2" adjustable bung adapter. Slide the adapter up or down the tube to position inlet to fit your container. Pump comes with a 6-ft. braided stainless steel and Teflon-lined discharge hose with stainless steel fittings. Flow rate is 5 GPM. Materials in contact with solution are Type 316 stainless steel, carbon, and Teflon. FM approved and UL listed.
4827K6 ..... Each $1497.87

Piston Drum Pumps

Crank-Action Piston Drum Pumps



These pumps deliver a full quart of fluid each time you turn the crank handle. They'll handle a wide variety of flammable petroleum and petroleum-based products like gasoline, kerosene, naptha, fuel oil, diesel oil, lubricating oil, cutting oil, and turpentine. They're also excellent for alcohol, linseed oil, and other vegetable oils. The pumps are made of cast iron with injection-molded Delrin pistons and a durable baked-enamel finish. They're easy to dismantle for cleaning. Pump base is threaded to fit 2" drum bungs. The 40" polypropylene telescoping intake pipe fits any standard 15- to 55-gallon drum. Crank handles can be padlocked for added security. Materials in contact with solution being pumped are cast iron, polypropylene, acetal, Viton, vellumoid, and also aluminum for the pump with drip pan.

PUMP WITH SWING RETURN DRAIN TUBE—Self-returning drain tube moves out of the way when you put a container under the discharge nozzle. When the nozzle is in the return position, it encloses the drain tube so excess liquid returns directly into the drum without wasteful dripping.
4225K12 ..... **Each $84.82**

PUMP WITH DRIP-PAN RETURN—Drip pan returns excess liquid to the drum and it can support a small container during filling. Pump reduces waste and spills for both economy and safety. A steel cover keeps the pan clean when not in use. Positive shutoff spigot has a small tube nipple for easy filling of narrow-mouthed containers.
4225K16 ..... **Each $173.54**

ACCESSORIES FOR BOTH PUMPS

Repair Kit—Includes packing, cylinder gasket, retainer ring, ball valve, and piston assembly.
4225K22 ..... **Each $13.02**

Extra Delrin Piston Cup Assembly
4225K93 ..... **Each $9.84**

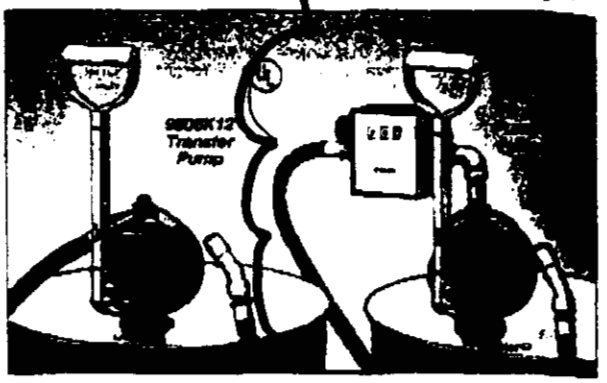
Quart-Measure Piston Drum Pump For Solvents

Each complete turn of the crank delivers an entire quart of fluid. Use this pump for most solvents as well as cutting and lubricating oils. Just push aside the swing-away drain arm to slip a container under the nozzle for no-spill fills. The self-returning arm moves back into place when you're done. Excess liquids return directly to the drum. Turn the adjustment screw to change the volume of liquid that's dispensed.

Body is cast iron with an aluminum cylinder. The resilient Teflon piston cup won't dry out and deteriorate. Malleable iron rack and pinion gear provides almost friction-free operation for long life. Pump has 15" clearance between no-drip nozzle and drum. Materials in contact with the solution being pumped are cast iron, steel, aluminum, Teflon, and Buna-N. Pump fits all 2" drum bungs. Telescoping PVC intake pipe is 42" long.
9816K11 ..... **Each $87.47**

Repair Kit—Includes cylinder gasket, O-ring gasket, and shaft seal.
9816K15 ..... **Each $14.63**

Double-Action Piston Drum Pumps



Self-priming pumps keep fluids flowing smoothly on both the forward and backward strokes. They have an aluminum body and a flow rate of 4/5 quarts per stroke. They can be padlocked for security.

UL-LISTED PUMPS

In addition to the aluminum body, these pumps feature an aluminum piston with a stainless steel liner and shaft for corrosion resistance and a leak-resistant Teflon seal. That means they can handle a great variety of liquids including gasoline, diesel fuel, oils, alcohol, kerosene, and many other petroleum-based solvents, acetates, and ethers. Flow can be reversed to fill the drum holding the pump by simply removing the shaft pin and rotating the piston 180°. All pumps come with a 1" intake and a ¾" FPT discharge.

Basic Pump—Has a ¾" FPT discharge, a 40" telescoping intake pipe, and a 2" bung adapter. Materials in contact with solution are zinc-plated steel, nickel-plated steel, aluminum, acetal, Type 300 and 400 series stainless steel, vellumoid, and Teflon.
9906K11 ..... **Each $110.77**

Transfer Pump—Has a 40" telescoping intake pipe, a 2" bung adapter, and an 8 ft. x ¾" UL-listed discharge hose that's made of Buna-N with a manual nozzle and nozzle hanger. Materials contacting solution are same as basic pump above plus nylon and Buna-N.
9906K12 ..... **Each $117.22**

Transfer Pump with Meter—Furnished with a 40" telescoping intake pipe, a 2" bung adapter, and 8 ft. x ¾" UL Listed, Buna-N hose with manual nozzle and nozzle hanger. Flowmeter registers up to 100 gallons per delivery and totals up to 100,000 gallons. Meter has a reset knob. Materials in contact with solution are zinc-plated steel, nickel-plated steel, aluminum, acetal, Type 300 and 400 series stainless steel, vellumoid, Teflon, Ryton, Viton, and Buna-N.
4941K33 ..... **Each $232.36**

Repair Kit—Includes piston ring, valve assembly, cover gasket, two packing rings, screen, bearing, and vacuum breaker.
9906K13 ..... **Each $27.71**

STANDARD PUMP

Use this continuous-flow pump for gasoline, antifreeze, water, gear and fuel oils, and other petroleum-based liquid products. Besides the aluminum body, the pump has a stainless steel piston rod and a reinforced, pressed-steel piston with an anodized-aluminum cylinder and Teflon piston cups. A vacuum breaker helps prevent siphoning. Pump comes with an 8 ft. x ⅜" rubber hose with nonsparking nozzle, nozzle hanger, 2" NPT thread base, and a 1" x 42" telescoping intake pipe. Materials in contact with solution are stainless steel, aluminum, steel, and Buna-N.
9873K13 ..... **Each $106.**

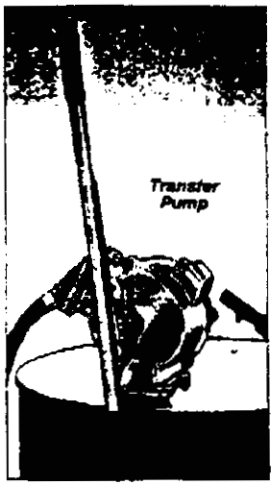
Repair Kit—Consists of replacement gaskets, shaft packing, piston cups, and hardware.
9873K18 ..... **Each $28.**

Reinforced-Nylon Piston Drum Pump

Tough yet economical, this pumping, self-venting pump handles gasoline, diesel fuel, petroleum-based liquids, and some chemicals and solvents. Flow rate is 16 oz./stroke. Pump is nylon reinforced by fiberglass polyester with Viton seals. Intake tube telescopes to fit up to 55-gallon drums. It has a drip nozzle. Discharge spout can be replaced with a hose. Handle is lockable. Materials in contact with the solution being pumped are fiberglass/nylon and Viton. Dual-threaded bung connection is steel and plastic 2" drum bungs.
4303BK43 ..... **Each $**

Piston Drum Pumps

Drum Helper Piston Drum Pumps



These self-priming, double-acting pumps deliver fluid on both the in- and outstroke. Flow rate is adjustable for 1 and 2 quarts per stroke.

Pumps have a diecast aluminum body and can be padlocked for extra security.

SOLVENT PUMPS

Acetal valves and Teflon and Buna-N seals make these pumps excellent for dispensing and transferring solvents like aromatics, petroleum, and some fluorocarbons. They're not recommended for trichloroethane, methylene chloride, or any compound containing these solvents.

Materials in contact with solution are aluminum, 300 series stainless steel, acetal, Buna-N, and Teflon.

Basic Pump—Comes complete with a ¾" discharge and a built-in 2" threaded bung adapter.
9913K33 ..... Each $114.55

Dispensing Pump—Has a ¾" discharge spout, 2" bung adapter, and a 1" × 40" telescoping intake pipe.
9913K35 ..... Each $138.36

Transfer Pump—Has an 8-ft. × ¾" solvent discharge hose with aluminum nozzle, vacuum breaker, 2" bung adapter, and a 1" × 40" telescoping intake pipe.
9913K37 ..... Each $129.33

Repair Kit—Includes replaceable piston ring, seals, and liner.
9913K39 ..... Each $38.53

CHEM-FLO PUMP

Use this pump with a variety of chemicals and herbicides. It has a stainless steel shaft and intake screen along with Viton seals and a Teflon piston ring. Piston and valves are thermoplastic with self-lubricating bearings and stainless steel valve springs. A built-in air valve helps prevent siphoning. Pump comes with a 2" bung adapter, ¾" NPT intake and discharge, and a telescoping 1" × 40" thermoplastic intake pipe. It also has 8-ft. × 1" EPDM discharge hose, a thermoplastic nozzle, and nozzle cover. Materials in contact with solution are aluminum, 300 series stainless steel, acetal, fluorosilicone, Teflon, Viton, and EPDM.
4301K79 ..... Each $155.17

Thermoplastic Piston Drum Pumps

Self-priming and double-acting, these lightweight thermoplastic pumps shrug off rust and corrosion. Flow rate is 1 quart per stroke. The Teflon piston ring permits dry operation without harm. The handle mounts above or below the pump body for a comfortable grip on low and high tanks.

The Type 316 stainless steel intake screen protects internal parts from solids. A siphon breaker permits discharge hose to drain completely once pumping stops to prevent siphoning. Pumps can be padlocked to deter tampering. All fasteners and internal metal parts are made of Type 316 stainless steel. Pumps have a built-in nozzle hanger, 2" bung adapter, 1" FPT intake, and ¾" discharge connection.

POLYESTER PUMP—Use for general service including many diluted acids in pH ranges from 4 to 9 and for fluid temperatures of 80° F and less. Pump has a Viton O-ring and cork-nitrile gasket. Materials in contact with solution are 316 stainless steel, polyester, cork-nitrile, and Viton.
4312K21 ..... Each $83.33

Polyester Pump with Hose—Has 8-ft. × ¾" PVC discharge hose and nozzle. Materials contacting solution are same as 4312K21 plus PVC.
4312K22 ..... Each $90.51

Polyester Pump with Hose and Suction Tube—Comes with 8-ft. × ¾" PVC discharge hose with nozzle and 1" × 34" polyester intake tube. Materials in contact with solution are same as 4312K21 in addition to PVC and Teflon.
4312K23 ..... Each $93.36

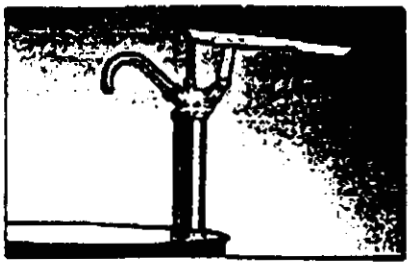
RYTON PUMP—Use with many chlorinated solvents, acids, caustics, and aromatics in pH ranges from 2 to 12 and for fluid temps. of 80° F and less. Pump has a Viton O-ring and gasket. Materials in contact with solution are Type 316 stainless steel, Ryton, and Viton.
4312K31 ..... Each $144.06

Ryton Pump with Hose—Has 8-ft. × ¾" cross-linked polyethylene discharge hose and nozzle. Materials in contact with solution are same as 4312K31 with the addition of polyethylene.
4312K32 ..... Each $185.17

Ryton Pump with Hose and Suction Tube—Has 8-ft. × ¾" cross-linked polyethylene discharge hose and nozzle plus 1" × 34" Teflon intake tube. Materials in contact with solution are same as 4312K31 plus polyethylene and Teflon.
4312K33 ..... Each $225.81

Lever-Piston Drum Pumps

All-Steel Lever-Piston Drum Pump



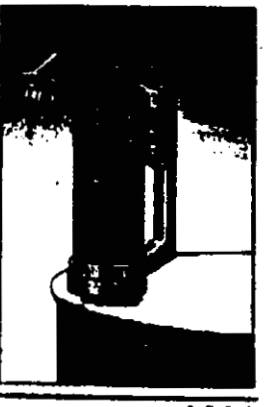
This zinc-plated steel pump keeps its prime in proportion to the viscosity of the liquid being pumped—the more viscous the liquid, the longer it will remain primed. Use it to dispense industrial lubricants and other petroleum-based liquids, mild solutions, and noncorrosive chemicals that are compatible with the pump. Pump has Viton seals and brass piston rings.

The intake pipe telescopes to fit 15-, 30-, and 55-gallon drums. Pump discharge has ¾" male garden-hose thread for easy connection when transferring liquids to tanks and vats. Removable spout is included. Materials in contact with solution are zinc-plated steel, Viton, and brass. Flow rate is 12 oz. per stroke. **Fits 2" drum bungs.**
4266K11 ..... Each $23.29

Chemical-Resistant Lever-Piston Drum Pump

High-density linear polyethylene and stainless steel construction stands up to a variety of corrosive chemical solutions. Not recommended for pumping strong oxidizing acids, esters, chlorinated solvents, and other powerful solvents. Just turn the spout up to prevent dripping when pump is not in use. Spout is threaded to connect a ¾" male garden hose for transferring from a drum into another container. Pump has a polyethylene plunger, stainless steel piston rod, and glass-ball foot valve. The polyethylene intake tube telescopes to fit 15-, 30-, and 55-gallon drums. Materials in contact with the solution are Type 303 stainless steel, polyethylene, and glass. Flow rate is 8 oz. per stroke. Pump fits 1½" and 2" drum bungs.
4258K11 ..... Each $49.54

Thermoplastic Lever-Piston Drum Pump



This all-plastic self-priming pump is unaffected by hard-to-handle corrosive liquids. Use it to dispense disinfectants, detergents, herbicides, pesticides, degreasers, mild acids, alkalies, oils, cleaning fluids, and chemical additives.

The no-drip discharge nozzle delivers 11 oz. of liquid with each stroke and puts an end to dangerous splashing and glugging.

Pump comes with a telescoping intake tube that gets to the bottom of 36" deep, 30- to 55-gallon drums and poly containers. A locking ring allows the pump to rotate 360°. Materials in contact with solution are polypropylene/alkathene polymer and nitrile. Fits 2" IPS bungs.
4227SK51 ..... Each $63.57

APPENDIX D

Cordova EVOS Station Preliminary Design
March 7, 1997

Cordova EVOS Station
Preliminary Design

Prepared for
Prince William Sound Economic Development Council

March 7, 1997

Stephi Engineers
2525 Blueberry, Suite 203
Anchorage, Alaska 99503
(907) 274-7170

In association with
USKH

CONTENTS

Section 1
Purpose of Preliminary Design Memorandum

The purpose of this submittal is to present the proposed preliminary design of the Environmental Operation Stations (EVOS Stations) project. This memorandum will be reviewed and evaluated by members of the Sound Waste Management Plan (SWMP) Committee.

A SWMP Committee meeting was held on January 28, 1997, in Anchorage, to discuss the conceptual design, make changes, and answer questions about the proposed projects.

A second SWMP Committee meeting will be held during March. The purpose of this meeting is to receive input from the stakeholders before proceeding with the final design and construction of the facilities.

This project is being designed by Stephl Engineers in association with USKH. Stephl Engineers is under contract to the Prince William Sound Economic Development Council, Inc. (PWSEDC), the organization managing the project. The Alaska Department of Environmental Conservation (ADEC) is the lead state agency administering the project.

Section 2
Project Description

The EVOS Station design has been modified, based on what we learned during the conceptual design, and from input received during the first Sound Waste Management Plan (SWMP) meeting held in January. The purpose of the modifications is to better meet the goals of the community as well as maintaining the project within the available funding limit.

The project will still accomplish the overall goal of preventing marine pollution that is generated from the five Prince William Sound communities.

The purpose of the EVOS Station in Cordova is to handle used oil, provide storage for household hazardous waste (HHW) and provide storage for recycled materials.

The City's first priority is to have the new EVOS Station building constructed. A preliminary design of the building is attached to this memorandum. A 1200 square foot building will be designed to contain used oil processing equipment in one 800 square foot room and contain oil collection, household hazardous waste storage and recycling storage bins in a second 400 square foot room. A door will be provided in the wall between the two rooms. The larger room will be enclosed and heated with a used oil furnace. The furnace will include an oil filtration system and a ducting system that can be adjusted to temper incoming air as well as discharging extra heated air.

In addition, the larger room will have a curb around its base that will create a containment sump with the capacity to contain a spill that is 110% of the volume of the

1000 gallon oil storage tank. The smaller room will have a sump also. A mechanical ventilation system and electrical system will be provided. The EVOS Station in Cordova will be located adjacent to the City's baler building and connected to the City's water and sewer system. Hose bibs will be provided inside the building for washing. City electricity will power the building systems and equipment placed in the building.

The building will be bid as a stand-alone project. The construction contractor will be selected based on the lowest bid price.

The City's second priority is to install oil collection and oil processing equipment in the new building. To meet this need, a 1000 gallon oil storage tank, oil/water separator, 500 gallon buffer tank, mobile oil pump and miscellaneous containers and equipment will be purchased. This equipment will be purchased directly from equipment suppliers by the Prince William Economic Development Council, Inc. (PWSEDC). It will be installed by City crews or the building contractor.

The City's third highest priority is to pump and handle oily bilge water. This equipment includes a pump, tank and miscellaneous piping and controls. This equipment will be purchased directly from equipment suppliers by PWSEDC. If there are sufficient funds remaining, an oil filter crusher and oily material burner may be purchased.

Section 3
Equipment

Equipment will be purchased by PWSEDC after contractor bids are received for the EVOS Station building and the amount of remaining funds are better known. The equipment requested by Cordova is listed below in order of priority.

Priority	Item
1	1000 gallon oil storage tank
2	oily water separator
3	500 gallon oily water buffer tank
4	mobile pump and hoses
5	miscellaneous collection containers
6	O&M manual and training
7	bilge water pump and tank
8	oil filter crusher
9	oily material burner

A brief description of the equipment is provided below. Manufacturer's cut sheets are provided at the end of this memorandum.

The 1000 gallon oil storage tank will be a single containment circular steel tank mounted on skids. It will include a manhole, and appropriate fittings and valves.

The oily water separator will be a Highland or similar type coalescing plate unit capable of treating liquid at a 10 gpm flow rate. The separator will be designed to discharge water treated to less than 10 ppm free oil and grease. It will be mounted on a stand and will be covered. A sample port will be installed in the discharge line. Clean

liquid from the separator will be discharged directly into a sewer line stub located in the floor of the new building.

A 500 gallon oily water buffer tank will be installed upstream of the oily water separator. The purpose of the tank is to provide storage for oily water received from the bilge water collection system and to provide detention of the oily water to allow better separation of the oil in the water. The 500 gallon tank will be a single wall steel tank mounted on an elevated stand to allow gravity flow of water into the oil water separator. The 500 gallon tank will include a manhole, sight gauges and fittings and valves. A flexible hose will be installed between the tank and the separator to convey the contaminated water.

The mobile pump and hoses are needed to transfer oil products from the daily collection tanks, transfer clean oil to the heater tank in the building, transfer clean oil for shipment to other oil heating units in town, transfer liquid from the City's tanker truck, transfer water from the 1000 gallon tank to the 500 gallon tank, etc. This will be a gear pump that is driven by an explosion-proof electric motor.

Miscellaneous collection containers will be used for daily collection of used oil, oil filters, anti-freeze, oily solid waste, HHW and recyclable materials. These will be off-the-shelf premanufactured containers.

O&M manual and training will include development of an O&M manual for equipment in the building and recommendations for handling and disposal of collected materials. Manufacturers equipment operation manuals will be included in the O&M manual. The extent of training has not been determined. One recommendation was to gather all the operators together and have a materials disposal specialist provide a training seminar.

The bilge water pump and tank will be a skid mounted unit containing a 400 gallon steel tank and electric pump with a suction hose. This piece of equipment will be fabricated specifically for this purpose. Operation of the unit will be accomplished by placing the suction line into the bilge and manually turning on the suction pump. The user or operator will watch the level of liquid in the adjacent steel tank and turn off the pump when pumping is complete or when the skid mounted tank is full. The tank will have a level gauge or sight glasses installed to determine the liquid level. Permanent piping and valves installed between the tank and pump will allow the user to both fill and empty the tank with the pump as needed. The pump will be provided with an explosion proof electric motor to reduce the chance of fire if flammable or explosive products are pumped by accident. A diaphragm type pump is recommended. A typical 2-inch diameter pump is capable of pumping up to a 25 foot suction lift at 20 gpm or 33 gpm at a 15 foot lift.

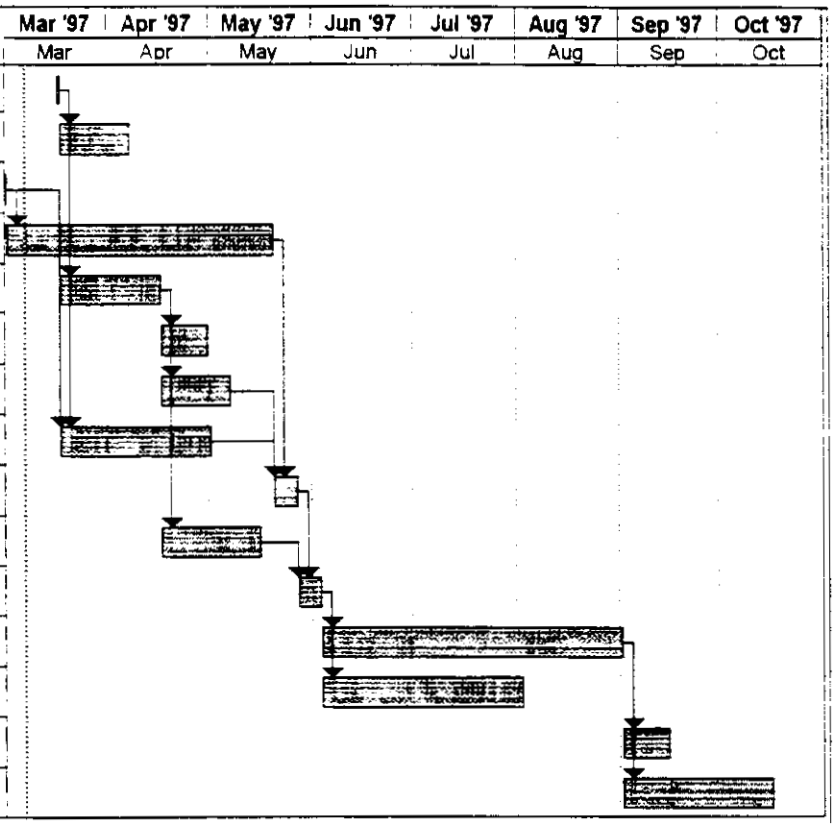
The oil filter crusher will be a Oberg model P300 electric/hydraulic unit capable of crushing up to 20 inch tall filters.

The oily material burner will be a SmartAsh model that is power by two 120V blowers. This unit fits on a 55 gallon drum.

Section 4
Project Schedule

The proposed schedule for this project is shown on the following bar chart.

ID	Task Name	Duration
1	Second SWMP Meeting	1d
2	ADEC Preliminary Review	21d
3	Site selection	1d
4	NEPA Environmental Assessmnt	80d
5	Final design	30d
6	City Building Permit Approval	14d
7	ADEC, Fire Marshal Review	21d
8	Community Approval/Agreement	45d
9	ADEC Approval of Phase II	7d
10	Bid Advertise	30d
11	Bid Award	7d
12	Building Const.	90d
13	Equipment Purchase	60d
14	Equipment Install	14d
15	O&M Manuals and Training	45d



Project: Cordova EVOS Station
Date: Fri 3/7/97

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

Section 5
Project Costs

There is $281,500 in funding available from the project to construct the building, purchase equipment and complete the O&M manual and training. A more detailed cost estimate of the EVOS Station building will be completed during the week of March 10.

Cordova EVOS Station Cost Estimate				
3/8/97 15:51				
				Extended
Description	Unit	Quantity	Unit Price	Total
Base Bid				
Mobilization/demobilization	LS	1	$20,000	$20,000
Site work	LS	1	$4,000	$4,000
Water/sewer utilities	LS	1	$2,600	$2,600
Building	SF	1200	$135	$162,000
Electrical service	LS	1	$1,000	$1,000
175,000 BTU heater	EA	1	$7,000	$7,000
Oil filtration system	EA	1	$500	$500
Contingency (20%)				$39,320
Subtotal				$236,420
Option 1 Oil Collection and Handling				
1000 gallon storage tank	EA	1	$1,500	$1,500
Oily water separator, 10 gpm	EA	1	$8,000	$8,000
500 gallon oily water buffer tank	EA	1	$1,000	$1,000
Misc. containers and equipment	LS	1	$2,000	$2,000
Mobile oil pump and hoses	LS	1	$4,000	$4,000
O&M manual and training	LS	1	$5,000	$5,000
Contingency (20%)				$4,300
Subtotal				$25,800
Option 2 Bilge Water Handling Equipment				
Bilge water pump and 400 gallon tank	EA	1	$10,000	$10,000
Contingency (20%)				$2,000
Subtotal				$12,000
Option 3 Equipment				
Oil filter crusher	EA	1	$6,500	$6,500
Oily material burner	EA	1	$4,000	$4,000
Subtotal				$10,500
TOTAL COST				$284,720

Section 6
Building Code Review and Issues

A building code review has been completed to determine the EVOS Stations building classification, safety requirements, ventilation requirements, fire detection and prevention requirements, access requirements, interior finish requirements, separation to adjacent structures, electrical equipment requirements, fire suppression needs, and any other special needs. This code review is based on the 1994 Uniform Building Code (UBC). The results of the review are presented in this section.

THERE ARE RESTRICTIONS ON CERTAIN TYPES OF WASTE HANDLING ACTIVITIES THAT CAN OCCUR IN THIS BUILDING.

The building has been designed to meet an F and S occupancy. The building has not been designed to meet the more costly Class I Division II requirements. To conform to the F and S occupancy, the user must be aware of the following limitations:

- Explosive materials [I A(gas) III.B(oil)] such as gasoline and paint thinners will be limited to a combined volume of 30 gallons to be approved for storage in the building.
- Quantities of materials shall <u>not</u> be in excess of those listed in U.B.C. Table 3-D and Table 3-E (see attached tables).
- Storage and use of flammable ad combustible liquids shall be in accordance with the 1994 Uniform Fire Code.

The following paragraphs contain a description of the various codes and rules that apply to the construction and operation of the EVOS Stations.

Occupancy classification: Table 3-A

F1 Refuse incineration Sec. 306
Quantity of used oil (III-B) is less than quantity allowed in Table 3-D (13,200 Gallons), therefore occupancy is not a H2 (hazardous) occupancy.

S1 Storage - combustible materials

Table 3-B Required Separation in Buildings of Mixed Occupancy (Hours)

F1 to S1 = N (no requirements for fire resistance)

Type of Construction: II-N Metal

Location on property: Table 5-A
F1 and S1; II N

Exterior walls, bearing = 1 hr < 20 ft.

TABLE 3-D—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS PRESENTING A PHYSICAL HAZARD MAXIMUM QUANTITIES PER CONTROL AREA[1]

When two units are given, values within parentheses are in cubic feet (cu. ft.) or pounds (lbs.)

CONDITION		STORAGE[2]			USE[2]—CLOSED SYSTEMS			USE[2]—OPEN SYSTEMS	
		Solid Lbs.[3] (Cu. Ft.)	Liquid Gallons[3] (Lbs.)	Gas Cu. Ft.	Solid Lbs. (Cu. Ft.)	Liquid Gallons (Lbs.)	Gas Cu. Ft.	Solid Lbs. (Cu. Ft.)	Liquid Gallons (Lbs.)
Material	Class	× 0.4536 for kg × 0.0283 for m³	×3.785 for L × 0.4536 for kg	× 0.0283 for m³	× 0.4536 for kg × 0.0283 for m³	×3.785 for L × 0.4536 for kg	× 0.0283 for m³	× 0.4536 for kg × 0.0283 for m³	×3.785 for L × 0.4536 for kg
1.1 Combustible liquid[4,5,6,7,8,9]	II	N.A.	120[10]	N.A.	N.A.	120	N.A.	N.A.	30
	III-A	N.A.	330[10]	N.A.	N.A.	330	N.A.	N.A.	80
	III-B	N.A.	13,200[10,11]	N.A.	N.A.	13,200[11]	N.A.	N.A.	3,300[11]
1.2 Combustible fiber (loose) (baled)		(100) (1,000)	N.A. N.A.	N.A. N.A.	(100) (1,000)	N.A. N.A.	N.A. N.A.	(20) (200)	N.A. N.A.
1.3 Cryogenic, flammable or oxidizing		N.A.	45	N.A.	N.A.	45	N.A.	N.A.	10
2.1 Explosives[12]		1[10,13]	(1)[10,13]	N.A.	1/4	(1/4)	N.A.	1/4	(1/4)
3.1 Flammable solid		125[6,10]	N.A.	N.A.	[14]	N.A.	N.A.	[14]	N.A.
3.2 Flammable gas (gaseous) (liquefied)		N.A. N.A.	N.A. 15[6,10]	750[6,10] N.A.	N.A. N.A.	N.A. 15[6,10]	750[6,10] N.A.	N.A. N.A.	N.A. N.A.
3.3 Flammable liquid[4,5,6,7,8,9]	I-A	N.A.	30[10]	N.A.	N.A.	30	N.A.	N.A.	10
	I-B	N.A.	60[10]	N.A.	N.A.	60	N.A.	N.A.	15
	I-C	N.A.	90[10]	N.A.	N.A.	90	N.A.	N.A.	20
	Combination I-A, I-B, I-C[15]	N.A.	120[10]	N.A.	N.A.	120	N.A.	N.A.	30
4.1 Organic peroxide, unclassified detonatable		1[10,12]	(1)[10,12]	N.A.	1/4[12]	(1/4)[12]	N.A.	1/4[12]	(1/4)[12]
4.2 Organic peroxide	I	5[6,10]	(5)[6,10]	N.A.	1[6]	(1)[6]	N.A.	1[6]	(1)[6]
	II	50[6,10]	(50)[6,10]	N.A.	50[6]	(50)[6]	N.A.	10[6]	(10)[6]
	III	125[6,10]	(125)[6,10]	N.A.	125[6]	(125)[6]	N.A.	25[6]	(25)[6]
	IV	500[6,10]	(500)[6,10]	N.A.	500[6]	(500)[6]	N..A.	100[6]	(100)[6]
	V	N.L.	N.L.	N.A.	N.L.	N.L.	N.A.	N.L.	N.L.
4.3 Oxidizer	4	1[10,12]	(1)[10,12]	N.A.	1/4[12]	(1/4)[12]	N.A.	1/4[12]	(1/4)[12]
	3[16]	10[6,10]	(10)[6,10]	N.A.	2[6]	(2)[6]	N.A.	2[6]	(2)[6]
	2	250[6,10]	(250)[6,10]	N.A.	250[6]	(250)[6]	N.A.	50[6]	(50)[6]
	1	4,000[6,10]	(4,000)[6,10]	N.A.	4,000[6]	(4,000)[6]	N.A.	1,000[6]	(1,000)[6]
4.4 Oxidizer—gas (gaseous)[6,10] (liquefied)[6,10]		N.A. N.A.	N.A. 15	1,500 N.A.	N.A. N.A.	N.A. 15	1,500 N.A.	N.A. N.A.	N.A. N.A.
5.1 Pyrophoric		4[10,12]	(4)[10,12]	50[10,12]	1[12]	(1)[12]	10[10,12]	0	0
6.1 Unstable (reactive)	4	1[10,12]	(1)[10,12]	10[10,12]	1/4[12]	(1/4)[12]	2[10,12]	1/4[12]	(1/4)[12]
	3	5[6,10]	(5)[6,10]	50[6,10]	1[6]	(1)[6]	10[6,10]	1[6]	(1)[6]
	2	50[6,10]	(50)[6,10]	250[6,10]	50[6]	(50)[6]	250[6,10]	10[6]	(10)[6]
	1	N.L.	N.L.	750[6,10]	N.L.	N.L.	N.L.	N.L.	N.L.
7.1 Water reactive	3	5[6,10]	(5)[6,10]	N.A.	5[6]	(5)[6]	N.A.	1[6]	(1)[6]
	2	50[6,10]	(50)[6,10]	N.A.	50[6]	(50)[6]	N.A.	10[6]	(10)[6]
	1	125[10,11]	(125)[10,11]	N.A.	125[11]	(125)[11]	N.A.	25[11]	(25)[11]

N.A.—Not applicable. N.L.—Not limited.

[1]Control areas shall be separated from each other by not less than a one-hour fire-resistive occupancy separation. The number of control areas within a building used for retail or wholesale sales shall not exceed two. The number of control areas in buildings with other uses shall not exceed four. See Section 204.

[2]The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

[3]The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials within a single control area of Group M Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

[4]The quantities of alcoholic beverages in retail sales uses are unlimited provided the liquids are packaged in individual containers not exceeding four liters.

The quantities of medicines, foodstuffs and cosmetics containing not more than 50 percent of volume of water-miscible liquids and with the remainder of the solutions not being flammable in retail sales or storage occupancies are unlimited when packaged in individual containers not exceeding four liters.

[5]For aerosols, see the Fire Code.

[6]Quantities may be increased 100 percent in sprinklered buildings. When Footnote 10 also applies, the increase for both footnotes may be applied.

[7]For storage and use of flammable and combustible liquids in Groups A, B, E, F, H, I, M, R, S and U Occupancies, see Sections 303.8, 304.8, 305.8, 306.8, 307.1.3 through 307.1.5, 308.8, 309.8, 310.12, 311.8 and 312.4.

[8]For wholesale and retail sales use, also see the Fire Code.

[9]Spray application of any quantity of flammable or combustible liquids shall be conducted as set forth in the Fire Code.

[10]Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the Fire Code. When Footnote 6 also applies, the increase for both footnotes may be applied.

[11]The quantities permitted in a sprinklered building are not limited.

[12]Permitted in sprinklered buildings only. None is allowed in unsprinklered buildings.

[13]One pound of black sporting powder and 20 pounds (9 kg) of smokeless powder are permitted in sprinklered or unsprinklered buildings.

[14]See definitions of Divisions 2 and 3 in Section 307.1.

[15]Containing not more than the exempt amounts of Class I-A, Class I-B or Class I-C flammable liquids.

[16]A maximum quantity of 200 pounds (90.7 kg) of solid or 20 gallons (75.7 L) of liquid Class 3 oxidizers may be permitted in Groups L, R and U Occupancies when such materials are necessary for maintenance purposes or operation of equipment as set forth in the Fire Code.

TABLE 3-E—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS PRESENTING A HEALTH HAZARD MAXIMUM QUANTITIES PER CONTROL AREA[1,2]

When two units are given, values within parentheses are in pounds (lbs.)

MATERIAL	STORAGE[3]			USE[3]—CLOSED SYSTEMS			USE[3]—OPEN SYSTEMS	
	Solid Lbs.[4,5,6]	Liquid Gallons[4,5,6] (Lbs.)	Gas Cu. Ft.[5]	Solid Lbs.[4,5]	Liquid Gallons[4,5] (Lbs.)	Gas Cu. Ft.[5]	Solid Lbs.[4,5]	Liquid Gallons[4,5] (Lbs.)
	× 0.4536 for kg	× 3.785 for L × 0.4536 for kg	× 0.028 for m^3	× 0.4536 for kg	× 3.785 for L × 0.4536 for kg	× 0.028 for m^3	× 0.4536 for kg	× 3.785 for L × 0.4536 for kg
1. Corrosives	5,000	500	810^6	5,000	500	810^6	1,000	100
2. Highly toxics[7]	1	(1)	20^8	1	(1)	20^8	1/4	(1/4)
3. *Irritants*[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
4. Sensitizers[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
5. Other health hazards[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
6. Toxics[7]	500	(500)	810^6	500	(500)	810^8	125	(125)

[1]Control areas shall be separated from each other by not less than a one-hour fire-resistive occupancy separation. The number of control areas within a building used for retail or wholesale sales shall not exceed two. The number of control areas in buildings with other uses shall not exceed four. See Section 204.

[2]The quantities of medicines, foodstuffs and cosmetics, containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, in retail sales uses are unlimited when packaged in individual containers not exceeding 4 liters.

[3]The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

[4]The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid health hazard materials within a single control area of Group M Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

[5]Quantities may be increased 100 percent in sprinklered buildings. When Footnote 6 also applies, the increase for both footnotes may be applied.

[6]Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the Fire Code. When Footnote 5 also applies, the increase for both footnotes may be applied.

[7]For special provisions, see the Fire Code.

[8]Permitted only when stored in approved exhausted gas cabinets, exhausted enclosures or fume hoods.

[9]Irritants, sensitizers and other health hazards do not include commonly used building materials and consumer products which are not otherwise regulated by this code.

Exterior walls, nonbearing = 1 hr < 20 ft.

Openings: Not permitted < 5 ft.
Protected < 10 ft.

Allowable Floor Areas: Table 5-B

F-1, S-1. II-N = 12,000 square feet.

Actual Floor Area: 1200 square feet.

The actual area is less than the allowable area and therefore the building complies.
Area increases are not required and neither are area separation walls.

Allowable Height and number of stories: Table 5-B

F-1, S-1 II N Max height = 2 stories 55 ft.

The building complies.

Review the building for conformity with the occupancy requirements.

302.5 Heating Equipment Room Occupancy Separation. In Groups A; B; E; F; I; M; R, Division 1; and S Occupancies, rooms containing a boiler, central heating plant or hot-water supply boiler shall be separated from the rest of the building by not less than a one-hour occupancy separation.

EXCEPTIONS: In Groups A, B, F, I, M and S Occupancies, boilers, central heating plants or hot water supply boilers where the largest piece of fuel equipment does not exceed 400,000 Btu per hour (117.2kW) input.

NOTE: Heating equipment is less than 400,000 BTU per hour, therefore separation is not required.

Section 306, F occupancies (F1). #35 Refuse Incineration

306.5 Light, Ventilation and Sanitation. In Group F Occupancies, light, ventilation and sanitation shall be as specified in Chapter 12 and 29. At least 6 continuous air changes per hour will be required.

306.8 Special Hazards. For special hazards of Group F Occupancies, see Section 304.8

304.8 Special Hazards. Chimneys and heating apparatus shall conform to the requirements of Chapter 31 of this code and the Mechanical Code.

Storage and use of flammable and combustible liquids shall be in accordance with the Fire Code.

Devices generating aglow, spark or flame capable of igniting flammable vapors shall be installed such that sources of ignition are at least 18 inches (457 mm) above the floor of any room in which Class I flammable liquids or flammable gases are used or stored.

Section 311 - Group S Occupancies (S1)

311.5 Light, Ventilation and Sanitation. In Group S Occupancies, light, ventilation and sanitation shall be as contained in Chapters 12 and 29.

311.8 Special Hazards. For special hazards of Group S Occupancies, see Section 304.8 Storage and use of flammable and combustible liquids shall be in accordance with the Fire Code.

Section 7
Permits Required Prior to Beginning Construction

Approval is needed from a number of different local, state and federal agencies before construction can begin on the new building.

Local Permits

A City of Valdez building permit will be required. Final plans of the Valdez EVOS building will be submitted to the City's building department for review. It is assumed that the City will not charge a review fee for this project.

State Permits

A Coastal Questionnaire will be filled out and submitted to the Department of Governmental Coordination (DGC).

An approval of the plans will be required from the ADEC. The preliminary design will be submitted to the Valdez office of ADEC for review and a follow up meeting will be held with the Department representative to discuss any critical issues identified in the preliminary design. After the plans are revised, the final design will be submitted to the agency along with a request for an "approval to construct" the facilities. At completion of the construction, asbuilts and other necessary forms will be submitted to ADEC and a request for an "approval to operate" the facilities will be requested.

Final plans and specifications of the EVOS Station will be submitted to the State of Alaska Fire Marshall's office for review and approval.

Federal Permits

To meet the requirements for EVOS funded projects, a document will be prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project.

An Environmental Assessment (EA) will be completed and published for comment by the public for 30 days. Comments received will be incorporated into the final EA. Assuming there are no significant impacts identified, it is anticipated the USFS will approve the EA.

Section 8
Community Authorization and Acceptance of Project

Before construction of the EVOS Stations can proceed, Valdez will be required to authorize and accept responsibility for operation of the proposed facilities. Phase II construction will be approved by EVOS and ADEC, after the appropriate legally binding notarized Letter of Agreement with Valdez is received. This agreement must be signed by an executive officer of the community who is legally entitled to obligate the community and the Executive Director of the PWSEDC. The letter of agreement must contain, but is not limited to, agreement that:

A.) The community will obtain all titles, easements, and permits necessary to provide clear title and authority to construct and maintain the proposed project.

B.) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management, and maintenance of the EVOS facility after construction has been completed. Accidental discharge of waste products from the facilities, after final transfer to the community had been affected, is the sole responsibility of the community where the accident occurs. In the event of an accident, PWSEDC, its agents, subcontractors, and consultants will be held harmless for resultant damages.

C.) The PWSEDC and its subcontractors may enter upon the community's property and construct the project.

D.) The location, construction, and management of these buildings will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream, or body of water.

E.) The PWSEDC and the community will hold harmless, the ADEC and the EVOS Trustee Council, its officers, agents, and employees from liability of any kind, including costs and expenses, for or on account of any and all suits or damages of any nature, sustained by any person, persons or property, by virtue of performance of the PWSEDC or community acting in place of or for PWSEDC for this project.

Section 9
Questions

Your community's assistance with the following questions is requested.

1. Please provide any information you may have about the soils at the baler facility site for this new building.

Section 10
Equipment Cut Sheets

The following pages contain manufacturer's catalog cuts of equipment for the EVOS Station.

Dismas Pumps

Monday, February 03, 1997

GEAR PUMP
OIL
TRANSFER

Matt Stephl
Stephl Engineering
2525 Blueberry, Ste #203
Anchorage, AK 99503

Dear Matt Stephl

Reference: **Dismas Pumps** - High-Volume Pump Systems

Thank you for your interest in Dismas Pumps extensive line of positive displacement, gear driven transfer pumps. Requested information is enclosed.

DISMAS PUMPS PROVIDES:

- Explosion Proof Pumping System for operating in hazardous environments.
- All Dismas pumps can be operated dry with no damage and are self-priming.
- 12 and 24 volt DC pumps that will pump 40 WT oil at 40 F up to 40 GPM & diesel up to 70 GPM.
- Lightweight 110/220 volt AC pumps that will transfer heavy viscous materials such as motor oils & gear lubes. UL & CSA listed motors.

These innovative pumps are currently transferring fluids for hundreds of satisfied customers from commercial and industrial to bulk oil distributors for Pennzoil, Exxon, Chevron, Unocal and Texaco.

To place your order, Fax your credit application along with your confirming Purchase Order to Fax # 406-245-5606 or call (800) 874-8976.

Sincerely,

CAROL STIGEN
Dismas Pumps

P.O. Box 80008, Billings, MT 59108-0008 1110 Maggie Lane, Billings, MT 59101 406-259-8282 800-874-8976 Fax 406-245-5606

Dismas Pumps

EFFECTIVE
MAR.1,1996

PRICE LIST

DISMAS PRODUCT NO.	DESCRIPTION	LIST PRICE
#1001	GP8-HP-100: HAND OPERATED PUMP, BI-DIRECTIONAL	$205.00
#4001 #4021	GP8-DC-050-EP: 12 VOLT, 60 AMPS, 1/2 HP GP8-DC-050-EP: 24 VOLT, 30 AMPS, 1/2 HP	$1,345.00
#4002 #4022	GP8-DC-050-EP-BP: 12 VOLT, 60 AMPS, 1/2 HP GP8-DC-050-EP-BP: 24 VOLT, 30 AMPS, 1/2 HP	$1,645.00
#4601 #4621	GP8-DC-100: 12 VOLT, 100 AMPS, 1 HP GP8-DC-100: 24 VOLT, 50 AMPS, 1 HP	$1,540.00
#4602 #4622	GP8-DC-100-BP: 12 VOLT, 100 AMPS, 1HP GP8-DC-100-BP: 24 VOLT, 50 AMPS, 1HP	$1,840.00
#4601 #4621	GP8-DC-100-EP: 12 VOLT, 100 AMPS, 1HP GP8-DC-100-EP: 24 VOLT, 50 AMPS, 1HP	$1,690.00
#4602 #4622	GP8-DC-100-EP-BP: 12 VOLT, 100 AMPS, 1HP GP8-DC-100-EP-BP: 24 VOLT, 50 AMPS, 1HP	$1,975.00
#2001 #2002 #2003	GP8-AC-100: 110/230 VOLT AC, 1 1/2 HP, 2.5:1 RATIO GP8-AC-102: 110/230 VOLT AC, 1 1/2 HP, 2:1 RATIO GP8-AC-103: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	$1,515.00
#2101 #2102 #2103	GP8-AC-100-BP: w/BY-PASS GP8-AC-102-BP: w/BY-PASS GP8-AC-103-BP: w/BY-PASS	$1,815.00
#2501 #2502 #2503	GP8-AC-150: 110/230 VOLT AC, 1 1/2 HP, 2.5:1 RATIO GP8-AC-152: 110/230 VOLT AC, 1 1/2 HP, 2:1 RATIO GP8-AC-153: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	$2,190.00
#2521 #2522 #2523	GP8-AC-150: w/DRIP CONTAINMENT TANK GP8-AC-152: w/DRIP CONTAINMENT TANK GP8-AC-153: w/DRIP CONTAINMENT TANK	$2,270.00
#2601 #2602 #2603	GP8-AC-150-BP: w/SWIVEL 90 ELBOWS GP8-AC-152-BP: w/SWIVEL 90 ELBOWS GP8-AC-153-BP: w/SWIVEL 90 ELBOWS	$2,575.00
#2621 #2622 #2623	GP8-AC-150-BP: w/SWIVEL ELBOWS, TANK GP8-AC-152-BP: w/SWIVEL ELBOWS, TANK GP8-AC-153-BP: w/SWIVEL ELBOWS, TANK	$2,660.00
#2641 #2642 #2643	GP8-AC-150-BP: w/SWIVEL ELBOWS, TANK, NOZZLE GP8-AC-152-BP: w/SWIVEL ELBOWS, TANK, NOZZLE GP8-AC-153-BP: w/SWIVEL ELBOWS, TANK, NOZZLE	$3,040.00

PO Box 80008, Billings, MT 59108-0008 1110 Viaduct Lane, Billings, MT 59101 406-259-8282 800-874-8976 Fax 406-248-8806

DISMAS PRODUCT NO.	DESCRIPTION	PAGE 2 LIST-96
#0001	GP8-AC-100-EP:EXPLOSION-PROOF AC,1.5 HP,2.5:1 RATIO	$1,810.00
#0002	GP8-AC-102-EP:EXPLOSION-PROOF AC,1.5 HP,2:1 RATIO	
#0003	GP8-AC-103-EP:EXPLOSION-PROOF AC,1.5 HP,3:1 RATIO	
#0101	GP8-AC-100-EP-BP: W/BY-PASS	$2,110.00
#0102	GP8-AC-102-EP-BP: W/BY-PASS	
#0103	GP8-AC-103-EP-BP: W/BY-PAS	
#0501	GP8-AC-150-EP:EXPLOSION-PROOF AC,1.5HP,2.5:1 RATIO	$2,995.00
#0502	GP8-AC-152-EP:EXPLOSION-PROOF AC,1.5HP,2:1 RATIO	
#0503	GP8-AC-153-EP:EXPLOSION-PROOF AC,1.5HP,3:1 RATIO	
#0521	GP8-AC-150-EP: W/DRIP CONTAINMENT TANK	$3,191.00
#0522	GP8-AC-152-EP: W/DRIP CONTAINMENT TANK	
#0523	GP8-AC-153-EP: W DRIP CONTAINMENT TANK	
#0601	GP8-AC-150-EP-BP: W/SWIVEL 90 ELBOWS	$3,305.00
#0602	GP8-AC-152-EP-BP: W/SWIVEL 90 ELBOWS	
#0603	GP8-AC-153-EP+BP: W/SWIVEL 90 ELBOWS	
#0621	GP8-AC-150-EP-BP: W/SWIVEL ELBOWS, TANK	$3,410.00
#0622	GP8-AC-152-EP-BP: W/SWIVEL ELBOWS, TANK	
#0623	GP8-AC-153-EP-BP: W/SWIVEL ELBOWS, TANK	
#0641	GP8-AC-150-EP-BP: W/SWIVEL ELBOWS,TANK, NOZZLE	$3,830.00
#0642	GP8-AC-152-EP-BP: W/SWIVEL ELBOWS,TANK, NOZZLE	
#0643	GP8-AC-153-EP-BP: W/SWIVEL ELBOWS,TANK, NOZZLE	
#2901	GP8-AC-200: 110/230 VOLT AC, 1 1/2 HP, 2.5:1 RATIO	$2,220.00
#2902	GP8-AC-202: 110/230 VOLT AC, 1 1/2 HP, 2:1 RATIO	
#2903	GP8-AC-203: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	
#2921	SAME AS #2901 W/DRIP CONTAINMENT TANK	$2,311.00
#2922	SAME AS #2902 W/DRIP CONTAINMENT TANK	
#2923	SAME AS #2903 W/DRIP CONTAINMENT TANK	
#2951	GP8-AC-200-BP: W/BY-PASS	$2,520.00
#2952	GP8-AC-202-BP: W/BY-PASS	
#2953	GP8-AC-203-BP: W/BY-PASS	
#2971	SAMES AS #2951 W/DRIP CONTAINMENT TANK	$2,611.00
#2972	SAMES AS #2952 W/DRIP CONTAINMENT TANK	
#2973	SAMES AS #2953 W/DRIP CONTAINMENT TANK	

NOTE: ALL DC & AC MOTORS ARE UL & CSA LISTED

TERMS & CONDITIONS:
TERMS ARE 2%-10/NET 30 DAYS, WITH APPROVED CREDIT
ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE
ALL PRICES ARE F.O.B. OUR WAREHOUSE - BILLINGS, MT
MINIMUM ORDER - $25.00

Dismas Pumps

ADVANCED TRANSFERRING TECHNOLOGY

NOTHING ELSE IN SHORT DISTANCE

FP-RP

Dismas Pumps

GP8 Mobile Pump Series

This series of general purpose AC-operated pumps can transfer high volumes of light to heavy viscous products with low energy requirements. These versatile pumps are cart-mounted for mobility and are designed to transfer light viscous products such as diesel fuel as well as heavier viscous products such as 250 wt. gear lube.

TYPICAL APPLICATIONS

The AC-150-BP typical applications include direct transfer from 55 gallon drums of light to heavy viscous products and from stationary containers such as totes, and above ground and below ground tanks. These products include diesel fuel, gear lubes, hydraulic oil, motor oil, lubrication oil, antifreeze and industrial products. The AC-150-EP-BP explosion-proof models transfer multi-viscosity liquids such as aviation fuel, paints, gasoline, home heating fuel, waste oil, lacquers and thinners and are operational in explosive atmospheres.

SPECIAL APPLICATIONS

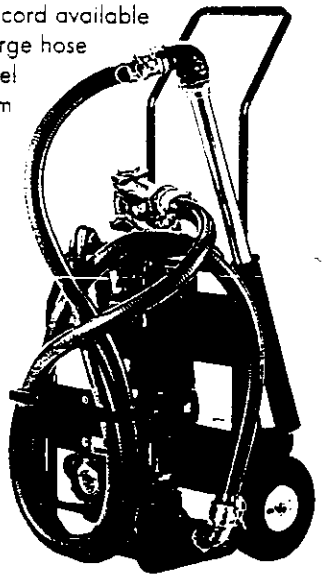
Special applications include auxiliary fire pump, emergency standby pump, factory processing tanks and fire retardant foam.

AC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Custom manufactured needle bearings with inner rings*
- *Viton seals (Optional Buna/nitrile available)*
- *Self priming*
- *Can be operated dry*
- *115/230 volts AC capabilities*
- *By pass*
- *Operational with manual and automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *Complete mobile pumping unit*
- *Designed for mobile transferring of your products*
- *UL and CSA listed motors*
- *Long life durability*
- *One year warranty*

Model AC-150-BP features:

- Pumps in either direction with optional forward/reverse switch
- On/off switch with 12" pigtail
- Can be operated with 100' of 12 gauge 3 conductor portable power cord
- Optional portable power cord available
- 10' of suction and discharge hose
- Complete with carbon steel suction tube and aluminum bung adapter
- Open flow down spout
- Model GP8-AC-150 for multipurpose transferal
- Model GP8-AC-152 for light viscous products, such as diesel fuels and antifreeze transferal
- Model GP8-AC-153 for heavy oils and gear lube transferal
- Optional discharge hose up to 40'



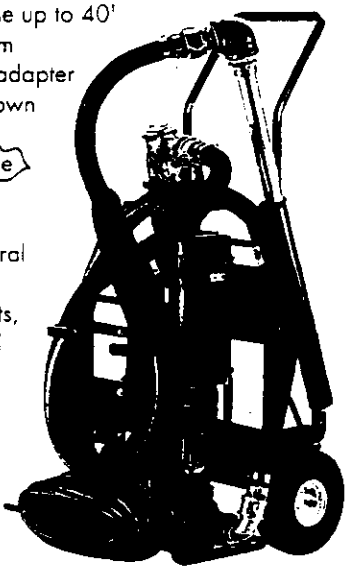
Dimensions

HEIGHT - 52" (Handle) WIDTH - 26" DEPTH - 24"

Model shown with by pass, 90° swivel elbows, manual shut off nozzle and containment tank.

Model AC-150-EP-BP features:

- Built in on/off switch
- Comes standard with 100' of 12 gauge 3 conductor portable power cord
- 10' of suction and discharge gasoline/oil hose
- Optional discharge hose up to 40'
- Complete with aluminum suction tube and bung adapter
- Aluminum open flow down spout
- Operational in explosive atmospheres
- Model GP8-AC-150-EP for multipurpose transferal
- Model GP8-AC-152-EP for light viscous products, such as gasoline, diesel fuels and antifreeze transferal
- Model GP8-AC-153-EP for heavy oils and gear lubes transferal



Dimensions HEIGHT - 52" (Handle) WIDTH - 26" DEPTH - 27"

Model shown with by pass, 90° swivel elbows, manual shut off nozzle and containment tank.

NOTHING ELSE IN SHORT DISTANCE

GP8 AC Stationary Pump Series

This series of AC-operated stationary general purpose pumps transfer high volumes of light to heavy viscous products with low energy requirements.

TYPICAL APPLICATIONS

Typical applications for this stationary mounted series include direct transfer of light to heavy viscous products from stationary containers, totes and tanks. These products include diesel fuel, gear lubes, hydraulic oil, motor oil, lubrication oil, antifreeze and industrial products. The AC-100-EP-BP explosion-proof model also transfers aviation fuel, paints, inks, gasoline, home heating fuel, waste oils, lacquers and thinners and operates in hazardous environments.

SPECIAL APPLICATIONS

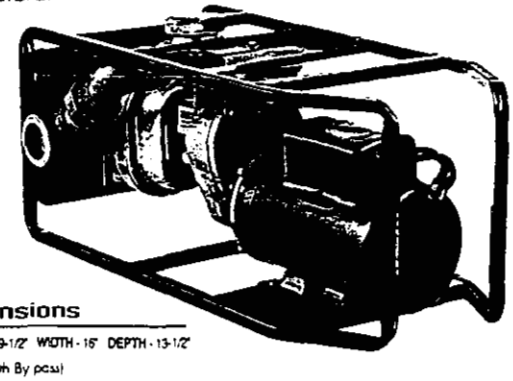
Special applications include auxiliary fire pump, emergency standby pump, factory processing tanks and fire retardant foam

AC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Custom manufactured needle bearings with inner rings*
- *Viton seals*
- *Self priming*
- *Can be operated dry*
- *115/230 volts AC capabilities*
- *Can be operated with 100' of 12 gauge 3 conductor power cord*
- *Optional power cord available*
- *Designed for stationary transferal*
- *By pass*
- *Operational with manual or automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *UL and CSA listed motors*
- *Long life durability*
- *One year warranty*

Model AC-100-BP features:

- Pumps in either direction with optional forward/reverse switch
- On/off switch with 12" pigtail
- Buna/nitrile seals available
- Model GP8-AC-100 for multipurpose transferal
- Model GP8-AC-102 for light viscous products, such as diesel fuels and antifreeze transferal
- Model GP8-AC-103 for heavy oils and gear lube transferal



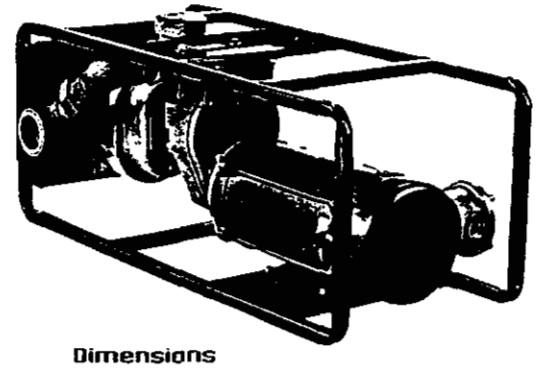
Dimensions

LENGTH - 29-1/2" WIDTH - 15" DEPTH - 13-1/2"

(Shown with By pass)

Model AC-100-EP-BP features:

- On/off switch
- Explosion proof junction box
- Operational in explosive atmospheres
- All purpose transferring of your products
- Buna/nitrile seals available
- Model GP8-AC-100-EP for multipurpose transferal
- Model GP8-AC-102-EP for light viscous products, such as gasoline, diesel fuels and antifreeze transferal
- Model GP8-AC-103-EP for heavy oils and gear lubes transferal



Dimensions

LENGTH - 32" WIDTH - 15" DEPTH - 13-1/2"

(Shown with By pass)

Dismas Pumps

GPB DC Stationary Pump Series

Dismas Pumps
P.O. Box 80008
Billings, MT 59108-0008
(406) 259-8282
1710 Maggie Lane
Billings, MT 59101
TOLL FREE (800) 874-8976
FAX (406) 245-5606

This series of stationary mounted DC- operated pumps offers high volume transfer of liquids with low energy requirements. Designed as a refueling pump, the explosion-proof model DC-050-EP-BP pumps diesel fuel, gasoline and other explosive products up to 60 gallons per minute. Model DC-100-EP-BP pumps gasoline, diesel fuel, motor oil and gear lubes up to 70 gallons per minute. (Also available in the non-explosion proof model DC-100-BP.) *All models available in both 12 and 24 volt DC.

TYPICAL APPLICATIONS

Typical applications for this series include transferring products from stationary containers or delivery vehicles. DC-050-EP-BP transfers light viscous explosive products including water, aviation fuel, home heating fuel, solvents, diesel fuel, gasoline, antifreeze and thinners. In addition to the products above, the DC-100-EP-BP transfers light to heavy viscous products such as diesel fuel, motor oil, antifreeze, hydraulic oil, lubrication oil, gear lubes, waste oil, paints, lacquer and gasoline.

SPECIAL APPLICATIONS

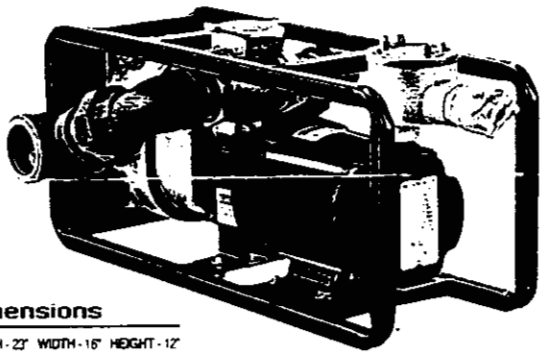
Special applications for this series include auxiliary fire pump, irrigation pump, shallow well pump and aircraft refueling.

DC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Oillite brass bushings (DC-050-EP-BP only)*
- *Viton seals*
- *Self priming*
- *Can be operated dry*
- *Pumps in either direction*
- *By pass*
- *Operational with manual or automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *Long life durability*
- *One year warranty*
- *Custom manufactured needle bearings with inner rings (DC-100-BP and EP only)*

Model DC-050-EP-BP features:

- 12 volt 60 amps and 24 volt 30 amps DC operated
- UL and CSA approved class 1, division 1, group D motors
- Commercial/Industrial applications
- Buna/nitrile seals available
- Optional 6/2 power cord

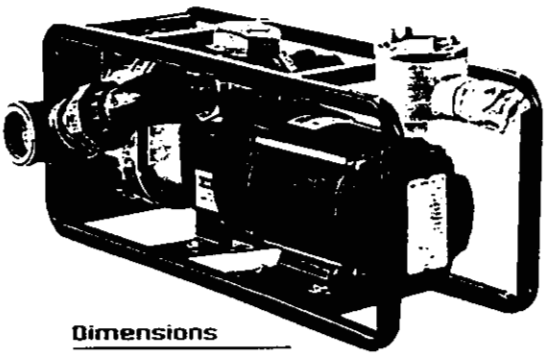


Dimensions

LENGTH - 23" WIDTH - 16" HEIGHT - 12"
(Shown with By pass)

Model DC-100-EP-BP features:

- 12 volt 100 amps and 24 volt 50 amps DC operated
- Operational in explosive environments
- Designed for refueling up to 70 gallons per minute of gasoline, diesel fuel or other explosive products
- Antifreeze transferal
- Hydraulic oils transferal
- Motor oils and gear lubes transferal
- Transferal of 40 wt. motor oil at 40°F up to 40 gallons per minute
- Industrial fluids such as paint and ink transferal
- UL and CSA approved class 1, division 1, group D motors
- Buna/nitrile seals available
- Optional 4/2 power cord
- Non-explosion proof model available



Dimensions

LENGTH - 25" WIDTH - 16" HEIGHT - 12"
(Shown with By pass)

NOTHING ELSE IN SHORT DISTANCE

Oil/Water Separators and Interceptors

Working Together for a Cleaner Environment.

Highland Tank

The Highland Advantage

Highland's Oil/Water Separators provide unparalleled performance, greater structural strength, superior product compatibility, and unsurpassed corrosion resistance. Highland patented oil/water separators have a proven record of reliability with thousands of high-performance separators in commercial operation around the world.

Highland engineers have designed a functional means of primary oil/water separation that not only assists in meeting federal, state and local oil and grease discharge limitation requirements, but surpasses them. And unlike other oil/water separators, Highland Separators are easy to operate and maintain!

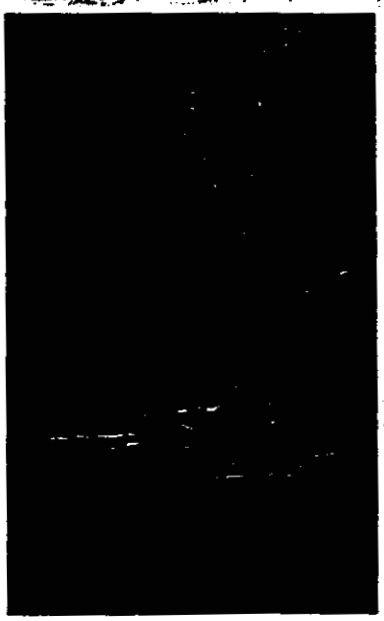
Highland Oil/Water Separators can be sized to accommodate a wide range of oily pollutant discharges from petroleum and non-petroleum based industries. Highland's Oil/Water Separators come in a variety of industry-proven designs, available in either a cylindrical or rectangular vessel. Single and double-wall construction is available for both underground and aboveground applications.

Each oil/water separator is backed by Highland Tank's professional design, engineering, fabrication, delivery and service. Highland never subcontracts — you receive your separator directly from one of Highland's six strategically located manufacturing facilities. This practice ensures complete quality control, from expert design to timely delivery by our professional drivers experienced with tank handling. The safety and security of a Highland protected steel oil/water separator is guaranteed by Highland and by the Steel Tank Institute's 30-year limited warranty against corrosion and structural failure.

When you invest in a Highland product, you benefit from a heritage that spans five decades. From the solid heavyweight construction to the patented design and operating simplicity, a Highland Oil/Water Separator is a product of experience, backed by a debt-free company with almost 50 years of private ownership and continuous management.

Highland Oil/Water Separators are competitively priced and are readily available from numerous regional representatives and distributors. You can depend on Highland Tank to provide you with environmentally safe and structurally sound oil/water separator solutions well into the 21st century and beyond.

C O N T E N T S

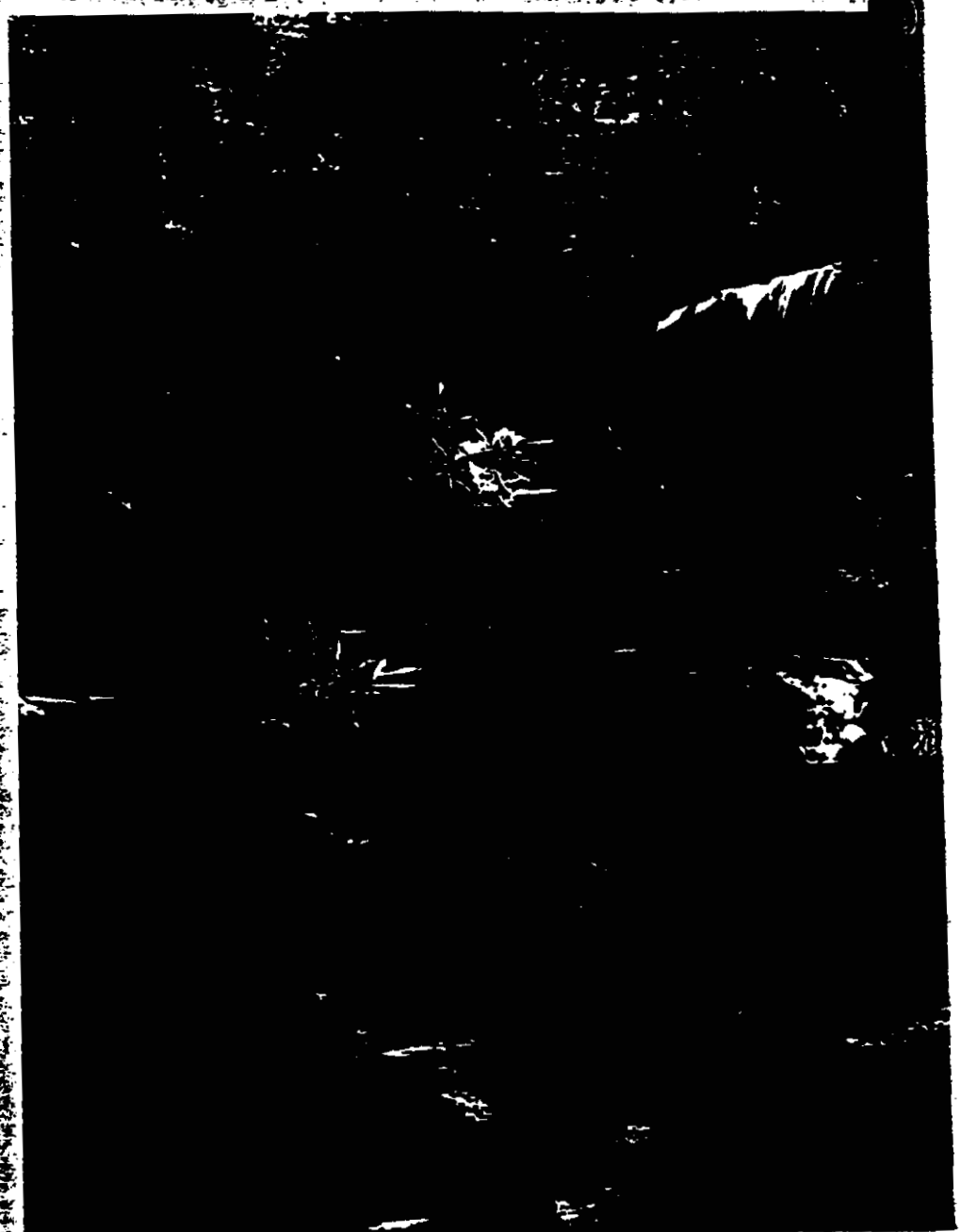


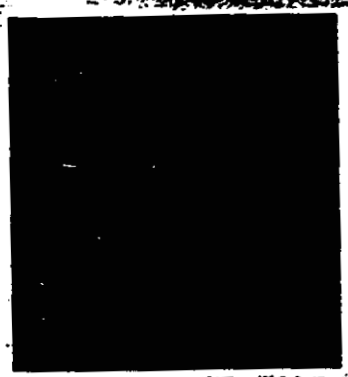
Environmental Regulations

Increasing public interest in the conservation of our nation's water resources has directly affected industries worldwide. Pressure to control harmful oil discharges and spills from industrial facilities has resulted in increasingly more stringent regulations and high penalties for noncompliance.

Oil bearing waste water discharges occur in many types of facilities, in many locations, and for many reasons. Relatively small but chronic oil discharges result from routine operations — engine and parts steam cleaning; regular vehicle maintenance and wash down; storage tank dike draining; and intentional hose-downs of loading racks, fueling islands, and vehicle parking areas.

Large, catastrophic spills usually result from human error and equipment failure associated with loading and dispensing operations. Fire and environmental codes require that the surface on which spills may





1972
Federal Water Pollution Control Act

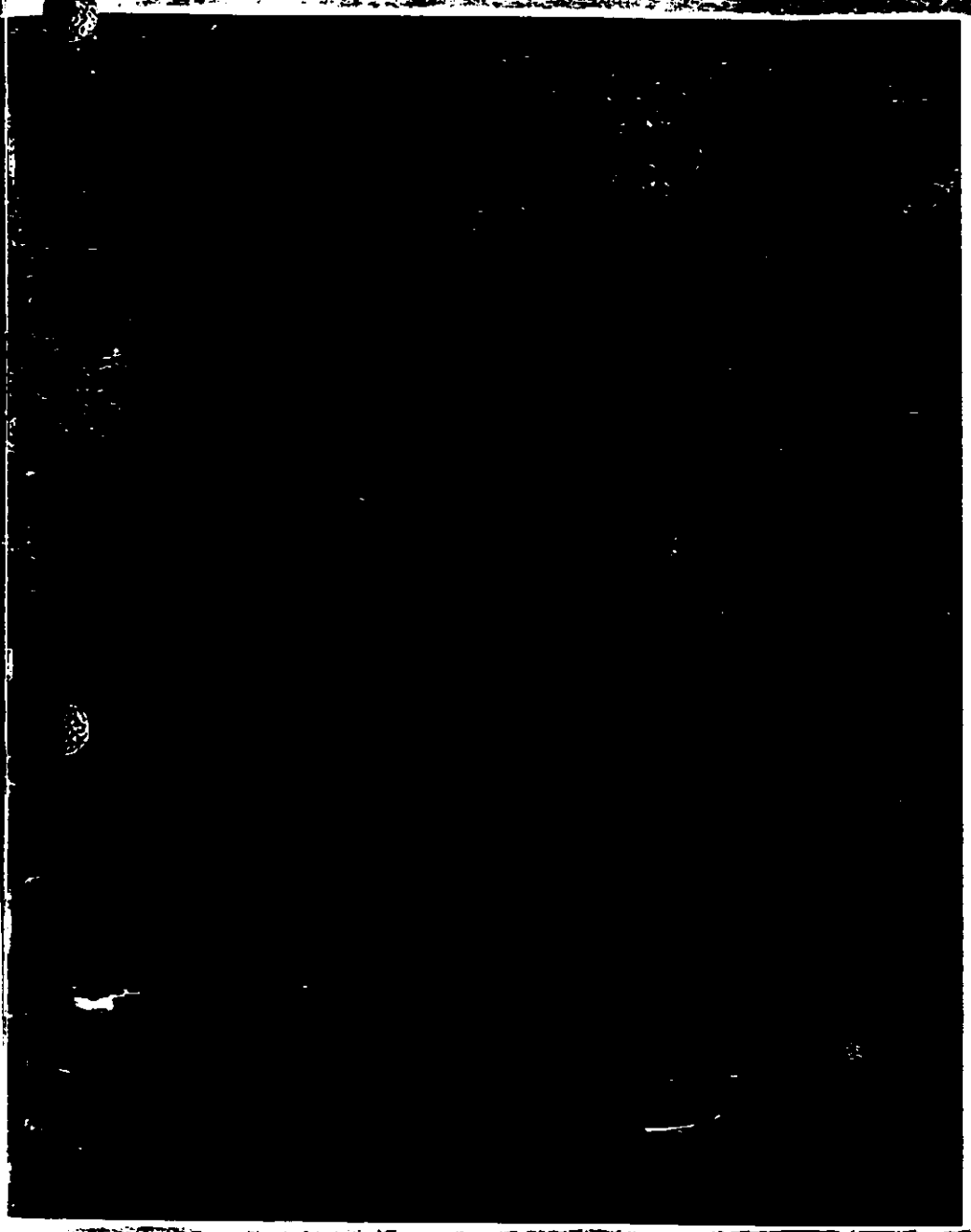
1974
Spill Prevention, Control and Countermeasures (SPCC) Plan Regulations

1976
Resource Conservation and Recovery Act (RCRA)

1977
Clean Water Act (CWA)

1980
"Superfund" Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

1984
Hazardous and Solid Waste Amendments (HSWA) to RCRA



occur be fully paved, curbed, and drained so that all spills flow to an adequately sized drain and oil/water separator. In most cases, oil and grease discharge regulations state that "any facility which discharges a harmful quantity of oil, or any petroleum product, and the oil enters a navigable body of water of the United States, by whatever means, is liable for significant penalties for clean-up costs and ecological damage."

Highland Tank offers many innovative solutions for industrial waste-water problems. Highland's Oil/Water Separator meets or exceeds current federal, state and local oil and grease limitations under the new Sewer Pretreatment Rules and Pollutant Discharge Elimination Systems regulations for storm water discharge.

Highland Tank — helping you plan now for the future.

1986
"Superfund" Amendment and Reauthorization Act (SARA)
- - - -
Safe Drinking Water Amendments

1987
Water Quality Act (WQA)

1988
Publicly-Owned Treatment Works (POTW) Pre-treatment Rules

1990
National Pollution Discharge Elimination System (NPDES) Stormwater Regulations
- - - -
Oil Pollution Act (OPA)

1994
SPCC II Plan Regulations Revisions

?
Future Regulations

Vessel Construction

Highland Tank's Steel Oil/Water Separators and Interceptors are second to none in design, quality and workmanship. The following information describes Highland's standard vessel construction and fabrication options for steel separators and interceptors.

Single-wall

Standard single-wall vessels are constructed of mild carbon or stainless steel meeting ASTM specifications. Material thicknesses from 7 gauge to ¼" can be specified. Superior "ribbed" strength is achieved with continous exterior full-fillet lap welds, employing a minimum ½" overlap on both head and shell joints. All separators and interceptors are factory air tested for leaks at 5 psi.

Double-wall Type I

Double-wall Type I vessels are constructed by wrapping a secondary steel wall completely around the primary vessel. Each double-wall vessel is constructed employing the same basic fabrication techniques as are used on single-wall vessels. The area between the vessel walls, known as the interstice, can be monitored with a leak detection system installed in the monitor tube, located on the vessel head.

Double-wall Type II

Double-wall Type II vessels consist of a primary vessel that is completely contained by the secondary exterior steel wall. The two walls are physically separated by standoffs that measure 1.5" on the shell, and 3" between the heads. This heavy-duty construction is based on the same fabrication techniques used on the single-wall and double-wall Type I vessels. A fitting located between the inner and outer heads of the vessel permits monitoring of the interstice with a leak detection system.

Standard 24", 30" and 36" diameter manways permit easy access to the inside of the vessel for maintenance from above. Double gasketing manways for secondary containment sumps and custom, shoe rectangular manways are also available.

Rolling Steel
Steel plates from 7 ga. to ¼" are rolled to form the rigid shell of the vessel.

Forming Heads
Sheet steel is cut with a rotary shear and flanged to form tank head.

Welding
All separators are sealed with a continuous exterior full-fillet lap weld. Interior welding is required with interior coatings.

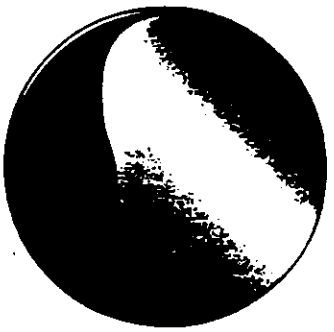
Rectangular Construction

Rectangular separators are fabricated with flanged top surfaces and removable lids for easy access. All separators are constructed of a minimum 7 gauge mild carbon or stainless steel, meeting ASTM specifications. Steel plates are formed, fitted, and welded creating a separator of superior strength.

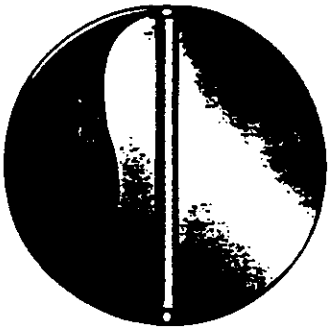
Highland Tank Oil/Water Separators carry the following patents and approvals:

U.S. Patent # 4,722,800
Canadian Patent # 1,296,263

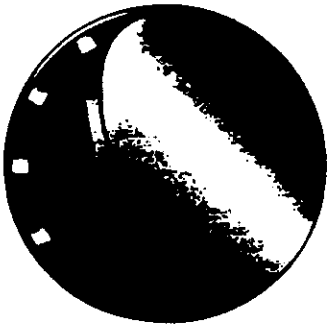
Approved by:
City of New York, Board of Standards and Appeals
Under Calendar Number 1215-88-SA
Metropolitan Dade County, FL, Code #93-0512.01
Massachusetts Board of State Examiners of Plumber and Gas Fitters Approval Code P1 0594-25



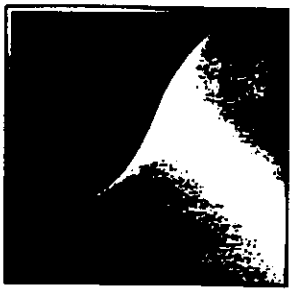
Single-wall



Double-wall Type I

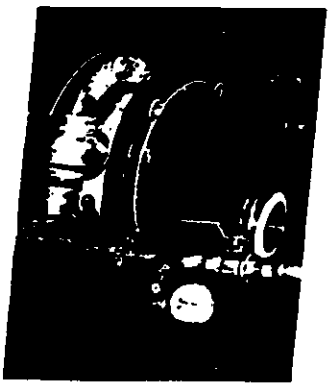


Double-wall Type II



Rectangular

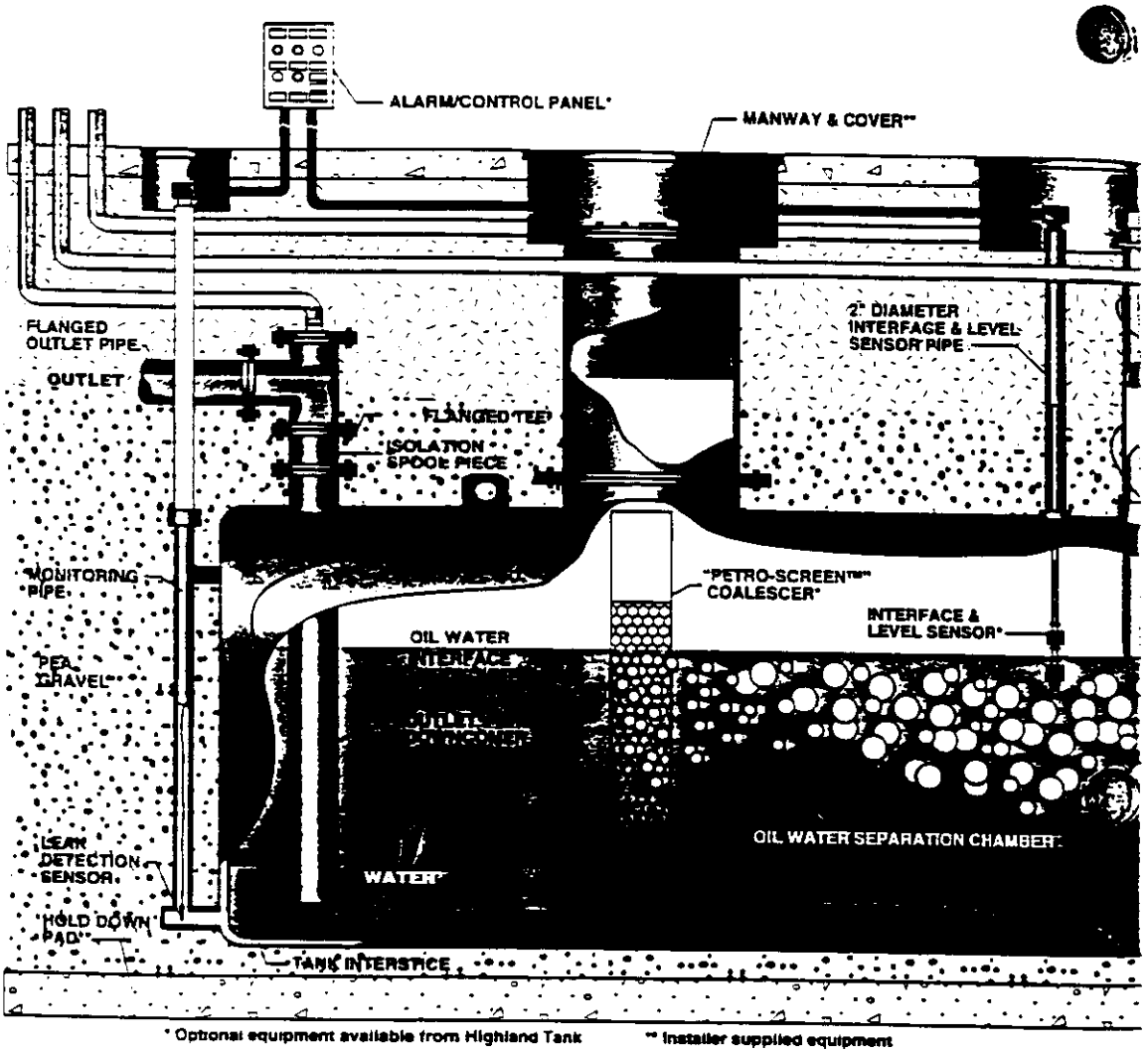
Fitting Components
Manways, flanged and threaded fittings, and other special components are fitted to the vessel, then welded in place.



Testing
All separators are air tested for leaks at 5 psi. All seams are inspected to ensure weld integrity.

Coating
Polyurethane, fiberglass reinforced polyester or other high-grade coatings are applied based on the separator's end use.

How It Works . . .



* Optional equipment available from Highland Tank ** Installer supplied equipment

Highland's Patented Design

Highland Tank's patented design combines state-of-the-art technology with time-tested materials, making Highland separators the strongest and most reliable high-performance separators in the industry.

The oil/water separator is a stationary underground, wastewater treatment vessel, filled with water. Internal baffles and coalescers accelerate the oil/water separation process. Waste accumulates within the separator while effluent is discharged by gravity.

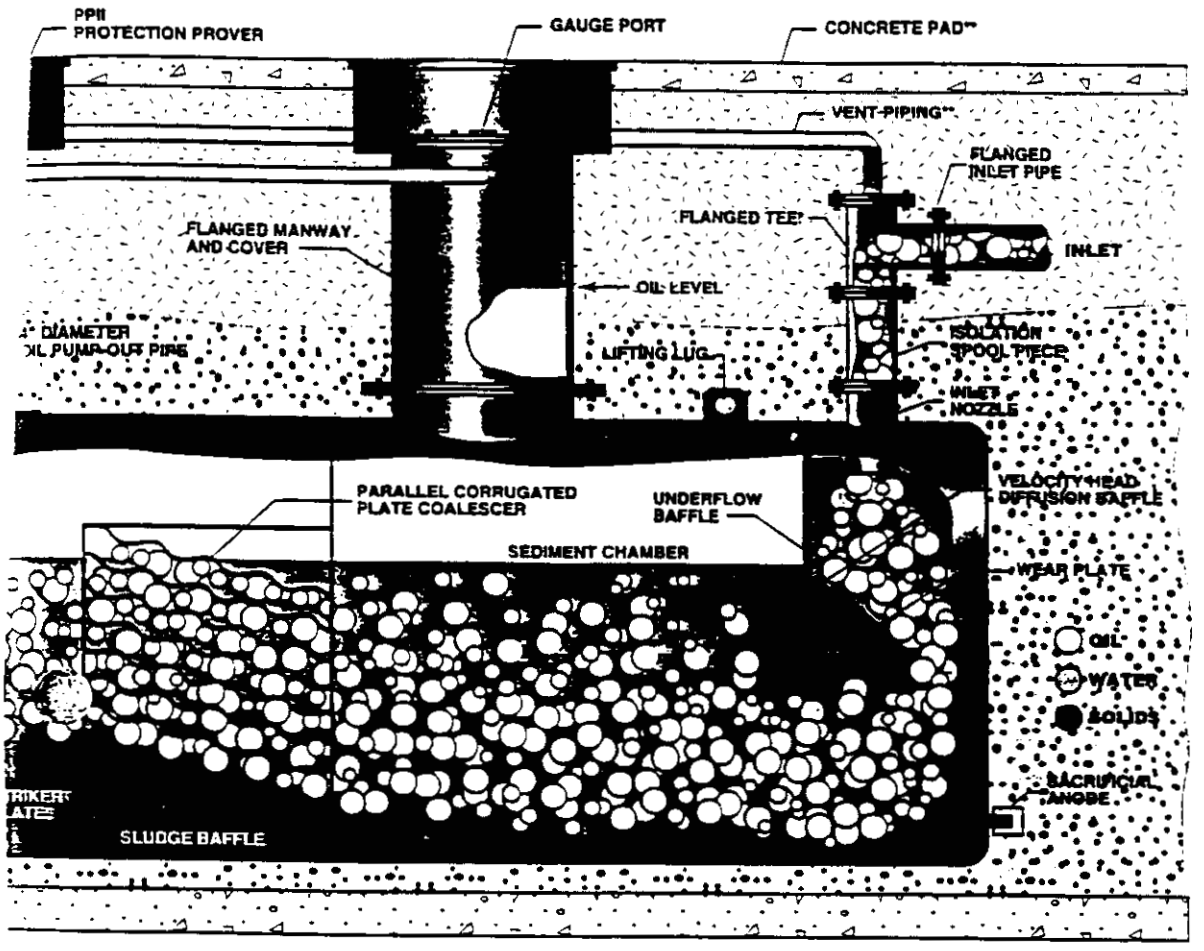
Diffusion Baffle

The velocity head diffusion baffle, located near the inlet of the separator, is designed to serve four basic functions:

1. *To dissipate the velocity head, thereby improving the overall hydraulic characteristics of the separator.*
2. *To direct incoming flow downward and outward maximizing the use of the separator volume.*
3. *To reduce flow turbulence and to distribute the flow evenly over the separator's cross-sectional area.*
4. *To isolate inlet turbulence from the rest of the separator.*

Internal Chambers

In the sediment chamber, heavy solids settle out, and concentrated oil slugs rise to the surface. As the oily water passes through the parallel corrugated plate coalescer (an inclined arrangement of parallel corrugated plates) the oil rises and coalesces into sheets on the underside of each plate. The oil then creeps up the plate surface, and breaks loose at the top in the form of large



globules. These globules then rise rapidly to the surface of the separation chamber where the separated oil accumulates.

The effluent flows downward to the outlet downcomer, where it is discharged by gravity displacement from the lower regions of the separator.

Petro-Screen™

For enhanced oil removal efficiency, a "Petro-Screen™" polypropylene coalescer (a bundle of oleophilic [oil attracting] fibers, layered from coarse to fine and encased within a solid framework) is used to intercept droplets of oil too minute to be removed by the parallel corrugated plate coalescer.

Monitoring Systems

For easy and efficient operation and maintenance, an oil level sensor can sound an alarm at high oil levels so waste oil can be removed from the separator. Double-wall separators can be furnished with a leak detection system for the interstitial space.

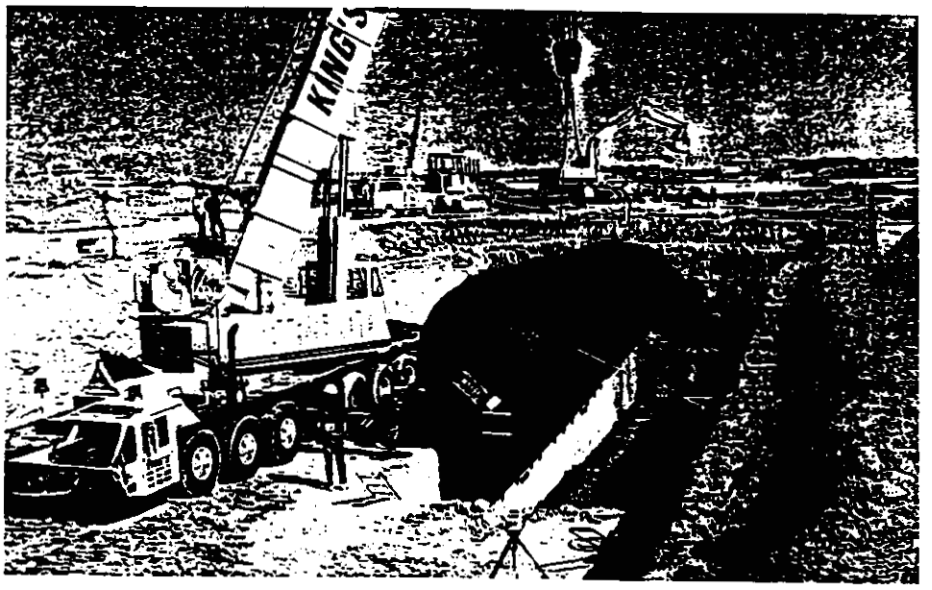
Additional monitoring equipment is available for oil or water level sensing, alarm and pumpout control.

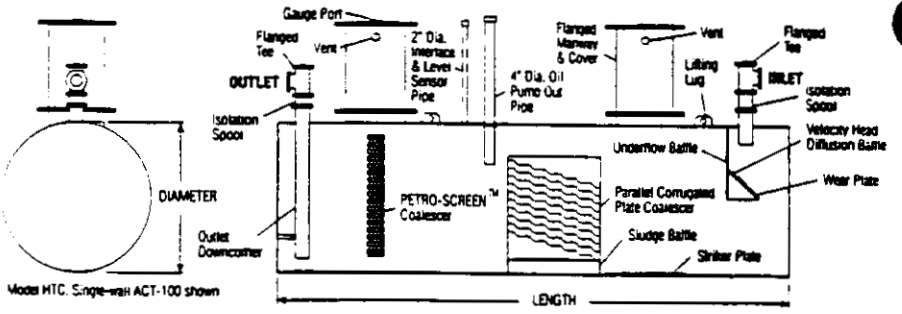
Cylindrical Design

Highland Oil/Water Separators help industries comply with oil and grease discharge regulations.

Highland Oil/Water Separators are used specifically for the removal of free floating oil, grease, and settleable oily coated solids from oil/water discharges associated with many types of industrial facilities. Designed to remove oils with a specific gravity less than .95, high performance separators from 15 ppm oil/grease discharge (Model HT) down to 10 ppm discharge (Model HTC) are available.

Highland Separators are highly efficient — treating wastewater under a wide range of conditions. All separators are of the highest quality — constructed to American Petroleum Institute (API), Underwriters Laboratories (UL), and Steel Tank Institute (STI) ACT-100 or STI-P3 specifications.





Model HTC, Single-wall ACT-100 shown

Model (HT or HTC)	Total Volume (Gallons)	Total Spill Capacity (Gallons)	Inlet/ Outlet	Flow Rate (gpm)	Dimensions Diameter	Dimensions Length	Approx. Wt.* (lbs.)
550	550	275	4"	55	3'6"	7'9"	2,024
1,000	1,000	500	6"	100	4'0"	10'9"	3,001
2,000	2,000	1,000	6"	200	5'4"	12'0"	4,122
3,000	3,000	1,500	8"	300	5'4"	18'0"	5,001
4,000	4,000	2,000	8"	400	5'4"	24'0"	5,760
5,000	5,000	2,500	8"	500	6'0"	23'10"	8,082
6,000	6,000	3,000	10"	600	6'0"	28'8"	9,484
7,000	7,000	3,500	10"	700	7'0"	24'4"	11,124
8,000	8,000	4,000	10"	800	7'0"	28'0"	11,959
9,000	9,000	4,500	12"	900	8'0"	24'0"	11,983
10,000	10,000	5,000	12"	1,000	8'0"	26'8"	12,696
12,000	12,000	6,000	12"	1,200	10'0"	20'6"	14,131
15,000	15,000	7,500	14"	1,500	10'0"	25'6"	19,...57
20,000	20,000	10,000	16"	2,000	10'6"	31'0"	23,316
25,000	25,000	12,500	18"	2,500	10'6"	38'9"	30,456
30,000	30,000	15,000	20"	3,000	10'6"	46'6"	35,586
40,000	40,000	20,000	24"	4,000	12'0"	47'3"	44,...39
50,000	50,000	25,000	24"	5,000	12'0"	59'0"	51,511

Weights shown are for Model HTC Single-wall Separators. Contact Highland for all other weights. Plate spacing and orientation may vary depending on site conditions.

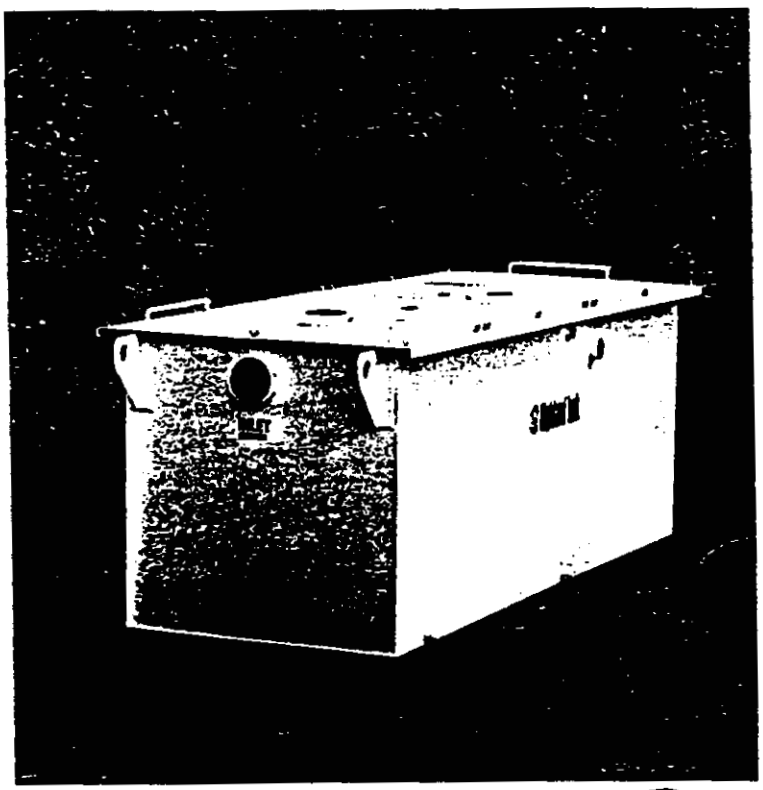
Valdez/Cordova

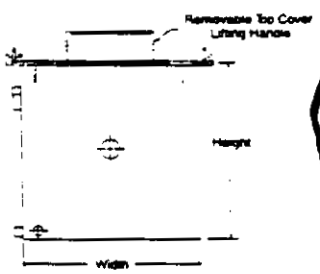
Rectangular Design

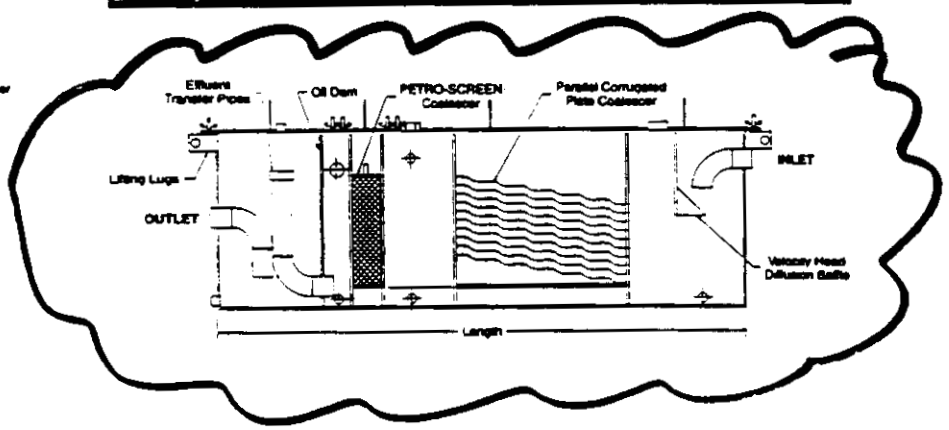
Highland's Rectangular Separators are designed for aboveground or belowground installations. These small, low flow rate models are ideal for vehicle maintenance facility wash and repair bays. All rectangular separators incorporate Highland's patented internal design and are available in both 10 ppm (HTC) and 15 ppm (HT) models.

All rectangular models have removable top panels for easy access and maintenance.

Oil or water level sensing, alarms and automatic pumpout controls, special coatings and other options are available to customize a separator to your specific needs.





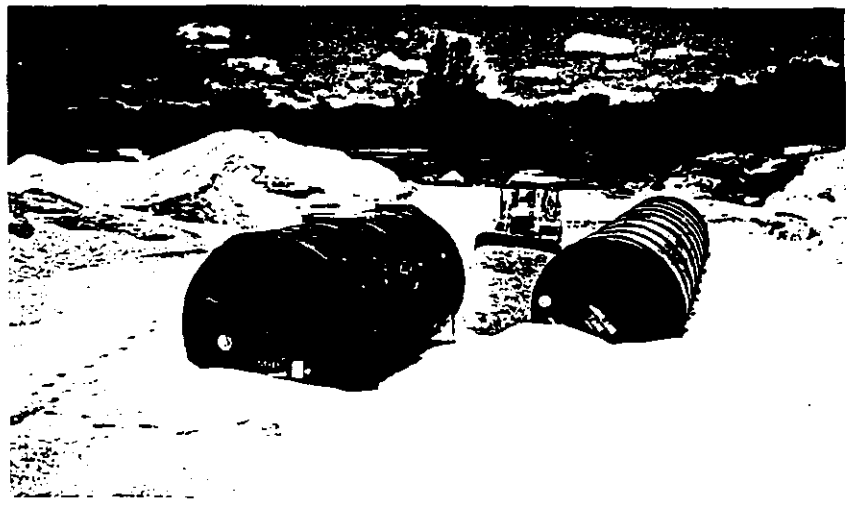


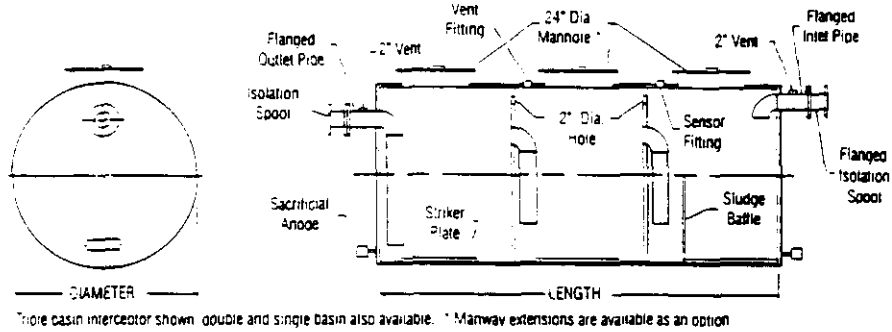
Model R-HT or R-HTC	Nominal Capacity (Gallons)	Spill Capacity (Gallons)	Flow Rate (gpm)	Dimensions L x W x H	Inlet/Outlet Diameter	Approx. Wt.* (lbs.)
200	200	80	10	5'0" x 2'0" x 3'0"	2"	975
300	300	100	25	7'0" x 2'0" x 3'0"	3"	1,150
600	600	200	50	9'0" x 3'0" x 3'0"	4"	1,850
900	900	300	75	10'0" x 3'0" x 4'0"	6"	2,145
1,000	1,000	400	100	11'0" x 4'0" x 4'0"	5"	4,380
2,000	2,000	750	200	12'0" x 5'0" x 5'0"	8"	7,150

Cylindrical Design

Highland Single, Double and Triple Basin Interceptors are engineered to collect sand, grit, grease and free oil, hydrocarbons and other petroleum products from storm water runoff spills and vehicle maintenance operations. Highland Interceptors can be used in conjunction with high-performance oil/water separators. An optional overflow bypass is available on double basin interceptors to divert flow and prevent separator overflow. Double or triple basin interceptors may be connected directly to a sanitary sewer system or be used in conjunction with a recycle wash water system.

Highland Interceptors are highly dependable — operating under a wide range of conditions. Highland's interceptors are constructed of the highest quality materials — to UL, STI-P3 and ACT-100 specifications. Single or double-wall construction and options and accessories similar to those for separators are available.





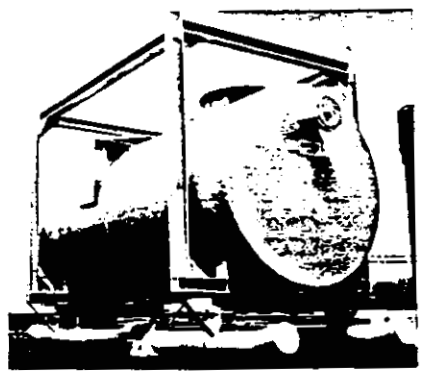
Triple basin interceptor shown, double and single basin also available. * Manway extensions are available as an option.

Nominal Capacity (Gallons)	Sludge Capacity SB	Sludge Capacity DB (Cubic Ft.)	Sludge Capacity TB	Flow Rate (gpm)	Inlet/ Outlet Diameter	Dimensions Diameter	Dimensions Length	Approx. Wt.* (lbs.)
550	30	20	10	55	6"	3'6"	7'9"	1,253
1,000	60	40	18	100	6"	4'0"	10'9"	1,734
2,000	120	80	35	200	6"	5'4"	12'0"	2,519
3,000	180	120	53	300	6"	5'4"	18'0"	3,323
4,000	250	160	71	400	8"	5'4"	24'0"	4,339
5,000	310	230	89	500	10"	6'0"	23'10"	6,646
6,000	375	275	107	600	10"	6'0"	28'6"	8,547
7,000	425	315	125	700	10"	7'0"	24'4"	8,361
8,000	500	385	143	800	10"	7'0"	28'0"	8,912
9,000	540	400	160	900	12"	8'0"	24'0"	9,632
10,000	600	465	178	1,000	12"	8'0"	26'8"	10,853
12,000	750	500	214	1,200	12"	10'0"	20'6"	12,279
15,000	900	685	267	1,500	14"	10'0"	25'6"	16,958
20,000	1,200	1,000	356	2,000	16"	10'6"	31'0"	20,299
25,000	1,525	1,250	445	2,500	18"	10'6"	38'9"	27,942
30,000	1,850	1,580	535	3,000	20"	10'6"	46'6"	33,089
40,000	2,400	2,000	713	4,000	24"	12'0"	47'3"	40,121
50,000	3,080	2,650	891	5,000	24"	12'0"	59'6"	47,187

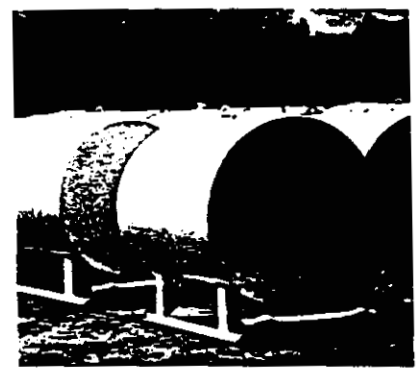
* Weights given are for Triple Basin Interceptors. Other weights available upon request.

Design Options

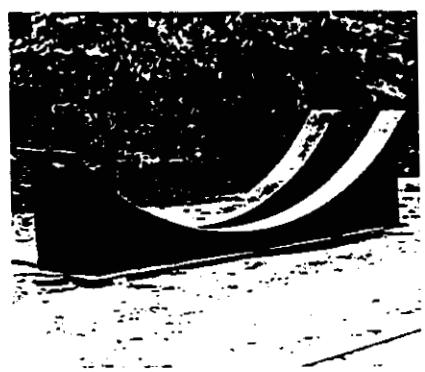
Highland Tank custom fabricates oil/water separators and interceptors to satisfy your specific need. Separator and interceptor installations vary greatly with each location. Highland offers a wide range of design options to handle these situations. The following information illustrates some of the support options available for aboveground units, three effluent/product handling options and other operating accessories available from Highland Tank.



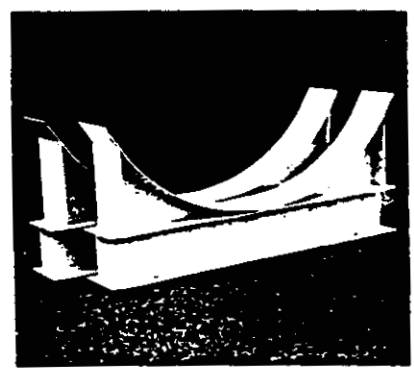
***Heavy duty skids** for 48" – 96" diameter vessels.*



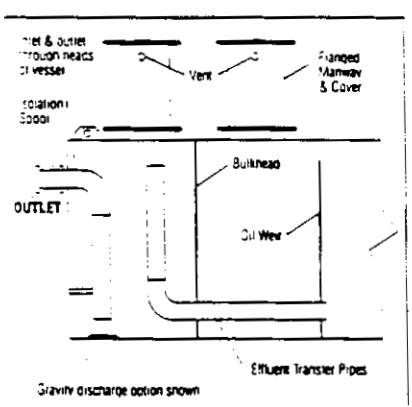
***Light duty skids** for 38" – 48" diameter vessels.*



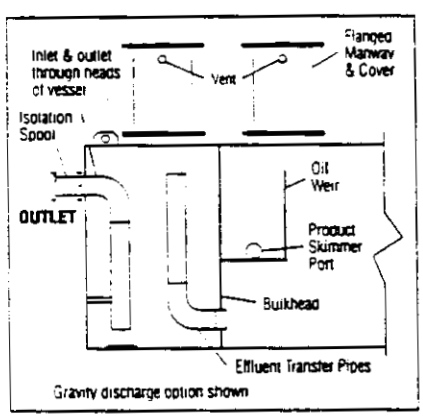
***Heavy duty saddles** for 84" – 144" diameter vessels.*



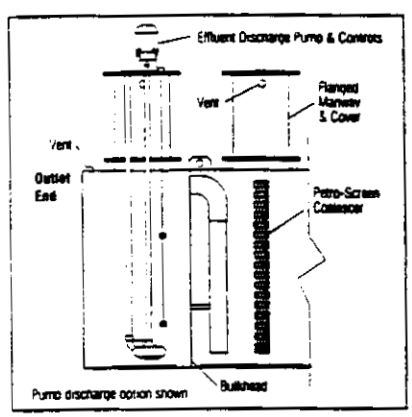
***Light duty saddles** for 38" – 72" vessels.*



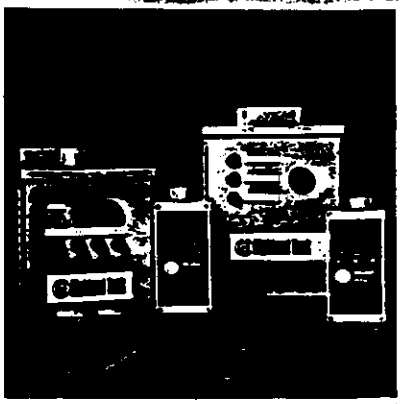
Series H
Series H Oil/Water Separators feature an integral product sump for storing separated oil. A special product weir permits the removal of only the skimmed oil by pump-out. The effluent is discharged by either pump or gravity flow.



Series I
Series I Oil/Water Separators feature an integral product reservoir for receiving skimmed oil. The oil is removed by pump or gravity through a side port to a remote oil storage tank. The effluent is discharged by either pump or gravity flow.

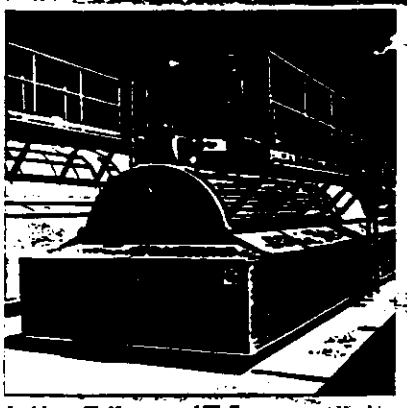


Series J
Series J Oil/Water Separators feature an integral effluent pump-out chamber with level controls to operate a pump at prescribed levels. The pumped effluent can then be routed through Highland's Activated Carbon Filtration unit.



Alarm Control Panels

Activated Carbon Filtration



Ladders, Platforms and Walkways

STI P3®
UNDERGROUND STORAGE TANKS

STI-P3 Protection System

Protective Coating
A tough, heavy duty dielectric coating of either polyurethane or fiberglass reinforced polyester covers the separator and seals it from the surrounding soil providing the first line of defense against stray current and galvanic corrosion.

Electrical Isolation
UL-Listed dielectric nylon bushings or flange isolation kits are used in each opening to electrically isolate the separator from piping, preventing the entry of stray currents or galvanic action through piping connections.

Cathodic Protection
Galvanic anodes provide protective current flow to any scratches in the coating that may occur during shipping/handling. The anodes are self-regulating, supplying current only as needed, for extra long life. Every STI-P3 separator is shipped with factory installed PP2 Protecon prover cathodic protection monitoring system.

ACT-100®

ACT-100 Protection System

Protective Coating
A tough, heavy duty dielectric coating of 100 mil fiberglass reinforced polyester covers the separator and seals it from the surrounding soil providing the first line of defense against stray current and galvanic corrosion.

Electrical Isolation
UL-Listed dielectric nylon bushings or flange isolation kits are used in each opening to electrically isolate the separator from piping, preventing the entry of stray currents or galvanic action through piping connections.

Highland Tank

Wastewater Treatment Applications

Ever increasing oil and grease discharge regulations at industrial facilities necessitate the development of spill and wastewater treatment plans and installation of equipment to implement those plans.

Typically Regulated Facilities

- Aircraft Services
- Airports
- Ambulance Services
- Automobile Dealers
- Automobile Rental Services
- Bus Companies
- Construction Companies
- Garbage Carters
- Gasoline Service Stations
- Industrial Facilities
- Military Installations
- Municipalities
- Railroads
- Taxi Cab Companies
- Trucking Companies
- Utilities

Vehicle services associated with each of these facilities might include:

  - Fueling Facilities
  - Repair and Maintenance Shops
  - Wash Areas

- Bulk Storage Tank Farms
- Hazardous Waste Sites
- Leaking Petroleum Storage Tank and Piping Remediation
- Petroleum Marketing Facilities
- Parking Lots
- Refineries
- Utility Switch Yards

Highland Design Assistance

Developing a spill control or wastewater treatment system and then selecting the proper equipment is no ordinary task!

Highland has a network of knowledgeable factory representatives located worldwide to assist you in this process. In addition, Highland offers a wide array of information that includes an engineering manual with detailed information for selecting and specifying products and accessories. Specifications and engineering drawings for standard models of separators are also available on 3.5" floppy disk.

For assistance in selecting and specifying Highland high performance oil/water separator and/or interceptor, and for the nearest Highland Oil/Water Separator representative, call or write:

Highland Tank
One Highland Rd.
Stoystown PA 15563
814-893-5701
FAX 814-893-6126

Highland Tank

Highland Manufacturing Locations

One Highland Road
Stoystown, PA 15563-0338
Phone (814) 893-5701
Fax (814) 893-6126

99 West Elizabethtown Road
Manheim, PA 17545-9410
Phone (717) 664-0600
Fax (717) 664-0617

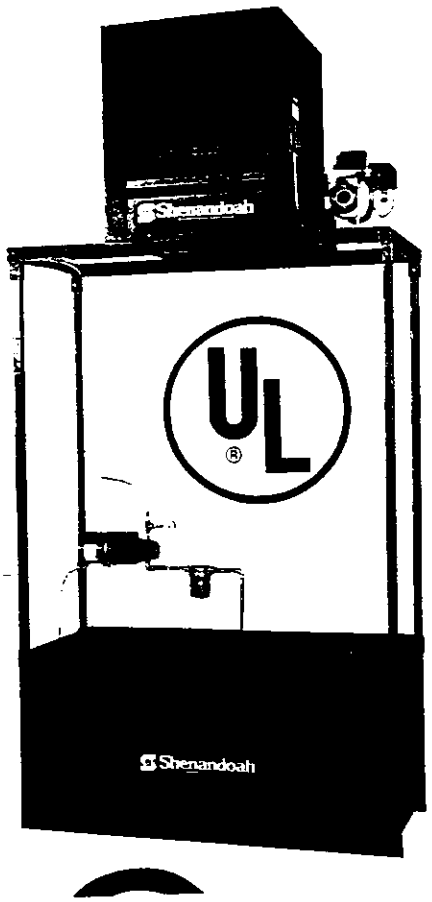
958 19th Street
Watervliet, NY 12189
Phone (518) 273-0801
Fax (518) 273-1365

2225 Chestnut Street
Lebanon, PA 17042
Phone (717) 664-0602
Fax (717) 664-0631

2001 East Pontiac Street
Fort Wayne, IN 46803
Phone (219) 422-6191

2700 Patterson Street
Greensboro, NC 27407
Phone (910) 218-0601
Fax (910) 218-1292

Shenandoah



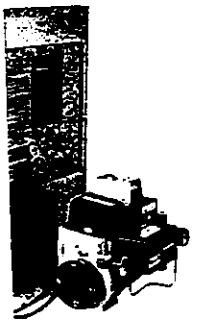
Select the heat

Right fo

Offering you the bene

- **Patented burner design**
- **User-friendly maintenance**
  Slide out gun assembly.
  Clean-out panels on both ends of heat exchanger.
- **Safe, dependable ease of operation**
  Thermostatically controlled, 24V wall thermostat
  Flame sensor with cutoff controls.

OF-1
CORDOVA
VALDEZ
WHITTER



125

[illegible]	125,000 *31,500 KCAL*
Output (approx. BTU/hr.)	100,000 *25,200 KCAL*
Stack size / ship wt. with burner	6"/ 337 lbs. *15.2 cm / 153 kg*
Heater dimensions (L x W x H) *Includes outside measurements of fan and burner*	30" x 43" x 33" *76 cm x 109 x 84*
Electrical requirements *Maximum circuit protection*	115/60 20 AMPS
Approx. oil consumption	.90 GPH *3.4 LPH*
Air Flow through fan	1800 CFM *50.4 m^3/min.*
Agency listing	UL, CSA, C-UL, [illegible]M

Compressed air for all models 2 CFM @ 40 PSI *(.057 m^3/min. @ .28 MP*
Fuels Used crankcase oil, transmission and hydraulic fluids, as well as other petroleum based lubricants (any weight combination up to SAE 50 as well as #1 and #2 fuel oil.

MADE in the USA

Specifications Summary

that's

your shop

s of...

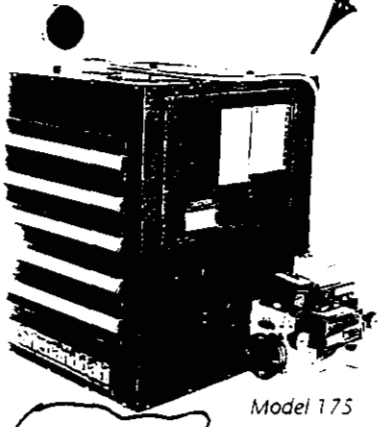
- **Ten year warranty**
  Limited warranty on aluminized steel fire chamber and heat exchanger.
- **Efficient, clean combustion**
  Air atomizing nozzle.
  Fuel and compressed air are preheated.
  Stop-drip nozzle prevents carbonizing.

Today's ideal heating system...

- Auto service centers
- Construction & heavy equipment garages
- Quick lube shops
- Auto dealerships
- Fleet garages
- Any location that generates used oil

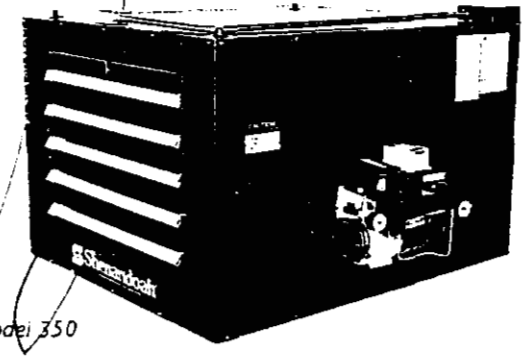
Aluminized steel fire chamber and heat exchanger

Only at Shenandoah!
Heavy gauge 100% aluminized steel
Corrosion resistant alloy designed for rust resistance and greater heat transfer.



Model 175

Model 235



Model 350

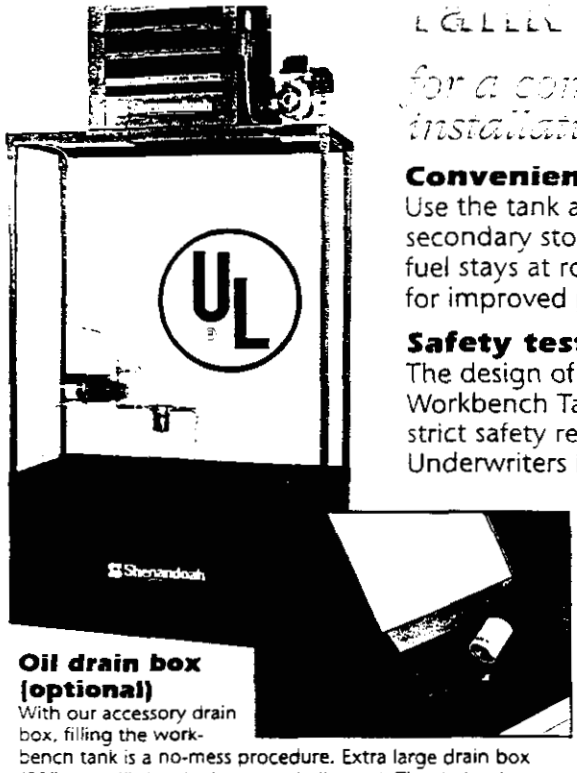
175	235	350	500
75,000 *44,100 KCAL*	235,200 *59,270 KCAL*	350,000 *88,200 KCAL*	500,000 *126,000 KCAL*
50,000 *37,800 KCAL*	200,000 *50,400 KCAL*	300,000 *75,600 KCAL*	400,000 *100,800 KCAL*
449 lbs. *20.3 cm/ 204 kg*	8" / 487 lbs. *20.3 cm / 221 kg*	8" / 735 lbs. *20.3 cm / 334 kg*	8" / 829 lbs. *20.3 cm / 376 kg*
40" x 45" x 36" *102 cm x 114 x 91*	40" x 51" x 36" *102 cm x 130 x 91*	62" x 57" x 33" *158 cm x 143 x 84*	62" x 57" x 33" *158 cm x 145 x 84*
115/60 20 AMPS	115/60 20 AMPS	115/60 30 AMPS	220V/60 30 AMPS
1.25 GPH *4.7 LPH*	1.68 GPH *6.4 LPH*	2.5 GPH *9.5 LPH*	3.5 GPH *13.3 LPH*
2500 CFM *70 m³/min.*	2900 CFM *81.2 m³/min.*	4700 CFM *131.6 m³/min.*	5800 CFM *162.4 m³/min.*
UL, CSA, C-UL, ETLM	UL, CSA, C-UL, ETLM	UL, CSA, C-UL, ETLM	ETLM (UL pending)

Oil transfer pump 18 GPH @ 40 PSI *(68 LPH @ .24 MPa)* for all models except Model 125: 2.5 GPH @ 40 PSI *(9.5 LPH @ .14 MPa)*

Patents **US:** 5,067,894 utility, 331,104 des., 331,105 des. **Can:** Pat. 2,029,366, 69,374 des., 69,157 des.

for a complete installation

add value



Convenient oil storage
Use the tank as your primary or secondary storage area. Your fuel stays at room temperature for improved performance.

Safety tested by UL
The design of the Shenandoah Workbench Tank meets the strict safety requirements of Underwriters Laboratories.

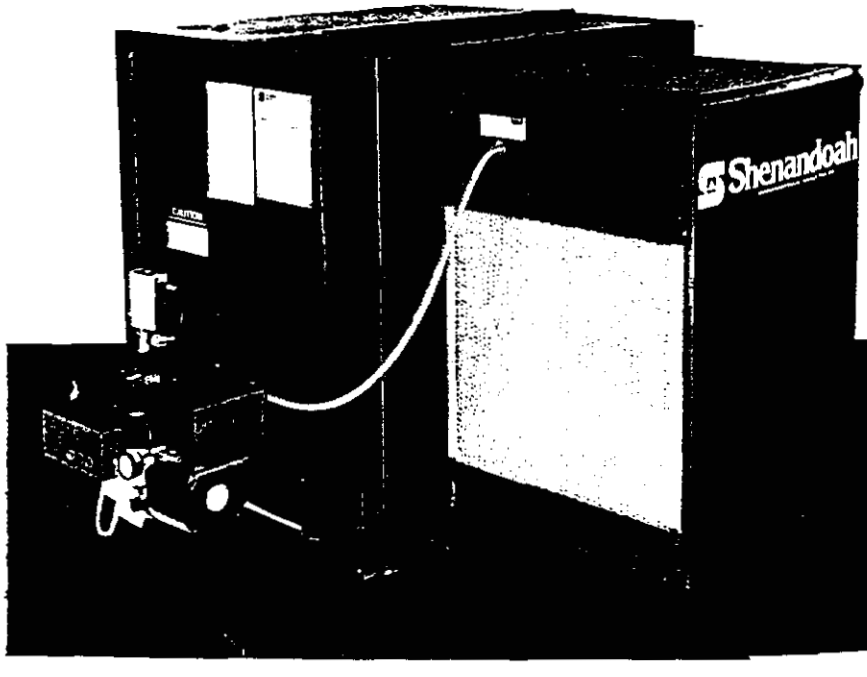
Quick access for servicing
Your heater is within easy step-ladder reach for routine cleaning and maintenance.

Oil drain box (optional)
With our accessory drain box, filling the work-bench tank is a no-mess procedure. Extra large drain box (20" sq. x 6" deep) allows quick disposal. The drain pipe extends to within several inches of the tank bottom, providing an air lock that eliminates the need for plugs and satisfies fire codes.

Model	WBT-250	WBT-350
Capacity	250 gal. *948 L*	350 gal. *1327 L*
Size (L x W x H) (add 2" height for retainer lip sides and back)	60" x 30" x 33" *152 cm x 76 x 84*	60" x 42" x 33" *152 cm x 107 x 84*
Height of mounting rack	96" *244 cm*	96" *244 cm*
Weight		
Tank	280 lbs. *127 kg*	430 lbs. *195 kg*
Rack	105 lbs. *48 kg*	105 lbs. *48 kg*
Threaded openings		
2" fill *5 cm*	2" vent *5 cm*	2" top outlet *5 cm*
1" end drain *2.5 cm*	4" emergency vent *10 cm*	
Construction		
12 gage material *(3 mm)* mounted on heavy duty skids.		

Ductible Furnaces distribute heat

If your shop is large, you can distribute heat directly to each service bay through a duct system. The Shenandoah Waste Oil Furnace with its quiet squirrel cage fan delivers heat through your duct system to where it's needed most.



Ductible furnaces

are identical to unit heaters with the addition of the ductible kit at the factory. Refer to heater specs on the previous page.

Overall dimensions (L x W x H)

175	51" x 45" x 36" *130 cm x 114 x 91*	**235**	51" x 51" x 36" *130 cm x 130 x 91*
350	73" x 57" x 33" *185 cm x 145 x 84*	**500**	73" x 57" x 33" *185 cm x 145 x 84*

Shipping weight with burner

175	538 lbs. *244 kg*	**235**	578 lbs. *262 kg*
350	934 lbs. *424 kg*	**500**	1063 lbs. *482 kg*

Model	Blower CFM	Voltage	Duct Opening
175	2,420 @ .25" SP *69 m^3/min. @ .64 cm*	115V	23-1/4" x 23-1/4" *59 cm x 59*
235	2,860 @ .5" SP *81 m^3/min. @ 1.3 cm*	115V	29" x 23-1/4" *74 cm x 59*
350	4,800 @ .75" SP *136 m^3/min. @ 1.9 cm*	115V, 220V	29" x 23-1/4" *74 cm x 59*
500	5,800 @ .75" SP *164 m^3/min. @ 1.9 cm*	220V	29" x 23-1/4" *74 cm x 59*

Ductible kit available for heater add-on
Yes for Models 175, 235, 350 and 500
Not available for Model 125

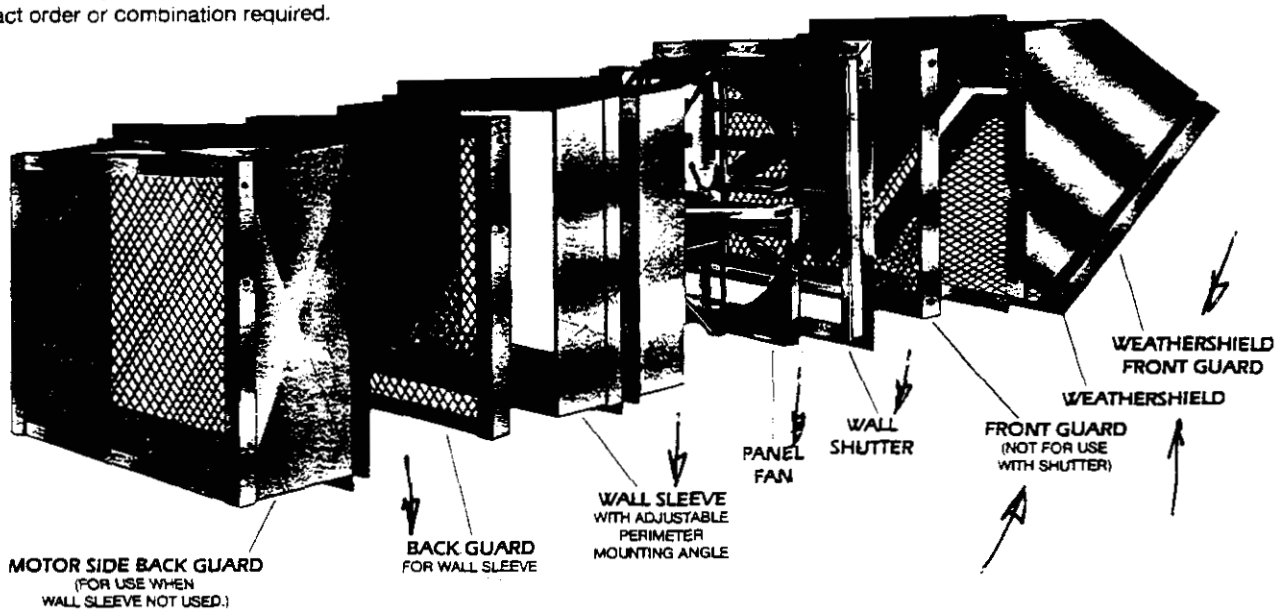
EF-1
EF-2

ACCESSORIES

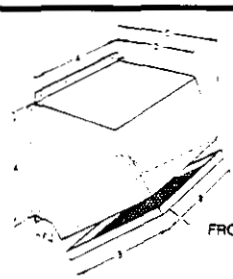
CORDOVA, VALDEZ & WHITTIER

ACCESSORIES

Penn provides a wide variety of accessory components for Breezeway Panel Fans. These accessory items can be used in different combinations to suit your application. The drawing below represents the variety of accessory items available, not necessarily in the exact order or combination required.



WEATHERSHIELD



FRONT GUARD (OPTIONAL)

Weathershields are designed to exclude rain and snow from wall openings and shutters. Standard construction is galvanized steel, optional front guard is available. Weathershields may be surface mounted or used in conjunction with wall sleeves.

DIMENSIONAL DATA

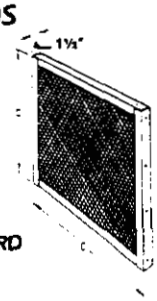
SIZE	10	12	16	18	20	24*	24	30	36	42	48	54	60	72
Wo	15¾	17¾	23½	25	27½	33¼	28¾	34¾	40¾	46¾	55	61	67	79
A	15¼	17¼	23	24½	27	32¾	28¼	34¼	40¼	46¼	54¼	60¼	66¼	78¼
B	15¼	17¼	23	24½	27	32¾	28¼	34¼	40¼	46¼	54¼	60¼	66¼	78¼
C	17⅞	19⅛	23¼	24¼	26⅛	30⅛	7⅛	31¾	36⅝	41	45¾	50⅛	55⅛	62¼
D	12⅜	13⅛	15½	16⅛	17¼	19½	17⅝	20¼	23⅜	25⅞	28⅜	31	34¼	38¼

* TYPE P.

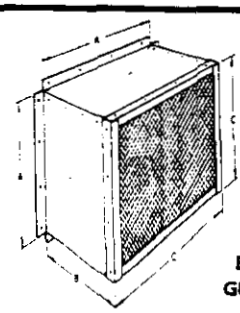
ALL DIMENSIONS IN INCHES.

BACK AND FRONT GUARDS

Guards are available for both the rear (motor side) of the fan and (less often) the front face of the fan. All guards conform to OSHA specifications. Rear guards are removable or have a removable access section for fan maintenance. Rear guards can be shipped knocked down. Guards which comply with OSHA regulations should be installed when fans are located within seven feet of floor and/or working level, or within reach of personnel. Review OSHA codes.



FRONT GUARD



BACK GUARD

DIMENSIONAL DATA

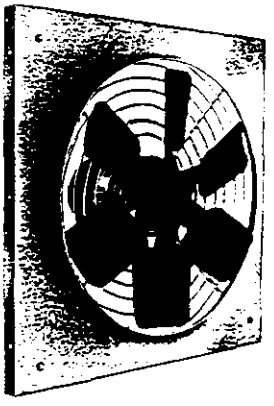
SIZE	10	12	16	18	20	24*	24	30	36	42	48	54	60	72
A	**	**	**	**	**	**	28⅜₁₆	34⅜₁₆	40⅜₁₆	46⅜₁₆	54¼	60¼	66¼	78¼
B	**	**	**	**	**	**	13½	16½	16½	20½	25	25	25	25
Screen	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	2Pieces	2Pieces	2Pieces	2Pieces
C SQ.	15½	17½	23¼	24¾	27¼	33	28⅝	34⅝	40⅝	46⅝	54¾	60¾	66¾	78¾

* TYPE P ** MOTOR SIDE GUARD OF CONCENTRIC RINGS INTEGRAL TO UNIT.

ALL DIMENSIONS IN INCHES.

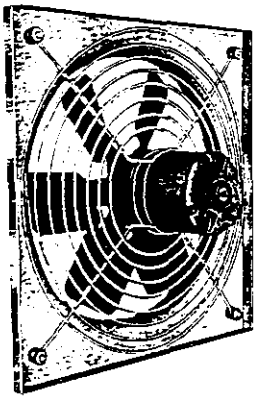
BREEZEWAY TYPE P

INDUSTRIAL / COMMERCIAL / SMALL DIAMETER / DIRECT DRIVE

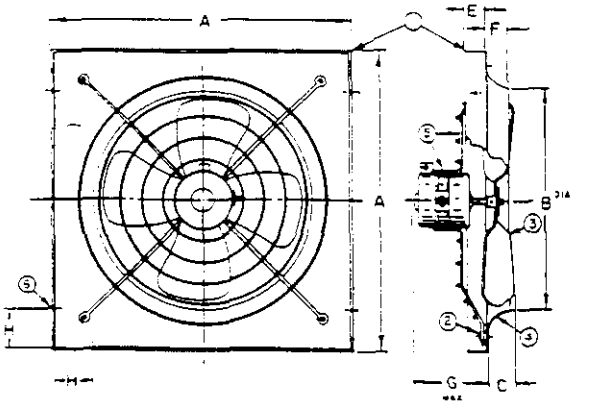


FRONT

BACK



TYPE P
SIZES 10 TO 24



LEGEND

1. Painted Steel Panel
2. Anti-Vibration Mounts
3. Fan Blade
4. Venturi Orifice
5. Wire Guard and Motor Mount
6. Mounting Holes 17/64"

The popular, Type P Br... irect drive models, 10" diar... split phase, shaded pole a... are resiliently mounted in ... are concentric rings of heav... ons. The spun steel venturis ... ged panel for commercial ... nted finish is bonded on the ... ides are made of die-formed ...

EF-1
CORDOVA
&
VALDEZ

Penn Ventilator certifies that the Type P Breezeway Fans, models 10" through 24", are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Standard 211 and comply with the requirements of the AMCA Certified Ratings Program.

Penn Breezeway Fans are also certified with Canadian Standards Association.

DIMENSIONAL DATA

FAN DIA.	A	B DIA.	C	E	F	G MAX.	H	APPROX. SHIP WT. (LBS.)
10	15	10¾	2⅜	1	1½	6	2½	12
12	17	12½	2⅝	1	1½	6	3 13/16	14
16	22¾	17¼	2⅞	1	2	10	4 13/32	30
18	24¼	18¾	2⅞	1	2	10	4 13/32	40
20	26¾	21	2⅞	1	2	10¾	5½	50
24	32¼	25½	4	2	3	12	4⅝	60

ALL DIMENSIONS IN INCHES.

SUGGESTED SPECIFICATIONS

PROPELLER PANEL FANS shall be Penn Breezeway, Type P, direct drive series, manufactured by Penn Ventilator Co., Inc., Philadelphia, PA 19115. Continuous duty motors shall be resiliently mounted in a basket rear guard of concentric rings meeting OSHA specifications. Propeller blades shall be statically and dynamically balanced. Fan panels shall be permanently painted and feature a deep spun steel venturi and welded corners. (Specify accessories from pages 13-15).

PERFORMANCE DATA

MODEL DIRECT DRIVE	HP	FAN DIAM.	RPM	TIP SPD (FPM)	FAN CAPACITY IN CUBIC FEET PER MINUTE (CFM) 0.000" SP CFM	0.125" SP CFM	0.250" SP CFM	0.375" SP CFM	0.500" SP CFM	MAX. BHP	SONES @ .125"
P10V	1/25	10"	1050	2749	545	265					1.9
P10R	1/10		1550	4058	830	610	375				3.1
P12V	1/20	12"	1045	3283	975	645					2.3
P12R	1/7		1550	4869	1110	955	730	385			3.9
P16T	1/8	16"	1140	4775	1680	1410	1000	610	450		6.2
P16Q	1/4		1725	7226	2200	2060	1890	1680	1380		10.6
P18T	1/4	18"	1140	5372	3200	2840	2340	1590	1270		7.4
P18Q	1/2		1725	8129	3735	3530	3275	2975	2570	.555	12.8
P20T	1/3	20"	1140	5969	3795	3470	3060	2330	1500	.400	9.2
P20Q	1		1725	9032	5185	4950	4720	4470	4220	1.000	15.6
P24W	1/2	24"	825	5184	4860	4110	2345	1310		.410	10.1
P24T	3/4		1140	7163	6565	6080	5470	4090	3340	.740	15.0

RPM SHOWN IS NOMINAL AND PERFORMANCE IS BASED ON ACTUAL SPEED OF TEST. PERFORMANCES SHOWN ARE FOR FANS WITHOUT DUCTS. THE AMCA CERTIFIED RATINGS SEAL APPLIES TO AIR CAPACITIES ONLY.

NON-FREEZE POST AND GROUND HYDRANTS

SMITH®
CUSTOMER DRIVEN

POST HYDRANT

FUNCTION: Used where an above ground water outlet is required in areas which are subject to freezing temperatures. Freezing is prevented by burying the valve housing below the frost line and draining water from the casing after shut-off.

REGULARLY FURNISHED:
Bronze Non-Freeze Post Hydrant with Cast Iron Casing Guard and "T" Handle Key. Inlet and Hose Connection Size Furnished as Indicated by Figure Number Selected.

***NOTE:** Addition of vacuum breaker will not allow draining of the casing. Smith is not responsible for any casings that burst or related incidents if the hydrant is supplied with a vacuum breaker.

VARIATIONS:
"3/4" Vacuum Breaker (Fig. 5910 only) -H
"3" NPT Drain Hole -NV
Secured Wheel Handle -WH

OPTIONAL MATERIALS:
Aluminum Casing Guard -AG

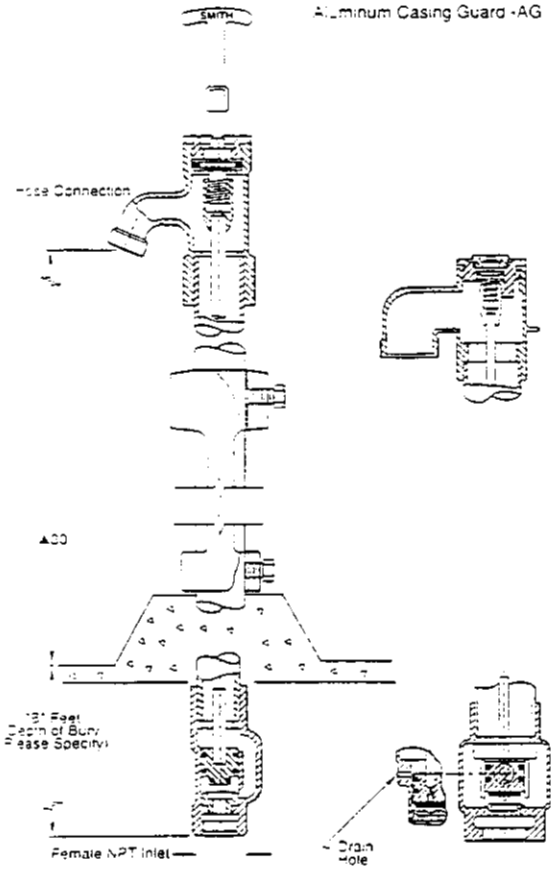


Fig. 5910 - 11
▲Regularly Furnished
(Unless otherwise specified)

Fig. 5912 - 14

Fig. 5910 ....3/4"
Fig. 5911 ....1"
Fig. 5912 ....1 1/4"
Fig. 5913 ....1 1/2"
Fig. 5914 ....2"
} INLET AND HOSE CONNECTIONS

HB-1

POST HYDRANT FOR CORDOVA & VALDEZ

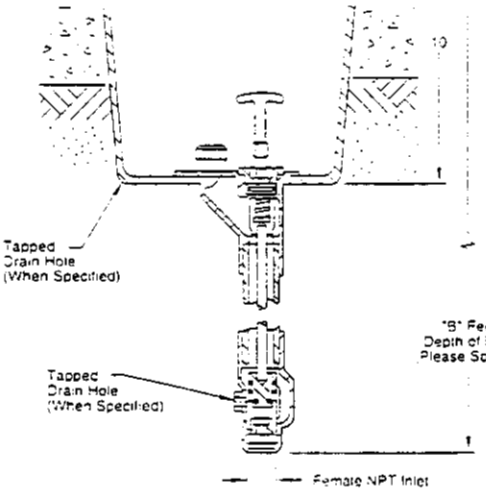
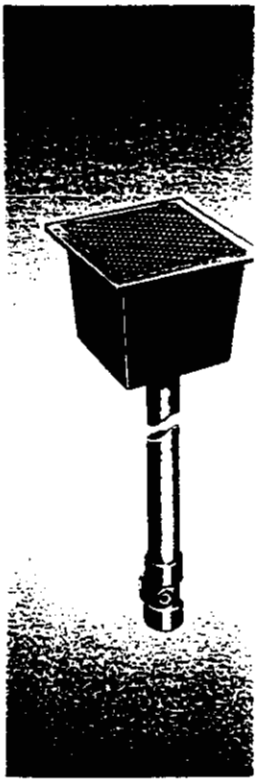


Fig. 5950 ..... 3/4" INLET
Fig. 5951 ..... 1" INLET

5910 SERIES



5950 5951

Refer to page 5-12 for table.

NOTE: All Jay R. Smith hydrants are manufactured with "NO-LEAD" brazing rings and USDA approved lubricants.

B (Depth of Bury) = 02B, 03B, 04B, 05B, 06B, 07B or 08B Feet

NOTE: Jay R. Smith hydrants are manufactured with "NO-LEAD" brazing rings and USDA approved lubricants.

B (Depth of Bury) = 02B, 03B, 04B, 05B, 06B, 07B or 08B Feet

Alyeska Pump & Equipment

A DIVISION OF FAMILIAN NORTHWEST #74
6251 Tuttle Place #102
Anchorage, AK 99507
(907) 561-5842
Fax (907) 561-5072

FAX TRANSMISSION COVER SHEET

Date: 02/11/96

To: MATT STEPINC PE.

Fax: 277-4722

Subject: Elec. Diaphragm. Pump

Sender: Timothy J. Bergin P.E.

YOU SHOULD RECEIVE 3. PAGE(S), INCLUDING THIS COVER SHEET. IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (907) 561-5842.

NOTES:

Model 5515-15 = $1705.-

Available on the floor -

3" Diaphragm 1ϕ - 1.5 H.P. - 1750 RPM.

115/230 V.

W/ this we can easily package a tank.

Any Q's Please call.

AVAILABLE:

WITHOUT POWER OR WITH HEAVY DUTY GASOLINE ENGINE

CH&E
QUALITY PRODUCTS

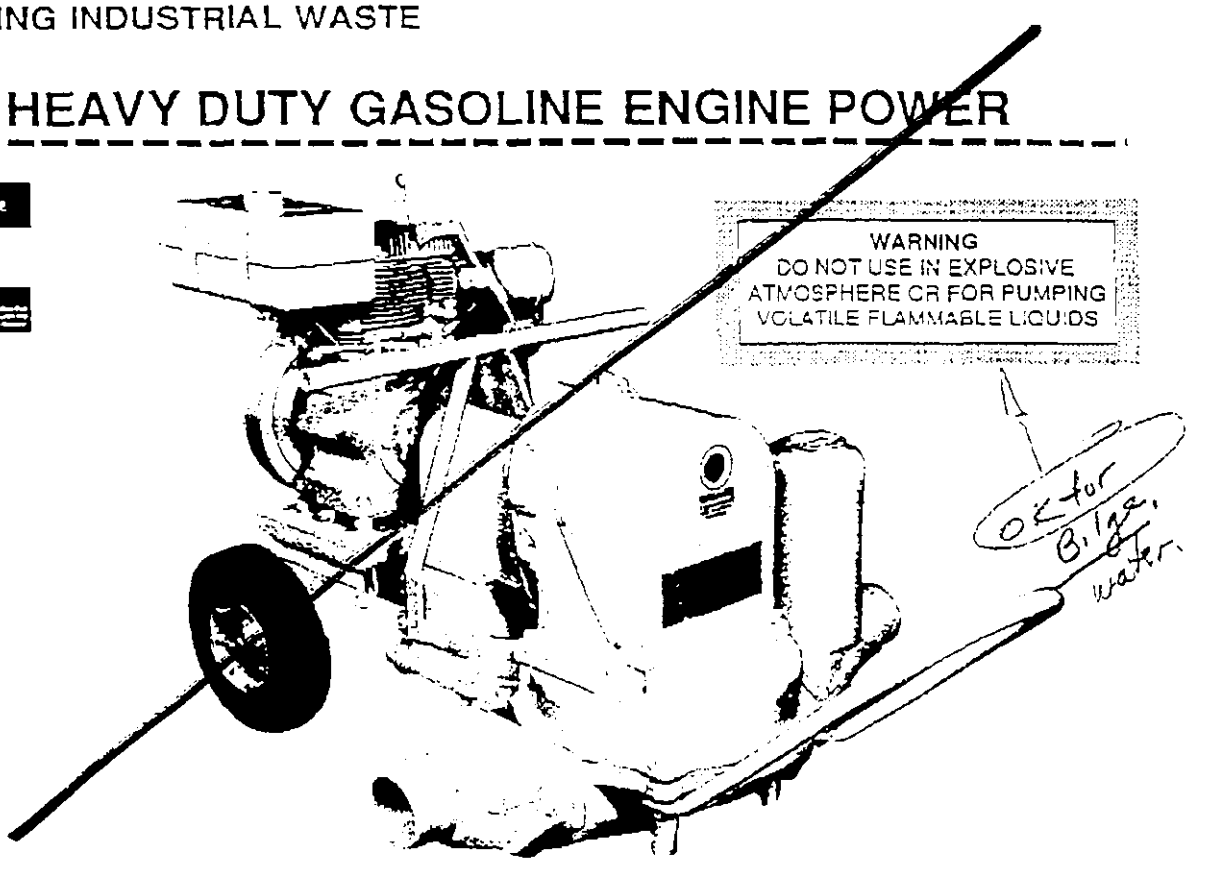
Long Coupled Diaphragm Pumps Series
5400-6400 2"
5500-6500 3"

DIAPHRAGM PUMPS ARE BEST FOR:

- SEEPAGE DEWATERING
- SANDY - MUDDY - MUCKY WATER
- HIGH SUCTION LIFT
- CLEANING SEPTIC TANKS
- PUMPING INDUSTRIAL WASTE

HEAVY DUTY GASOLINE ENGINE POWER

CERTIFIED PERFORMANCE



B&S AIR COOLED ENGINE. 8 H.P. STANDARD SHAFT ENGINES CONNECTED THROUGH FLEXIBLE COUPLING. ENGINES HAVE AMPLE OIL CAPACITY FOR CONTINUOUS OPERATION. ENGINES RUN AT 2600 RPM FOR LONG SERVICE. A 1750 RPM ELECTRIC MOTOR MAY BE USED WHICH WILL DECREASE PUMPING CAPACITIES.

C. H. & E. Manufacturing Co. 3849 N. Palmer St. Milwaukee, Wis. 53212
phone 414-964-3400 • FAX 414-964-0677

FEATURES:

- Lightweight all aluminum . . . or water end parts abrasive resistant cast iron.
- Identical construction on two and three inch pumps except for size.
- Totally enclosed double gear reduction running in oil. Needle and ball bearing.
- Large opening RUBBER swing type valves.
- Self-cleaning straight water flow through valves and waterbox.
- Suction air chamber cushions stroke.
- Fast sure priming at all lifts.
- Roller bearing crankshaft and eccentric.
- Male hose connections for fast coupling.
- Skid or wheel mounting for all pumps.

PUMPS ANY LIQUID SUFFICIENTLY FLUID TO FLOW TO AND THROUGH THE PUMP

CAPACITIES – ALL PUMPS	GALLONS PER HOUR	
	TWO INCH PUMPS	THREE INCH PUMPS
* 5 Foot Suction Lift	3000	6000
10 Foot Suction Lift	2500	5500
15 Foot Suction Lift	2000	4500
20 Foot Suction Lift	1500	3500
25 Foot Suction Lift	1250	3000

SPECIFICATIONS

TWO INCH DIAPHRAGM PUMPS

MODEL		POWER	NET WEIGHT	
ALUMINUM CONSTR.	CAST IRON WATER END		SKID MOUNTED	4 x 8 Semi-Pneumatic Tires
5420		WITHOUT POWER—	102	91
	6420	2600 RPM INPUT SPEED	129	118
5422		8 H.P. AIR COOLED ENG	148	137
	6422	BRIGGS MODEL 190402	175	164

THREE INCH DIAPHRAGM PUMPS

MODEL		POWER	NET WEIGHT	
ALUMINUM CONSTR	CAST IRON WATER END		SKID MOUNTED	4 x 8 Semi-Pneumatic Tires
5520		WITHOUT POWER—	122	115
	6520	2600 RPM INPUT SPEED	175	168
5522		8 H.P. AIR COOLED ENG	168	161
	6522	BRIGGS MODEL 190402	221	214

*THESE HEAD CONDITIONS ARE OPEN DISCHARGE. WHEN YOU USE THIS MUCH HORSEPOWER ON A DIAPHRAGM PUMP, DAMAGE CAN BE DONE BY EXCESSIVE DISCHARGE HEAD CONDITIONS. PLEASE CONTACT FACTORY WITH YOUR HEAD CONDITIONS.

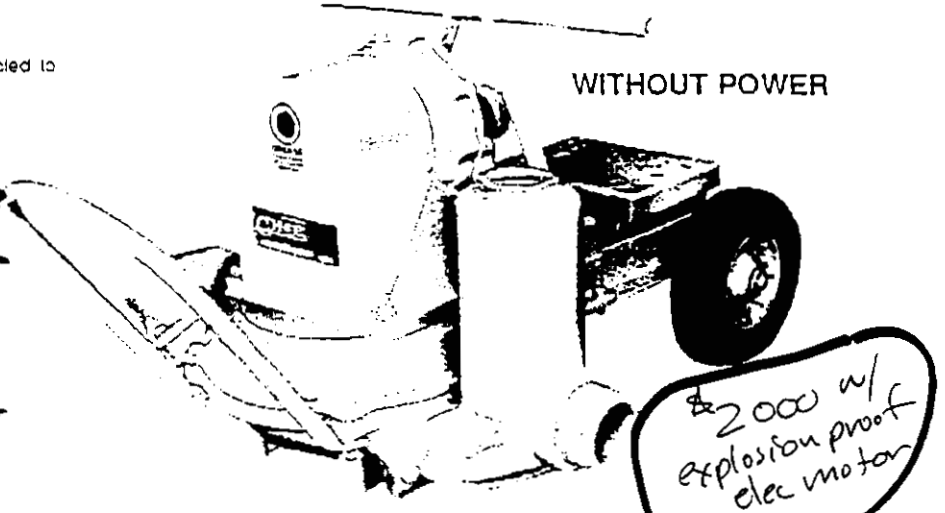
- Either engine or motor can be directly coupled to pump shaft with flexible coupling.

Bilge Pump

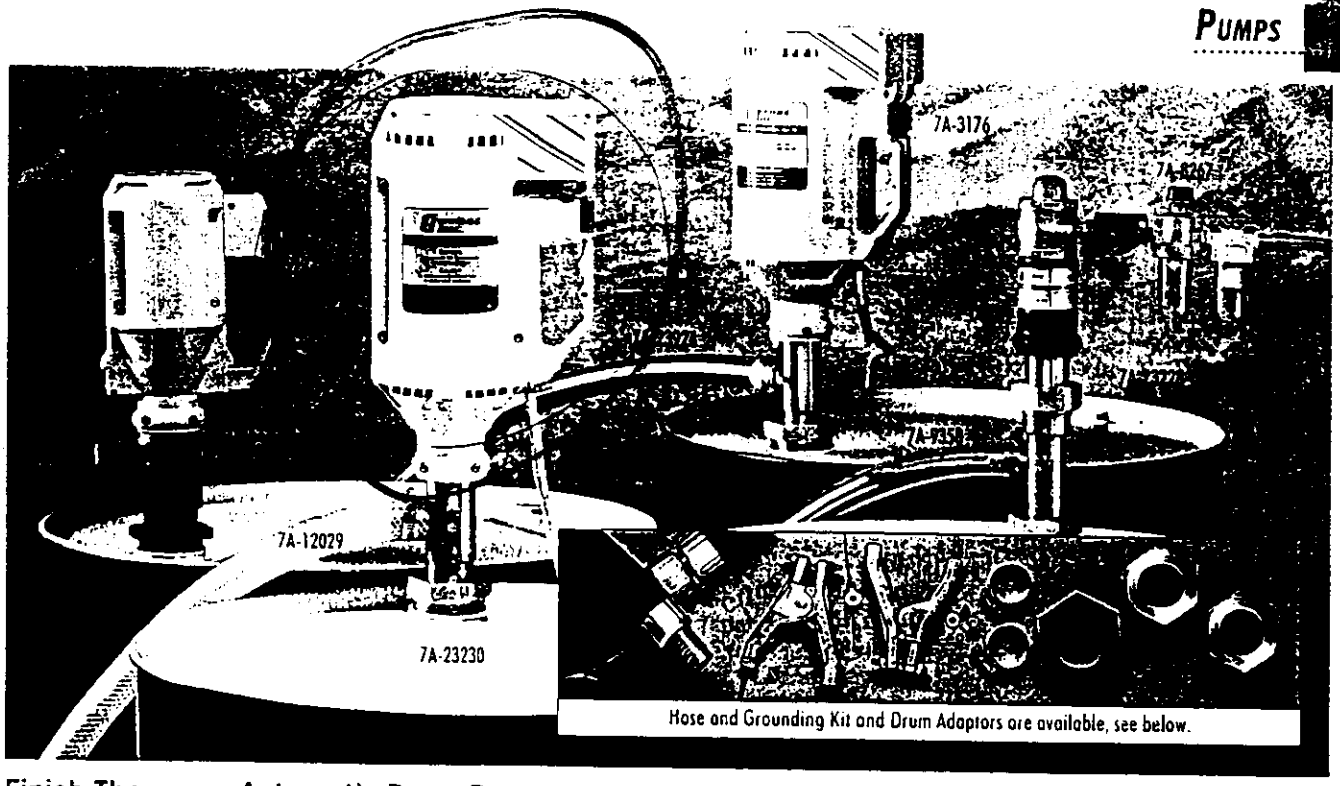
Add elec motor

CONTACT FACTORY FOR OVER-ALL DIMENSIONS ON SPECIFIC MODELS.

explosion proof



C. H. & E. Manufacturing Co. 3849 N. Palmer St. Milwaukee, Wis. 53212
phone 414-964-3400 • FAX 414-964-0677



Hose and Grounding Kit and Drum Adaptors are available, see below.

Finish-Thompson Automatic Drum Pumps

Select from Many Tube and Motor Types to Suit a Wide Range of Uses and Applications

Heavy-duty automatic pumps quickly and safely transfer your workplace liquids.

Specifications: All pumps are designed to fit standard 2" drum openings. *Air-Drive* motor features ½hp, 300–6000 rpm, 50–80 psi and 17–25 cfm. *Totally Enclosed Fan-Cooled* (TEFC) double-insulated, ¼hp motor and *Open-Dripproof* (ODP) ½hp motor features 110V, 60 Hz, single-phase, 10,000 rpm and 12' grounded cord with plug. Handle contains built-in switch with manual reset to protect against thermal overload. TEFC motor is designed for corrosive environments. ODP motor is designed for non-corrosive environments. *Explosion-Proof*, double-insulated motor features 110V, 60 Hz, single-phase, 5000 rpm, ¼hp and a 12' 3-wire cord without plug. Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232 and 23233 have a 30-minute run-dry capability. Choose from Polypropylene and 316 Stainless Steel material types below. Call 1-800-356-2501 for chemical compatibility.

Accessories: *Hose and Grounding Kit* are used for pumping flammables and combustibles. *Filter/Lubricating Assembly* extends the life of your Air-Drive Motor. *PVC Discharge Hose and Clamp, Reinforced PVC Discharge Hose and Clamp, Teflon® Discharge Hose and Clamp* and *Drum Adaptors* let you customize your pump to your application.

Please Specify: Drum Adaptor Material: G (galvanized steel), P (polypropylene), S (316 stainless steel).

No.	Motor Type	Tube Material	Shaft	Shaft Length	Internals	Max. GPM	Max. Feet Head	Max. Temp.	Max. Viscosity (CPS)	Seal	Each
7A-9231	Air	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	32	60	160°F	500	Sealless	675.60
7A-12031	Air	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	32	60	220°F	500	Sealless	883.50
7A-3175	Air	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	16	32	150°F	800	Teflon	927.55
7A-23228	Air	Stainless Steel (USDA Sanitary)	Stainless Steel (USDA Sanitary)	36" x 1½" dia.	S.S./Teflon	16	32	150°F	800	Teflon	1355.95
7A-3174	TEFC	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1055.95
7A-23229	TEFC	Polypropylene	Inconel	40" x 2" dia.	Polypro/Inconel	40	80	160°F	500	Sealless	894.10
7A-23230	TEFC	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	40	80	220°F	500	Sealless	1102.00
7A-23231	TEFC	Stainless Steel (USDA Sanitary)	Stainless Steel (USDA Sanitary)	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1695.00
7A-9230	ODP	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	40	80	160°F	500	Sealless	675.60
7A-12030	ODP	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	40	80	220°F	500	Sealless	883.50
7A-3176	Expl. Proof	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1305.15
7A-23232	Expl. Proof	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	8	20	160°F	500	Sealless	1143.35
7A-23233	Expl. Proof	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	8	20	220°F	500	Sealless	1351.20

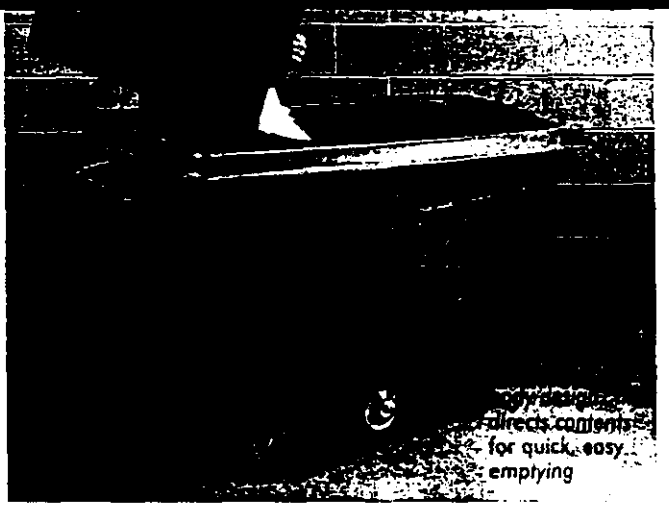
Adaptors

No.	Description	Inside Dia. (in.)	Each Galvanized	Each Polypropylene	Each Stainless Steel
7A-23925	2" NPT Drum Adaptor for Nos. 3175, 23228, 3174, 23231, 3176	1½	42.25	63.40	186.95
7A-23926	2" NPT Drum Adaptor for Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232, 23233	2	42.25	63.40	186.95

Accessories

No.	Description	Each
7A-9337	Hose and Grounding Kit	297.35
7A-8267	Filter/Lubricating Assembly	161.25
7A-9358	1" x 5'L, PVC Discharge Hose and Clamp for use with Nos. 3175, 23228, 3174, 23231, 3176	49.10
7A-12029	Reinforced 1" x 5'L PVC Discharge Hose with Hose Clamp for use with Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232, 23233	56.10
7A-23924	Teflon Discharge Hose and Clamp, 1" x 5'L for use with Nos. 3175, 23228, 3174, 23231, 3176	250.60

DRUM PUMP



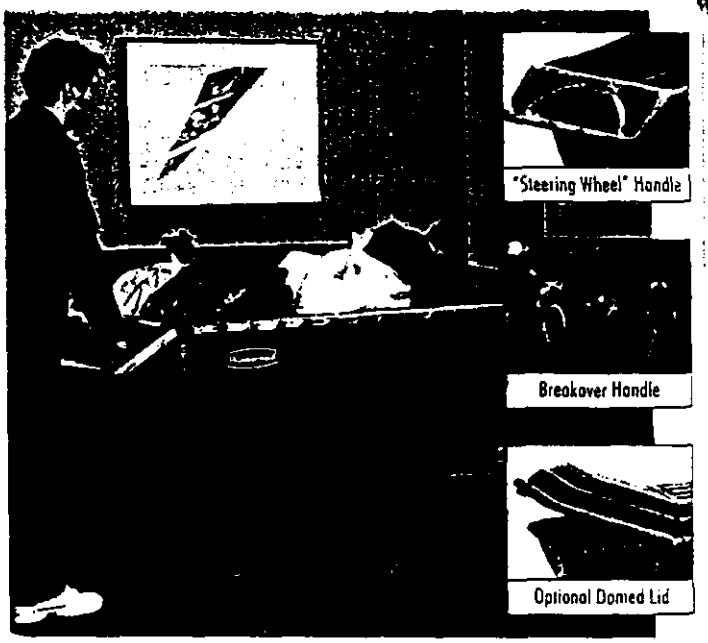
Rubbermaid® Tilt Trucks

- Easy-to-clean HDPE construction inhibits bacteria growth
- Resists denting and chipping; corrosion-free

A single operator can roll truck from place to place, collecting waste quickly and efficiently. Available in three styles: *Utility*, with two semi-pneumatic rubber wheels and two rear casters; *Standard*, with two vulcanized rubber wheels and two rear casters; and *Heavy-Duty*, with two vulcanized rubber wheels, two casters and side rails. In stock.

No.	Description	Dimensions (in.) H x W x D	Volume (gal./cubic yd.)	Capacity (lbs.)	Each
7A-26445	Utility	38½ x 29 x 56¾	100 ½	300	309.55
7A-26446	Standard	38½ x 29 x 60½	100 ½	750	447.25
7A-26447	Heavy-Duty	38½ x 29 x 60½	100 ½	1200	516.40
7A-26448	Utility	44 x 34 x 72¼	200 ¼	750	422.05
7A-26449	Standard	44 x 34 x 72¼	200 ¼	1200	572.75
7A-26450	Heavy-Duty	44 x 34 x 72¼	200 ¼	2000	661.30

Note: No. 26445 does not have steel handle.



Rubbermaid® Ergonomic Tilt Trucks

- "Pushover" design includes an extra handle to reduce the strain of dumping
- Streamlined shape, inset wheels—great in tight spaces
- Strong, rust-free structural foam body

Unique "steering-wheel" handle keeps hands and arms in a safe, natural position while you do your maneuvering. Just hose down to clean. *400-lb. Truck* has non-marking 12" x 2⅜" soft rubber wheels; *800-lb. Truck* has extra-strong, 12" x 2⅜" hard rubber wheels. Both styles measure 38"H x 30¾"W x 64½"L. Optional *Domed Lid* with hinged top section keeps cargo safely contained, yet easily accessible. In stock.

No.	Description	Each
7A-27211	400 lb Capacity Truck	474.80
7A-27212	800 lb Capacity Truck	558.65
7A-27213	Domed Lid	136.35

Insider's Tip: Ergonomics

Back injuries are the number one cause of lost-time work accidents among material handlers. Wearing a quality back support while lifting, bending, stooping and reaching for parts helps material handlers maintain proper body postures, reducing the potential for stress-and-strain injuries.

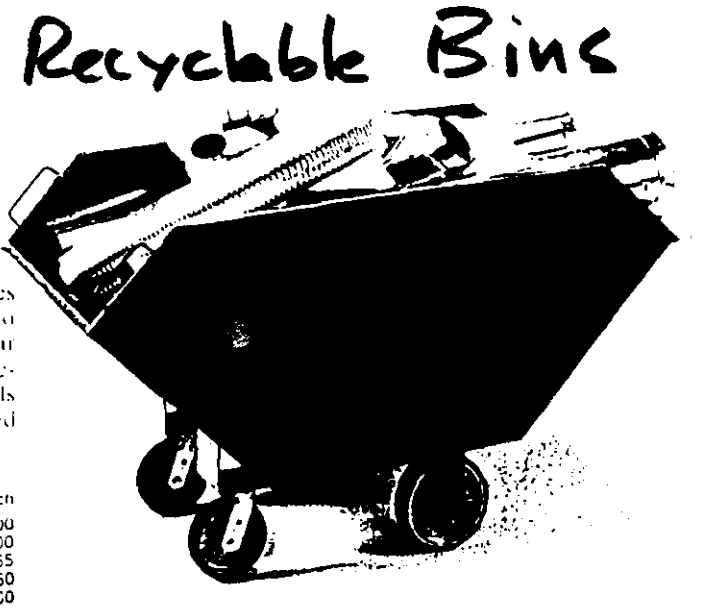
Check out our selection of Ergonomic Back Supports for material handlers on pages 270-272.

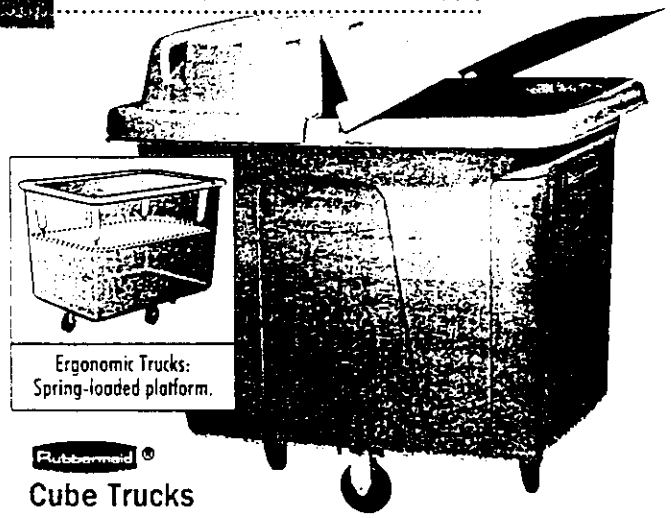
Valley Craft® Steel Tilt Trucks

- Made entirely of 14-ga. steel
- Leakproof welds along all seams
- Available with or without hand brake

Large capacity—easy to handle. Tapered on the ends for easier loading and dumping. Convenient welded-on handles allow pinpoint control. Heavy-duty wheel-and-caster assemblies are steel-reinforced for years of worry-free use. Features two 10" x 2½" solid front wheels and one or two 8" x 2" solid rear swiveling wheel(s). *4-wheel Trucks with Hand Brakes* have a remote, hand-engaged braking handle that locks the front wheels in place for stationary loading of heavy items or simplified break-over dumping.

No.	Description	Dim. (in.) H x W x D	Volume (cu. ft.)	Cap. (lbs.)	Shipping Wt. (lbs.)	Each
7A-29709	3-wheel	40 x 24 x 68	17.5	1500	169	376.00
7A-29710	4-wheel	40 x 30 x 68	22.2	2000	198	443.00
7A-29711	4-wheel	40 x 36 x 68	26.7	2000	205	477.55
7A-29712	4-wheel w/brake	40 x 30 x 68	22.2	2000	215	610.60
7A-29713	4-wheel w/brake	40 x 36 x 68	26.7	2000	225	633.60





Rubbermaid®

Cube Trucks

- Leakproof plastic body with metal crossbar base
- Straight, smooth walls are easy to clean and sanitize
- USDA approved for food processing

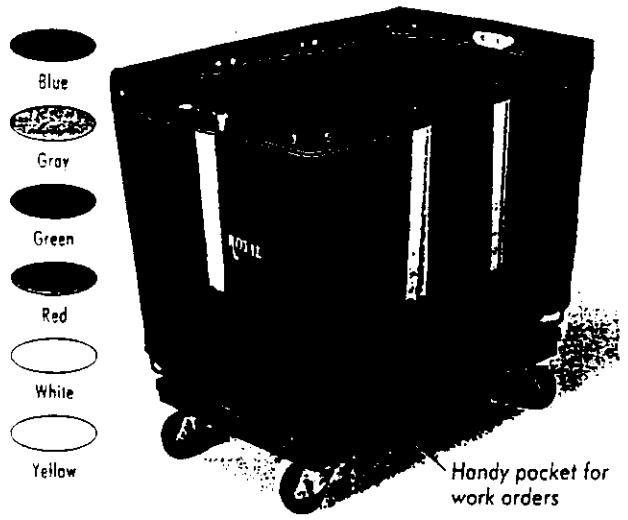
Has two fixed, two swivel casters placed in a diamond configuration. Two sizes are available with a spring-loaded interior platform that automatically brings material to a comfortable working height, reducing the need to bend and reach. Optional hinged, domed *Lids* sold separately. In stock.

Compliance: USDA approved for use in food processing.

Please Specify a Color for Cube Truck: GR (gray), W (white). Trucks with Platform and all Lids available in gray only.

No.	Description	Cap. (lbs.)	Dim. (in.) H x W x D	Each
7A-30925	8 cu. ft. truck	300	28⅛ x 25⅞ x 38⅛	186.40
7A-30926	12 cu. ft. truck	400	33⅛ x 27 x 43	244.30
7A-30927	14 cu. ft. truck	500	33 x 30⅛ x 44⅛	270.60
7A-30928	16 cu. ft. truck	500	37⅛ x 30⅛ x 44⅛	297.00
7A-30929	20 cu. ft. truck	600	37 x 33⅛ x 48⅛	348.95
7A-30930	14 cu. ft. truck w/platform	500	33 x 30⅛ x 44⅛	364.65
7A-30931	20 cu. ft. truck w/platform	600	37 x 33⅛ x 48⅛	432.35
7A-30932	Lid for 8 cu. ft. truck		9 x 25⅛ x 38⅛	107.95
7A-30933	Lid for 12 cu. ft. truck		9 x 27⅛ x 43⅛	117.80
7A-30934	Lid for 14 and 16 cu. ft. trucks		9 x 30⅛ x 44⅛	127.55
7A-30935	Lid for 20 cu. ft. trucks		9 x 34⅛ x 48⅛	137.40

Note: No. 26445 does not have steel handle.



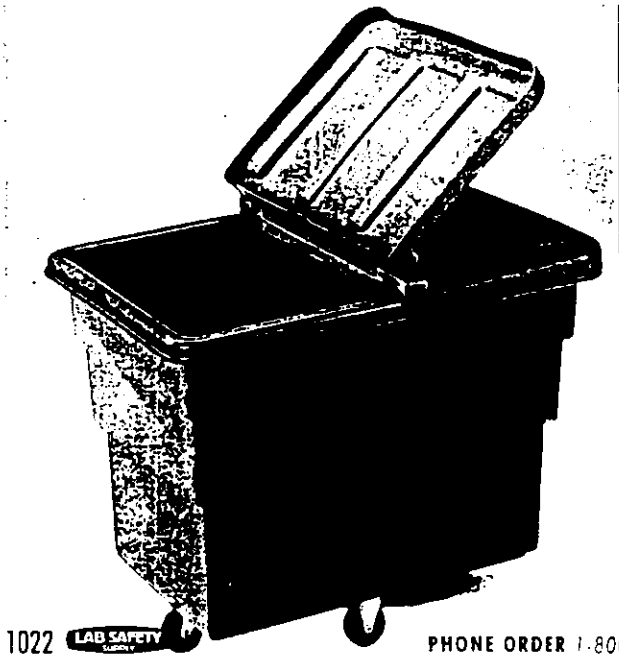
Basket Trucks

- Double-reinforced walls
- Tough, tightly woven polyester substrate
- Coated inside and out with self-bonding royal vinyl for maximum puncture, abrasion and chemical resistance

Heavy vinyl top crown, all-steel welded frame, extra coverage at all wear points—this truck is ready for many years of rugged service. Moves easily about on swiveling, 3" corner casters attached to a hardwood base. Optional pre-fitted *Vinyl Cover* with elastic hem available in black only.

Please Specify a Color: B (blue), G (green), GR (gray), R (red), W (white), Y (yellow).

No.	Capacity	Overall Height (in.)	Dim. (in.) L x W x D	Shipping Wt. (lbs.)	Each
7A-26993	10-bushel	31	36 x 24 x 25	33	136.90
7A-26994	12-bushel	33½	36 x 26 x 27½	38	149.60
7A-26995	16-bushel	36	40 x 28 x 30	50	188.65
7A-26996	18-bushel	36	42 x 30 x 30	56	200.25
7A-26997	20-bushel	36	48 x 32 x 30	64	210.30
7A-26998	Vinyl Cover for No. 26993			4	19.45
7A-31327-12	Vinyl Cover for No. 26994			4	20.90
7A-31327-16	Vinyl Cover for No. 26995			4	20.90
7A-31328-18	Vinyl Cover for No. 26996			5	24.05
7A-31328-20	Vinyl Cover for No. 26997			5	24.05



Rubbermaid®

Large-Capacity Utility Trucks

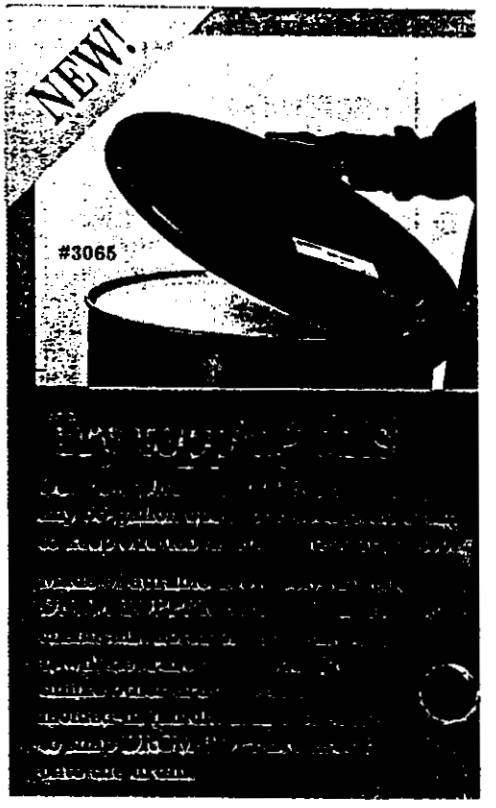
- Sturdy polyethylene resists cracking and denting
- Molded-in side ribs add extra strength

The ideal truck for transporting awkward or bulky items. One-piece, smooth-surface design offers easy cleaning; two fixed and two swivel casters (placed in diamond formation) provide fast, easy mobility. *No. 30447* includes a steel support ring to prevent bowing and bulging with full loads. Gray. Add a hinged *Lid* to keep contents safely inside and present a more pleasing appearance. In stock.

No.	Description	Wt. Capacity (lbs.)	Size (in.) H x W x D	Weight (lbs.)	Each
7A-30444	12-Bushel Utility Truck	600	34 x 44½ x 31⅛	44	298.05
7A-30445	12-Bushel Utility Truck	800	34 x 44½ x 31⅛	48	339.85
7A-30446	20-Bushel Utility Truck	800	36 x 53 x 39	77	416.00
7A-30447	20-Bushel Utility Truck	1000	36 x 53 x 39	84	457.95
7A-30448	Lid for 12-Bushel Truck	–	3⅜ x 45⅜ x 31⅛	16	128.75
7A-30449	Lid for 20-Bushel Truck	–	3⅝ x 53⅛ x 39⅛	19	171.65

ENPAC POLY-FUNNELS™ prevent splashes without draining your budget!

Save time, money, and prevent nuisance splashes while protecting workers with our POLY-FUNNELS™. These heavy-duty performers can handle whatever you dish out - from oil filter draining to caustic solvents and chemicals.



POLY-FUNNEL 55/30™

Fits 55- and 30-gallon open- and closed-head drums. Perfect for spent drum draining. Deep 6 1/2" side wall handles the contents of a five-gallon pail all at once. Tapered bottom drains FAST! Ask about the funnel cover locking feature. Cover available.

POLY-DRUM FUNNEL 16/5™

Designed for five-gallon pails, 16-gallon drums, and 55-gallon closed-head drums. Handles up to 2.5 gallons poured at once, thanks to the deep 6 1/2" side walls. Cover available.

POLY-FUNNEL 55™

Specifically designed for closed-head 55-gallon drums. Set it and forget it. The scalloped design, 2½" side wall and gravity do the rest. Cover available.

POLY-FUNNEL™ TALL

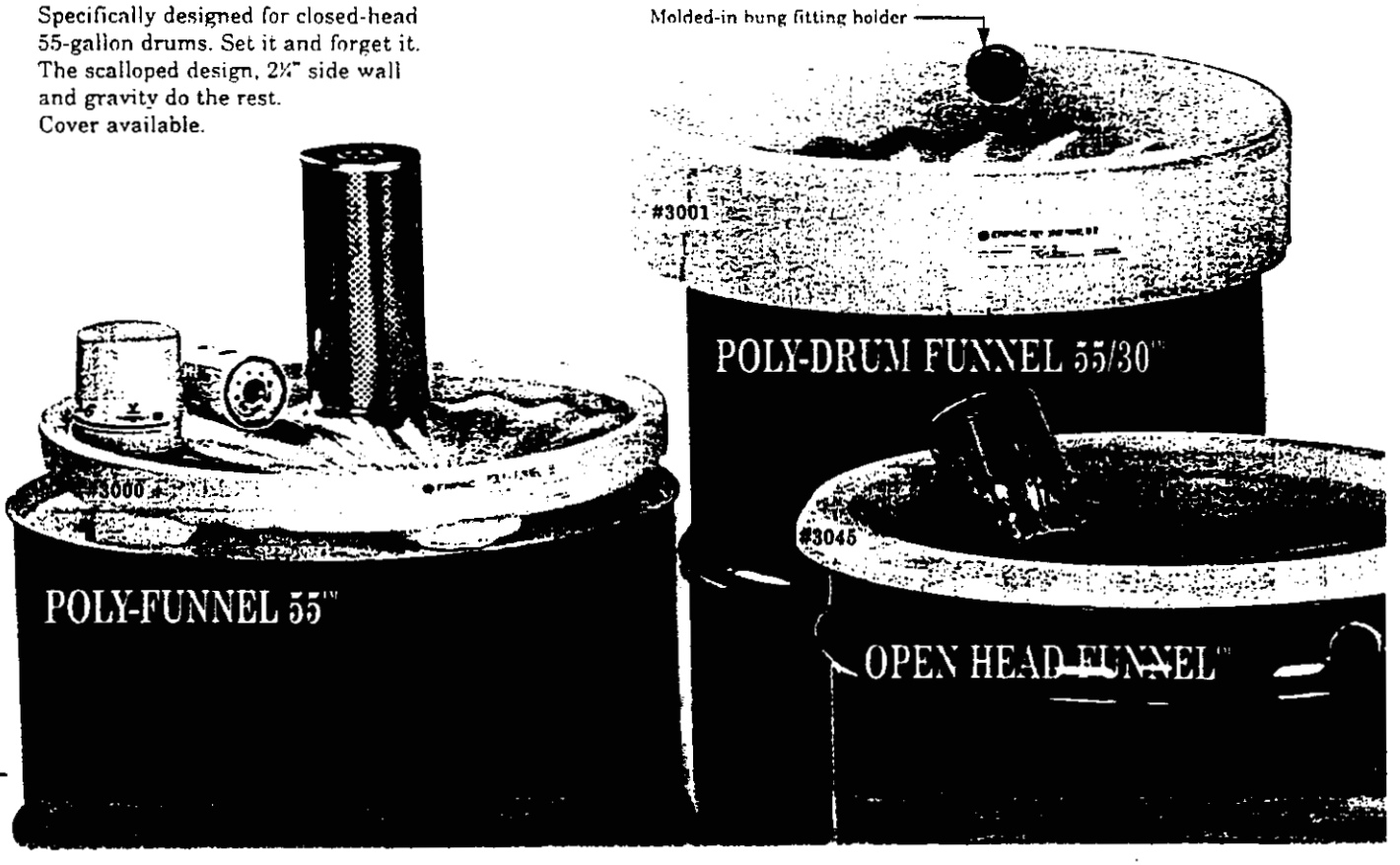
Big splash protection when you're pouring from buckets into closed-head drums. It provides a higher 3½" side wall to reduce splash.

OPEN HEAD FUNNEL™

Large 24 1/2" diameter funnel sits easily on top of open-head 55-gallon drums. Five-inch side wall keeps work areas clean.

POLY-PAIL FUNNEL™

Mounts to 3 1/2-, 5-, and 6-gallon tight-head pails. Also fits open-top pails with 11 1/4" diameter. Cover available.



FUNNELS

Specifications

POLY-DRUM FUNNEL 55/30™

Product No.	3001
Weight	6 lbs. / 3 kg
Capacity	6 gallons / 23 liters

FUNNEL 55/30™ COVER

Product No.	3056
Weight	2 lbs. / 1 kg

SAFETY FUNNEL 55/30™

Product No.	3018
Weight	6 lbs. / 3 kg

*Includes flame arrestor & POLY-DRUM FUNNEL 55/30

POLY-DRUM FUNNEL 16/5™

Product No.	3003
Weight	3 lbs. / 1.5 kg
Capacity	2½ gallons / 9 liters

FUNNEL 16/5™ COVER

Product No.	3057
Weight	1¼ lbs. / 1 kg

POLY-FUNNEL™ TALL

Product No.	3002
Weight	6 lbs. / 3 kg

POLY-FUNNEL™ 55

Product No.	3000
Weight	5 lbs. / 2 kg

POLY-FUNNEL™ 55 COVER

Product No.	3050
Weight	2¼ lbs. / 1 kg

SAFETY FUNNEL™

Product No.	3090
Weight	5 lbs. / 2 kg

*Includes flame arrestor & POLY-FUNNEL 55

OPEN-HEAD FUNNEL™

Product No.	3045
Weight	10 lbs. / 5 kg

POLY-PAIL FUNNEL™

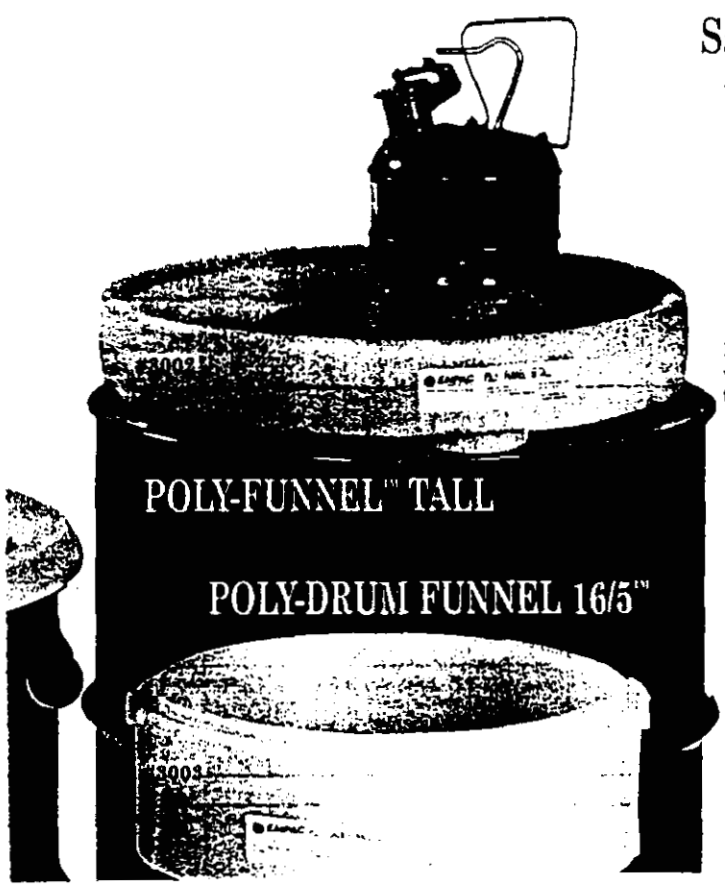
Product No.	3005
Weight	2 lbs. / 1 kg

POLY-PAIL COVER™

Product No.	3051
Weight	1 lb. / .5 kg

DRUM TOPPER™

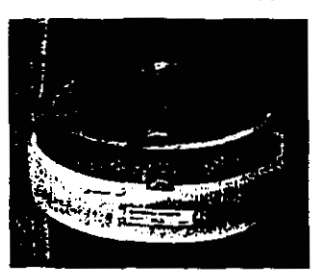
Product No.	3065
Weight	2.5 lbs. / 2 kg



Safety Funnel™ 55/30

POLY-DRUM FUNNEL 55/30 with flame arrestor. Ideal for flammable liquids. #3018

Drain Drums!



Spent drum contents drain easily with POLY-DRUM FUNNEL 55/30, saving time and materials. #3001

ENPAC CORPORATION

EXAMPLES
EXAMPLES

SHOWN IN ACTUAL SITUATIONS

SPILL CONTAINMENT WHEN HANDLING ENVIRONMENTALLY SENSITIVE MATERIAL

SPILL PREVENTION DURING FLUID TRANSFER.

Additional Products

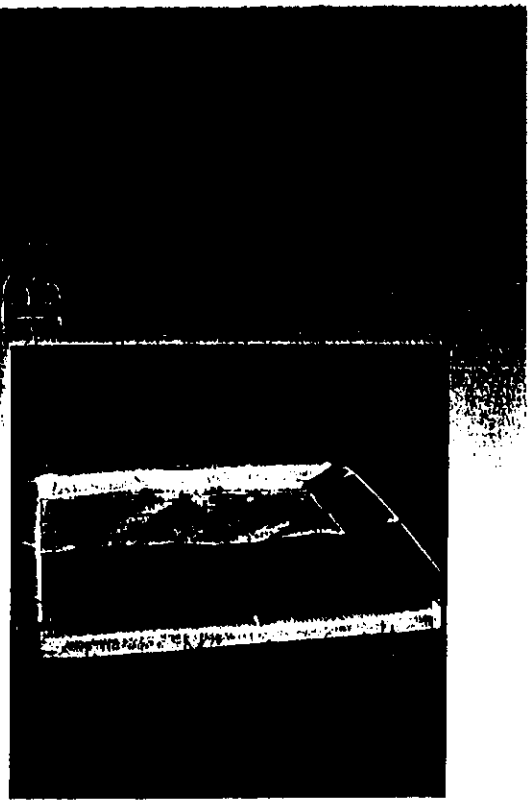
- FIBERGLASS **STRUCTURES**
  By RM Storage Products Ltd.
- ZORBOLITE **HYDROCARBON ABSORBENT**
  By GEM Manufacturing Ltd.
- POWERCLEAN & PREWASH **MULTIPURPOSE CLEANER**
  By EcoSolv
- POLYSHIELD **SS100**
  By CCI

For more information on our other products, please call

(907)-452-7043

Or fax (909)-452-8310

KNOCK DOWN PORTABLE BERMS



Spill Containment

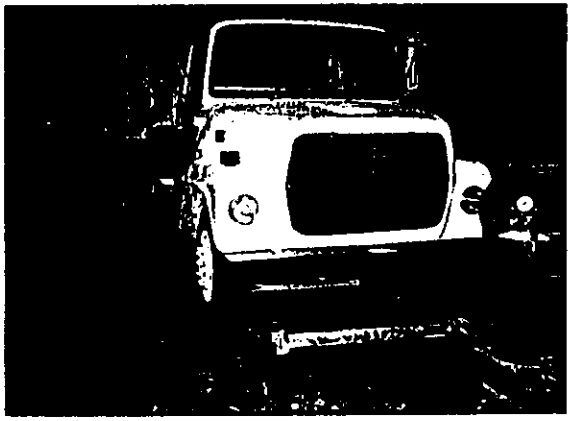
Features

- Reusable
- Light weight
- Good in temperatures down to -65° F
- Will contain petroleum & glycol products
- Stores easily
- Cost effective & in compliance with safety standards

DESCRIPTION

The knock down portable berm ("berm") consists of a liner and berm, that is formed from closed and open cell foam (for a 4" berm). The foam has been chosen for its low temperature properties and its resiliency. The liner material has been chosen for its extremely strong properties of resisting chemicals such as crude, diesel, methanol, and glycol. The liner material has also been used extensively in the Arctic and is suitable for temperatures as low as -65° F.

Berms were designed by CCI as a quick, temporary installation for the prevention of spills. The size of the containment area can be customized to fit any need. Suitable applications stem anywhere from drip pans for use under equipment to containment of spills during fuel transfers. They are also used extensively to store chemicals in.



OPTIONS
OPTIONS

The material which makes up these berms is very smooth. Thus, if personnel are going to stand in or on the berms, we offer some additional features that can be added to our berms. Ruftop is an overlay we can add that is placed on the liner to form a slip resistant work surface and provide protection for the material against heavy traffic. Although the liner material is tough this ruftop helps prevent sharp objects from tearing down through the liner. The working overlay is a flexable cold weather matting that will offer a good slip resistant surface. When working in areas of snow or ice we offer sets of cleats that are welded to the bottom of the berm. These additions will make the berms safer when they are placed on snow or ice.

SIZES

In addition to the 4" foam berm we offer a 2" sand filled berm. Our standard 2" berm is the 18" x 18" x 2" drip pan. These berms are made from the same liner material and are designed to hold a 18" x 18" pad of absorbent material. The 2" sand filled berm allows for the containment of small spills (approximately 2.5 gallons) and it weighs 9 lbs.. The drip pan can be folded into a compact size and is handy for storing in a truck or heavy equipment cab. Different sizes can be manufactured at purchasers request.

PRICE LIST
PRICE LIST

4" FOAM FILLED BERM

Sizes	Price (bare)	Price (w/cleats)	Price (w/cleats & tuftop)
2' x 2' x 4"	$168.00		
3' x 3' x 4"	$270.00	$285.00	$305.00
3' x 4' x 4"	$283.00	$298.00	$315.00
4' x 4' x 4"	$292.00	$305.00	$321.00
4' x 5' x 4"	$319.00	$327.00	$355.00
4' x 6' x 4"	$340.00	$354.00	$416.00
4' x 8' x 4"	$389.00	$402.00	$465.00

2" SAND FILLED BERM

Sizes	Price (1-5)	Price (5+)
18" x 18" x 2"	$59.50	$59.50
30" x 42" x 2"	$98.00	$98.00
30" x 84" x 2"	$183.00	$166.00
40" x 40" x 2"	$147.00	$133.00
40" x 74" x 2"	$187.00	$170.00
40" x 96" x 2"	$222.00	$202.00
3' x 3 x 2"	$126.00	$116.00
3' x 6' x 2"	$175.00	$159.00
4' x 4' x 2"	$171.00	$156.00
4' x 6' x 2"	$217.00	$198.00
4' x 8' x 2"	$253.00	$230.00

Quotes are available on any size berms

We WILL design to fit your needs

If you have any questions or wish to place an order please call
(907)-452-7043
or fax an order to
(907)-452-8310

1/26/97

Call for Current Pricing

NuERA Technologies, Inc.

NW REGIONAL OFFICE
P.O. Box 5357
Kent, WA 98064
(206) 639-3630
FAX 206-639-3622

ALASKA OFFICE
P.O. Box 112332
Anchorage AK 99511
(907) 345-6411

DATE: 6/5/96

FAX TRANSMITTAL TO: Tom Fisher
USKH
FAX # 452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 8 PAGES

MESSAGE: Ref: Oil Filter Crusher Info.
Elements > 16" Tall

Herkules - 3 pgs

Oberg - 4 pgs

RECEIVED
JUN-05-1996
USKH
FAIRBANKS, ALASKA

Tom,
Give me a call if you have any questions.

Tks.

Steve

NuERA Technologies, Inc. Steven R. Ransom
Profitable Waste Management
· Waste Oil Furnaces
· On Site Disposal/Recycling Eq.
· Waste Assessment & Minimization Programs

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P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411

NuERA Technologies, Inc.
Steven R. Ransom
Profitable Waste Management
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- Waste Assessment & Minimization Programs
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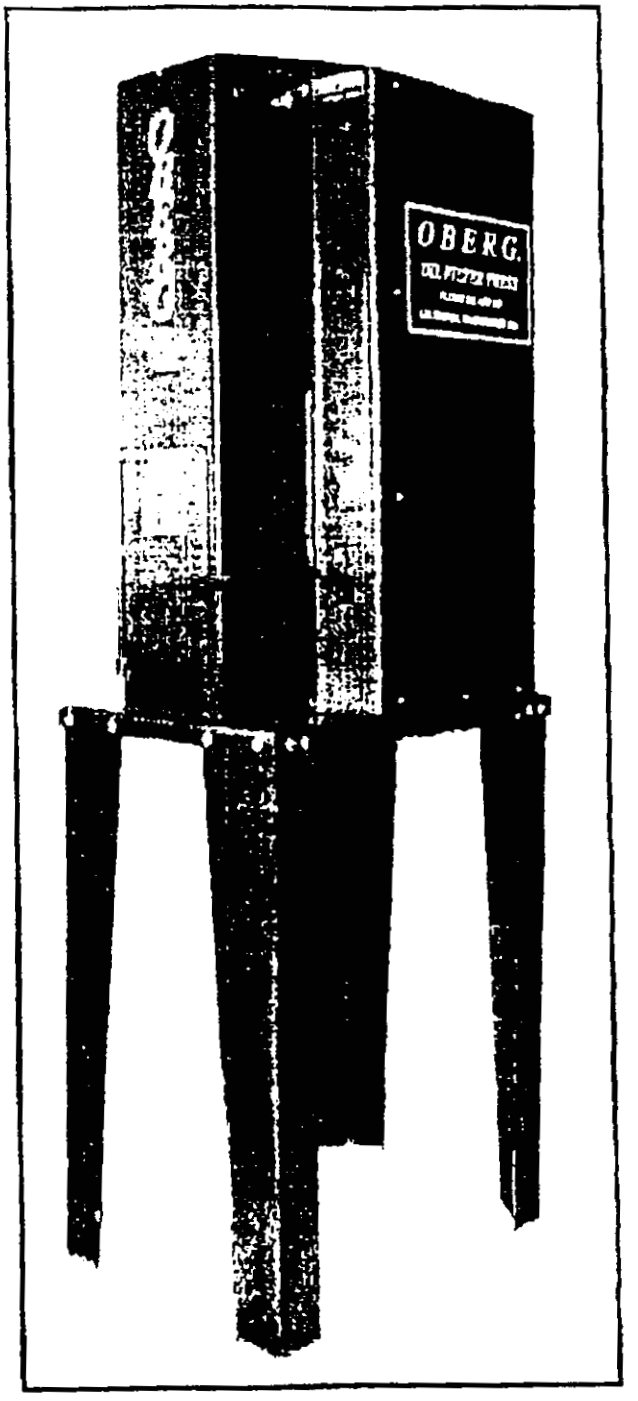
OBERG™

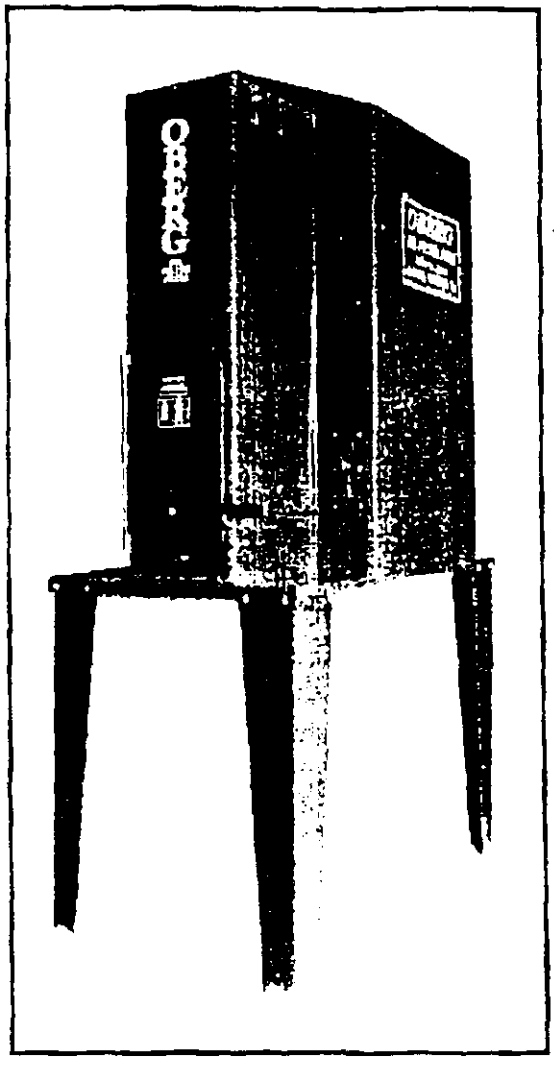
America's #1 Quality Filter Press



Models For Automotive, Heavy Truck And Industrial Filters

MODEL P-300

#1 CHOICE FOR CRUSHING INDUSTRIAL SIZE FILTERS



The *OBERG* Model P-300 provides more crushing force than any competitor, crushing filters up to 20" tall, multiple smaller filters at once, and oily shop rags. The large crushing chamber also allows crushing five gallon paint cans into thin wafers. With over 70,000 pounds of crushing force, the P-300 removes the maximum oil possible from used filters! This eliminates the fabric mess and disposal problem typical when cutting filters.

Crushed filters are deposited through a trap door in the rear of the crushing chamber directly into a transport drum. The P-300 includes legs to house two 55 gallon drums under the machine. One drum can be used for crushed filters and the other for waste oil. A drain located under the crushing chamber allows for waste oil to be plumbed directly to a drum or bulk tank.

All operation is provided by a fully self-contained electric/hydraulic power unit. This provides consistent crushing force without the need for high volume air supply, condensation filters and lubricators necessary with air units.

A push button control activates the system and a built in safety mechanism prevents the machine from operating when the loading door is open.

DIMENSIONS

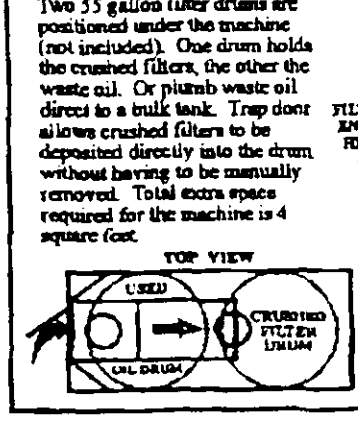
Overall Height	*104"*
Overall Width	*36"*
Overall Length	*60"*
Shipping Weight	*1,380 Lbs.*

SPECIFICATIONS

Cycle Time	*57 sec.*
Cavity Size	*15"w x 15"d x 20"h*
Electrical	*208-220v. 15 amp. Single Phase*
Crushing Force	*70,640 Lbs.*

SPACE SAVING

Two 55 gallon filter drums are positioned under the machine (not included). One drum holds the crushed filters, the other the waste oil. Or plumb waste oil direct to a bulk tank. Trap door allows crushed filters to be deposited directly into the drum without having to be manually removed. Total extra space required for the machine is 4 square feet.



OBERG International Inc.

NuERA TECHNOLOGIES
P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411
800-347-9575

Manufacturer of Quality Waste Reduction Equipment

OBERG OIL FILTER PRESS
USER PRICE SHEET

OBERG PART #	PRODUCT DESCRIPTION	USER PRICE	SHIPPING WEIGHT
→	**P100WM FILTER PRESS** Automotive and Light Industrial Filter Press Mounts To Wall	1,695.00	360 lbs
	P200L FILTER PRESS H.D. Truck Filter Press (Note: Model P-200 Will Also Crush Multiple Automotive And Light Industrial Filters) With Legs To House One 55 Gallon Drum	3,880.00	615 lbs
→	**P300 FILTER PRESS** H.D. Industrial Filter Press (Crushes Filters Up To 20" Tall) (Also Crushes 5 Gallon Size Cans) With Legs To House Two 55 Gallon Drums	5,495.00	1380 lbs
	P350 FILTER PRESS H.D. Industrial Filter Press (Crushes Railroad Type Filters Up To 40" Tall) (Also Crushes Multiple 5 Gallon Size Cans) Includes Bins For Collection Of Filters And Waste Oil	14,950.00	3000 lbs

Kotzebue
Cheneya

Valdez
Cordova
Whittier

SHIPMENTS: F.O.B. ARLINGTON, WASHINGTON
TERMS: 2%10 NET30

Prices effective September 1, 1995

OBERG™ FILTER PRESS

The American Standard For Crushing All Size Filters

Auto - Heavy Duty Truck - Industrial - Railroad

Used Filter Recycling Across America

PARTIAL COMMERCIAL CUSTOMER LIST

Cummins Service Products - Detroit Diesel
Volvo GM Heavy Truck - PACCAR
Rollins Truck Leasing - Ryder Truck Leasing
Penske Truck Leasing - United Parcel Service
Waste Management - Coca Cola - Boeing
Chicago Transit - Milwaukee Transit
Peabody Coal - Mobil

Weyerhauser
Puget Power
Tri-Met Oregon
City of Torrance
City of San Diego
Los Angeles Water & Power
Pacific Gas & Electric
Northrop
Long Beach Transit
City of Huntington Beach
City of Anaheim
United Airlines
Sacramento Transit
Minit-Lube
Sam Trans
Southern Pacific Railroad
Exxon
Lockheed

Textron Lycoming
Wash. D.C. Airport
City of Philadelphia
Jiffy Lube Franchisees
Penn. Dept. of Trans.
Atlantic City Int'l Airport
Texas Gulf
Fleetguard Filters
Southeastern Freightways
Florida Power
Disney World
City of Miami
City of Lakeland

Louisiana Pacific - Chevron USA - Pepsi Cola
Atlantic Richfield - Borden
Mason & Hanger - Capitol Metro Austin
Consolidated Freightways - J.B. Hunt Transport

AND THOUSANDS MORE, REFERENCES UPON REQUEST

OBERG **Also Supplies Federal Government Facilities Under Contract**

GSA Contract #GS-07F-71950

ARMY - NAVY - AIR FORCE - MARINES
U.S. POSTAL SERVICE - DEPT. OF ENERGY - DEPT. OF AGRICULTURE
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DEPARTMENT OF TRANSPORTATION - U.S. PROPERTY - F.A.A.

Call Or Fax To Request Complete Catalog And Video

OBERG International, Inc., Arlington WA U.S.A.

"America's #1 Quality Filter Press"

NuERA Technologies, Inc.

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(206) 639-3630
FAX 206-639-3622

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Anchorage AK 99511
(907) 345-6411

DATE: 7/29/96

FAX TRANSMITTAL TO: Tom Fisher, USKH

FAX # 907/452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 1 PAGES

MESSAGE:

REF: Bid specs: Kerkules oil filter crusher (manufacturer's written bid sheet not located)

Sample spec for Model OFC-4

Capable of crushing filters 20" high by 9" diameter, minimum crushing pressure 17.5 tons, maximum 55 second cycle time, air operated; supplied with air filter-regulator & gauge, and timer.

NuERA Technologies, Inc. Steven R. Ransom

Profitable Waste Management

- Waste Oil Furnaces
- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs

800-347-9575

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(907) 345-6411

NuERA Corporation

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P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411
1-800-347-9575

SMART ASH

Date: 1/10/97

To: Tom Fisher - USKH

Page 1 of 5 Pages

Fax # 452-4225

From: Steve Ransom, NuERA Corporation Fax 206-639-3622

Message:

Tom,

Here's the Smart Ash information I was able to copy for you. Original Brochure Slicks enroute via US Mail, (and associated data)

List Price on Incinerator @ $3,295

"Smart Heat" Energy Recovery Unit @ $4,700

Thanks for your Call

Sincerely,

Steve R.

NuERA Corporation
Steven R. Ransom
Profitable Waste Management
• Waste Oil Furnaces
• On Site Disposal/Recycling Eq.
• Waste Assessment & Minimization Programs

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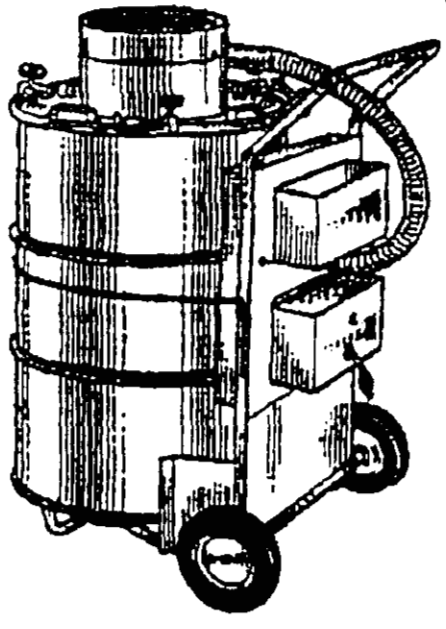
ELASTEC INC

POLLUTION CONTROL SYSTEMS

SmartAsh Power to Burn

This innovative combustion system meets EPA requirements for burning non-hazardous refuse.



SmartAsh uses no fuel. Simply load a 55 gallon, open head, steel drum; light it and clamp on the lid.

Two 120v electric high-velocity blowers create a cyclone of intense heat. Combustion is so complete the volume of materials is reduced to an average of 3% ash. Portable and convenient. SmartAsh rolls out of sight when the job is done.

The air powered SmartAsh reduces disposal cost while eliminting possible long term environmental liabilities.

SmartAsh gives you the power to burn!

REPORTED FUELS:

Absorbent Materials
(Natural & Synthetics)
Classified Papers
Office Waste
Filters
Packing Materials
Clothing

Specifications

Construction:
*Stainless Steel Lid
*Plated Tubular Steel Frame
*2-Blowers, Axial Vane 120 V Standard
or 220 V optional
*Requires: 55 Gallon Steel Open Head Drum

Height: 43"
Floor Space: 32" x 32"
Weight: 76 lbs. Without Drum
116 lbs. With Drum
Burn Rate: 50 LBS./HR.

NuERA Corporation
P.O. Box 5357
KENT, WASHINGTON 98064-5357
(206) 639-3630
800-347-9575

Product #100

SMART ASH MODEL 100A

This innovative combustion system meets EPA & DEC requirements for burning non-hazardous oily waste and other combustible refuse. The Smart Ash uses no fuel. Simply load a 55 gal. open-head steel drum; light it and clamp on the lid. Two 120V electric high velocity blowers create a cyclone of intense heat. Combustion is so complete, the volume of materials is reduced to an average of 3% ash. Portable and convenient, the Smart Ash rolls out of sight when the job is done.

SMART

Ash®

POWER TO BURN!

HUNDREDS OF UNITS IN USE STATEWIDE

Attn: Tom. 5 of 5

List of burnable's for Smart Ash

1.) Absorbent types
- a.) Cellulose base types
- b.) Cotton
- c.) Polypropylene & Cotton mix
- d.) Corn cob
- e.) Saw dust
- f.) Peat moss

2.) Hydrocarbons
- a.) All types of crude's
- b.) Waste oils
- c.) Used motor oils
- d.) Transmission oils all types and weights
- e.) Lubricating greases
- f.) Hydraulic oils
- g.) Diesel fuels #1 and #2
- h.) Kerosene's
- I.) Jet fuels (flash point above 100 degrees Fahrenheit.)

All **liquids must** be absorbed in a burnable absorbent, to be incinerated.

3.) Filters
- a.) Spin on and cartridge oil filters from cars and trucks, heavy equipment
- b.) Air filters of all types, car, truck, industrial types
- c.) Poly & Fiberglass filters
- d.) Natural Gas pipeline filters (glycol filters)

4.) Paper Products
- a.) Newspapers
- b.) Office wastes
- c.) Cardboards
- d.) Fast food paper wastes
- e.) Computer papers
- f.) Sensitive documents

5.) Wood products
- a.) Saw dust
- b.) Scrap at construction sites
- c.) Tree limbs & leaves
- d.) Shipping Pallets
- e.) Any type of wood products will fit this category

6.) Plastic's

This unit will incinerate a wide variety of plastic's. The volatile emission's emitted by these types of material are not acceptable in the permitting requirements.

7.) Miscellaneous
- a.) Clothing
- b.) Gloves
- c.) Oily rags
- d.) Packaging material

DANGER
HAZARDOUS WASTE STORAGE AREA
UNAUTHORIZED PERSONS KEEP OUT

FG	10 x 14	70375
AL	7 x 10	40665
AL	10 x 14	40666
PL	7 x 10	22101
PL	10 x 14	22102
SS	7 x 10	84080
SS	10 x 14	84081

DANGER
KEEP OUT

FG	10 x 14	47008
FG	14 x 20	75478
AL	7 x 10	40675
AL	10 x 14	40676
PL	7 x 10	22111
PL	10 x 14	22112
SS	7 x 10	84095
SS	10 x 14	84096

DANGER
PESTICIDE STORAGE
AUTHORIZED PERSONNEL ONLY

FG	10 x 14	70479
AL	7 x 10	40685
AL	10 x 14	40686
PL	7 x 10	22121
PL	10 x 14	22122
SS	7 x 10	84107
SS	10 x 14	84108

NOTICE
ALL EMPLOYEES WHOSE WORK DOES NOT REQUIRE THEM TO ENTER THIS AREA MUST KEEP OUT

FG	10 x 14	69380
AL	7 x 10	40695
AL	10 x 14	40696
PL	7 x 10	22131
PL	10 x 14	22132
SS	7 x 10	84119
SS	10 x 14	84120

NOTICE
AUTHORIZED PERSONNEL ONLY

FG	7 x 10	70604
FG	10 x 14	70602
AL	7 x 10	40705
AL	10 x 14	40706
PL	7 x 10	22141
PL	10 x 14	22142
SS	7 x 10	84129
SS	10 x 14	84130

NOTICE
NO ADMITTANCE EMPLOYEES ONLY

FG	10 x 14	69382
AL	7 x 10	40715
AL	10 x 14	40716
PL	7 x 10	22151
PL	10 x 14	22152
SS	7 x 10	84141
SS	10 x 14	84142

DANGER
HIGH VOLTAGE KEEP OUT

FG	7 x 10	45470
FG	10 x 14	45471
FG	14 x 20	45472
AL	7 x 10	40667
AL	10 x 14	40668
PL	7 x 10	22103
PL	10 x 14	22104
SS	2¼ x 4½	89174
SS	3½ x 5	84082
SS	7 x 10	84083
SS	10 x 14	84084

DANGER
KEEP OUT
HAZARD AREA

FG	14 x 20	71091
AL	7 x 10	40677
AL	10 x 14	40678
PL	7 x 10	22113
PL	10 x 14	22114
SS	7 x 10	84097
SS	10 x 14	84098

DANGER
RESTRICTED AREA

FG	10 x 14	69473
AL	7 x 10	40687
AL	10 x 14	40688
PL	7 x 10	22123
PL	10 x 14	22124
SS	7 x 10	84109
SS	10 x 14	84110

NOTICE
ALL LUNCH BOXES, PACKAGES, BAGS, PURSES, ETC. ARE SUBJECT TO INSPECTION

FG	10 x 14	69382
AL	7 x 10	40697
AL	10 x 14	40698
PL	7 x 10	22133
PL	10 x 14	22134
SS	7 x 10	84121
SS	10 x 14	84122

NOTICE
EMPLOYEES ONLY

FG	7 x 10	47301
FG	10 x 14	47327
AL	7 x 10	40707
AL	10 x 14	40708
PL	7 x 10	22143
PL	10 x 14	22144
SS	7 x 10	84131
SS	10 x 14	84132

NOTICE
NO ADMITTANCE WITHOUT A PERMIT

FG	10 x 14	71157
AL	7 x 10	40717
AL	10 x 14	40718
PL	7 x 10	22153
PL	10 x 14	22154
SS	7 x 10	84143
SS	10 x 14	84144

DANGER
HIGH VOLTAGE
UNAUTHORIZED PERSONNEL KEEP OUT

FG	14 x 20	71580
AL	7 x 10	40669
AL	10 x 14	40670
PL	7 x 10	22105
PL	10 x 14	22106
SS	7 x 10	84085
SS	10 x 14	84086

DANGER
NO ADMITTANCE

FG	7 x 10	47154
AL	7 x 10	40679
AL	10 x 14	40680
PL	7 x 10	22115
PL	10 x 14	22116
SS	7 x 10	84101
SS	10 x 14	84102

DANGER
ROBOTIC AREA
AUTHORIZED PERSONNEL ONLY

FG	10 x 14	69461
AL	7 x 10	40689
AL	10 x 14	40690
PL	7 x 10	22125
PL	10 x 14	22126
SS	7 x 10	84111
SS	10 x 14	84112

NOTICE
ALL TRUCK DRIVERS MUST SIGN IN BEFORE PROCEEDING PAST THIS POINT

FG	10 x 14	69386
AL	7 x 10	40699
AL	10 x 14	40700
PL	7 x 10	22135
PL	10 x 14	22136
SS	7 x 10	84123
SS	10 x 14	84124

NOTICE
ENTRANCE FOR EMPLOYEES ONLY

FG	10 x 14	69210
AL	7 x 10	40709
AL	10 x 14	40710
PL	7 x 10	22145
PL	10 x 14	22146
SS	7 x 10	84133
SS	10 x 14	84134

NOTICE
NO ADMITTANCE WITHOUT PASS FROM OFFICE

FG	10 x 14	69392
AL	7 x 10	40719
AL	10 x 14	40720
PL	7 x 10	22155
PL	10 x 14	22156
SS	7 x 10	84145
SS	10 x 14	84146

DANGER
KEEP AWAY

FG	10 x 14	47006
FG	14 x 20	69310
AL	7 x 10	40671
AL	10 x 14	40672
PL	7 x 10	22107
PL	10 x 14	22108
SS	7 x 10	84089
SS	10 x 14	84090

DANGER
NOT A PEDESTRIAN WALKWAY
FORK TRUCKS ONLY

FG	10 x 14	69410
AL	7 x 10	40681
AL	10 x 14	40682
PL	7 x 10	22117
PL	10 x 14	22118
SS	7 x 10	84103
SS	10 x 14	84104

DANGER
THIS ENCLOSURE CONTAINS HIGH VOLTAGE ELECTRICAL EQUIPMENT AND MUST NOT BE ENTERED EXCEPT BY PERMISSION

FG	14 x 20	69523
AL	7 x 10	40691
AL	10 x 14	40692
PL	7 x 10	22127
PL	10 x 14	22128
SS	7 x 10	84113
SS	10 x 14	84114

NOTICE
ALL VEHICLES ENTERING OR LEAVING THE PREMISES ARE SUBJECT TO INSPECTION

FG	10 x 14	69387
AL	7 x 10	40701
AL	10 x 14	40702
PL	7 x 10	22137
PL	10 x 14	22138
SS	7 x 10	84125
SS	10 x 14	84126

NOTICE
NO ADMITTANCE

FG	10 x 14	70699
AL	7 x 10	40711
AL	10 x 14	40712
PL	7 x 10	22147
PL	10 x 14	22148
SS	7 x 10	84137
SS	10 x 14	84138

NOTICE
NO ENTRY
UNLESS AUTHORIZED

FG	7 x 10	70715
FG	10 x 14	70713
AL	7 x 10	40721
AL	10 x 14	40722
PL	7 x 10	22157
PL	10 x 14	22158
SS	7 x 10	84149
SS	10 x 14	84150

DANGER
KEEP OFF

FG	7 x 10	47152
FG	10 x 14	47007
AL	7 x 10	40673
AL	10 x 14	40674
PL	7 x 10	22109
PL	10 x 14	22110
SS	7 x 10	84091
SS	10 x 14	84092

DANGER
PESTICIDE STORAGE AREA ALL UNAUTHORIZED PERSONS KEEP OUT
FIRE MAY CAUSE TOXIC FUMES

FG	10 x 14	70480
AL	7 x 10	40683
AL	10 x 14	40684
PL	7 x 10	22119
PL	10 x 14	22120
SS	7 x 10	84105
SS	10 x 14	84106

DANGER
UNSAFE ROOF
KEEP OFF

FG	10 x 14	74391
AL	7 x 10	40693
AL	10 x 14	40694
PL	7 x 10	22129
PL	10 x 14	22130
SS	7 x 10	84115
SS	10 x 14	84116

NOTICE
ALL VISITORS AND JOB APPLICANTS MUST STOP AND SIGN IN AT GATE HOUSE

FG	10 x 14	69388
AL	7 x 10	40703
AL	10 x 14	40704
PL	7 x 10	22139
PL	10 x 14	22140
SS	7 x 10	84127
SS	10 x 14	84128

NOTICE
NO ADMITTANCE APPLY AT OFFICE

FG	10 x 14	47328
AL	7 x 10	40713
AL	10 x 14	40714
PL	7 x 10	22149
PL	10 x 14	22150
SS	7 x 10	84139
SS	10 x 14	84140

NOTICE
NO SOLICITATION OR DISTRIBUTION OF MATERIALS ALLOWED ON COMPANY PROPERTY AT ANY TIME

FG	10 x 14	69402
AL	7 x 10	40723
AL	10 x 14	40724
PL	7 x 10	22159
PL	10 x 14	22160
SS	7 x 10	84151
SS	10 x 14	84152

SIGNS

Hazard Communication 1910.12004

Every workplace exposure that an employee experiences is the responsibility of the employer. The worker has the right to know what he is being exposed to. You must placard to make the employee aware of this exposure. Under Hazard Communication, the employer must ensure that every container of hazardous chemicals in the workplace, where there is the potential of exposure, is labeled, tagged, or marked.

Liquefied Hydrogen, Flammable Gas 1910.103(c)(2)(i)

Hydrogen storage sites must be placarded as follows: LIQUEFIED HYDROGEN – FLAMMABLE GAS – NO SMOKING – NO OPEN FLAMES.

No Unauthorized Personnel 1910.103(c)(2)(i)

Hydrogen storage sites have to be fenced and posted to prevent entrance by unauthorized personnel.

Hydrogen Gas Storage Areas 1910.103(b)(1)(v)

Hydrogen gas storage locations must be permanently placarded as follows: HYDROGEN – FLAMMABLE GAS – NO SMOKING – NO OPEN FLAMES, or the equivalent.

Non-potable Water 1926.51(b)

Outlets for non-potable water must be identified with signs meeting the requirements of Subpart G of Part 1926 (Signs, Signals and Barricades) to clearly indicate that the water should not be used for drinking, washing, or cooking purposes.

CAUTION

ACID

FG	10 x 14	69371
AL	7 x 10	40826
AL	10 x 14	40827
PL	7 x 10	22262
PL	10 x 14	22263
SS	7 x 10	84285
SS	10 x 14	84286

CAUTION

CARBON MONOXIDE MAY BE PRESENT

AL	10 x 14	43496

CAUTION

CHEMICAL LINES OVERHEAD

FG	10 x 14	76073
AL	7 x 10	40828
AL	10 x 14	40829
PL	7 x 10	22264
PL	10 x 14	22265
SS	7 x 10	84289
SS	10 x 14	84290

CAUTION

CHLORINE AREA

FG	10 x 14	69042
AL	7 x 10	40830
AL	10 x 14	40831
PL	7 x 10	22266
PL	10 x 14	22267
SS	7 x 10	84291
SS	10 x 14	84292

CAUTION

EYE AND GLOVE PROTECTION MUST BE WORN WHEN HANDLING CHEMICALS

FG	10 x 14	69228
AL	7 x 10	40840
AL	10 x 14	40841
PL	7 x 10	22276
PL	10 x 14	22277
SS	7 x 10	84301
SS	10 x 14	84302

CAUTION

POSSIBLE HYDROGEN SULFIDE GAS PRESENT

FG	10 x 14	72573
AL	7 x 10	40850
AL	10 x 14	40851
PL	7 x 10	22286
PL	10 x 14	22287
SS	7 x 10	84317
SS	10 x 14	84318

CAUTION

COMPRESSED AIR

FG	10 x 14	69051
AL	7 x 10	40832
AL	10 x 14	40833
PL	7 x 10	22268
PL	10 x 14	22269
SS	7 x 10	84293
SS	10 x 14	84294

CAUTION

HAZARDOUS WASTE STORAGE AREA UNAUTHORIZED PERSONS KEEP OUT

FG	10 x 14	70374
AL	7 x 10	41273
AL	10 x 14	41274
PL	7 x 10	22709
PL	10 x 14	22710
SS	7 x 10	85409
SS	10 x 14	85410

CAUTION

PREVENT STATIC SPARK DISCHARGE USE GROUNDING DEVICES

FG	10 x 14	70488
AL	7 x 10	40852
AL	10 x 14	40853
PL	7 x 10	22288
PL	10 x 14	22289
SS	7 x 10	84319
SS	10 x 14	84320

CAUTION

CONTAINS HAZARDOUS MATERIAL SEE MSDS FILE

FG	10 x 14	70256
AL	7 x 10	40834
AL	10 x 14	40835
PL	7 x 10	22270
PL	10 x 14	22271
SS	7 x 10	84295
SS	10 x 14	84296

CAUTION

HIGH PRESSURE PIPELINE

FG	10 x 14	72495
AL	7 x 10	41275
AL	10 x 14	41276
PL	7 x 10	22711
PL	10 x 14	22712
SS	7 x 10	85411
SS	10 x 14	85412

CAUTION

TOXIC/HAZARDOUS CHEMICALS ARE USED IN THIS WORKPLACE SAFETY DATA SHEETS ARE AVAILABLE IN THE SUPERVISOR'S OFFICE

FG	10 x 14	70559
AL	7 x 10	40854
AL	10 x 14	40855
PL	7 x 10	22290
PL	10 x 14	22291
SS	7 x 10	84321
SS	10 x 14	84322

CAUTION

CORROSIVE MATERIALS WEAR REQUIRED PROTECTION

FG	7 x 10	47079
FG	10 x 14	47117
AL	7 x 10	40836
AL	10 x 14	40837
PL	7 x 10	22272
PL	10 x 14	22273
SS	7 x 10	84297
SS	10 x 14	84298

CAUTION

NON-POTABLE WATER DO NOT DRINK

FG	10 x 14	69408
AL	7 x 10	40846
AL	10 x 14	40847
PL	7 x 10	22282
PL	10 x 14	22283
SS	7 x 10	84313
SS	10 x 14	84314

CAUTION

WELDING FUMES MAY BE PRESENT

AL	10 x 14	43498

DANGER

ACETYLENE

FG	7 x 10	70206
FG	10 x 14	70207
AL	7 x 10	40856
AL	10 x 14	40857
PL	7 x 10	22292
PL	10 x 14	22293
SS	7 x 10	84323
SS	10 x 14	84324

CAUTION

ENTRY PROHIBITED WITHOUT PERMIT TEST FOR O2 DEFICIENCY, H2S AND COMBUSTIBLE VAPORS

FG	14 x 20	69216
AL	7 x 10	40631
AL	10 x 14	40632
PL	7 x 10	22067
PL	10 x 14	22068
SS	7 x 10	84018
SS	10 x 14	84019

CAUTION

PERSONAL PROTECTIVE CLOTHING IS TO BE WORN AT ALL TIMES WHEN HANDLING CHEMICALS

FG	10 x 14	70474
AL	7 x 10	40848
AL	10 x 14	40849
PL	7 x 10	22284
PL	10 x 14	22285
SS	7 x 10	84315
SS	10 x 14	84316

DANGER

ACID

FG	7 x 10	47150
FG	10 x 14	47206
AL	7 x 10	40858
AL	10 x 14	40859
PL	7 x 10	22294
PL	10 x 14	22295
SS	3½ x 5	84325
SS	7 x 10	84326
SS	10 x 14	84327

DANGER

BENZENE
CANCER HAZARD

FG	10 x 14	69765
AL	7 x 10	41289
AL	10 x 14	41290
PL	7 x 10	22725
PL	10 x 14	22726
SS	7 x 10	85441
SS	10 x 14	85442

DANGER

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST-CANCER
AND LUNG DISEASE HAZARD

SS	3½ x 5	85451
SS	7 x 10	85452
SS	10 x 14	85453

DANGER

ETHYLENE GLYCOL
CANCER HAZARD AND
REPRODUCTIVE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING MUST BE REQUIRED
TO BE WORN IN THIS AREA

AL	10 x 14	43507

DANGER

EXPLOSIVES
KEEP OUT

FG	10 x 14	70330
AL	7 x 10	43235
AL	10 x 14	43236
PL	7 x 10	25658
PL	10 x 14	25659
SS	7 x 10	85173
SS	10 x 14	85174

DANGER

FLAMMABLE
MATERIALS

FG	10 x 14	72246
FG	14 x 20	72249
AL	7 x 10	43243
AL	10 x 14	43244
PL	7 x 10	25666
PL	10 x 14	25667
SS	7 x 10	85183
SS	10 x 14	85184

DANGER

ACID

WEAR PROPER PROTECTION

FG	10 x 14	72384
AL	7 x 10	40860
AL	10 x 14	40861
PL	7 x 10	22296
PL	10 x 14	22297
SS	7 x 10	84332
SS	10 x 14	84333

DANGER

BENZENE
CANCER HAZARD
FLAMMABLE-NO SMOKING
AUTHORIZED PERSONNEL ONLY
RESPIRATOR REQUIRED

FG	10 x 14	70853
AL	7 x 10	43353
AL	10 x 14	43354
PL	7 x 10	25776
PL	10 x 14	25777
SS	7 x 10	85443
SS	10 x 14	85444

DANGER

CYANIDE

FG	10 x 14	72428
AL	7 x 10	41291
AL	10 x 14	41292
PL	7 x 10	22727
PL	10 x 14	22728
SS	7 x 10	85456
SS	10 x 14	85457

DANGER

EXPLOSIVE GAS
NO SMOKING

FG	10 x 14	70327
FG	14 x 20	72207
AL	7 x 10	43227
AL	10 x 14	43228
PL	7 x 10	25650
PL	10 x 14	25651
SS	7 x 10	85161
SS	10 x 14	85162

DANGER

FLAMMABLE
GAS

FG	10 x 14	72230
AL	7 x 10	43237
AL	10 x 14	43238
PL	7 x 10	25660
PL	10 x 14	25661
SS	7 x 10	85175
SS	10 x 14	85176

DANGER

FLAMMABLE
NO MATCHES OR OPEN LIGHTS

FG	10 x 14	71945
AL	7 x 10	43247
AL	10 x 14	43248
PL	7 x 10	25670
PL	10 x 14	25671
SS	7 x 10	85187
SS	10 x 14	85188

DANGER

ACIDS

AL	7 x 10	40862
AL	10 x 14	43455
PL	7 x 10	22298
PL	10 x 14	25878
SS	7 x 10	84334
SS	10 x 14	84335

DANGER

CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
NO SMOKING OR EATING

FG	10 x 14	72410
AL	7 x 10	41990
AL	10 x 14	41991
PL	7 x 10	23090
PL	10 x 14	23091
SS	7 x 10	86031
SS	10 x 14	86032

DANGER

DIESEL

FG	10 x 14	69089
AL	7 x 10	41293
AL	10 x 14	41294
PL	7 x 10	22729
PL	10 x 14	22730
SS	7 x 10	85458
SS	10 x 14	85459

DANGER

EXPLOSIVE VAPOR
NO SMOKING
NO OPEN FLAMES
NO SPARKS

FG	14 x 20	71901
AL	7 x 10	43229
AL	10 x 14	43230
PL	7 x 10	25652
PL	10 x 14	25653
SS	7 x 10	85165
SS	10 x 14	85166

DANGER

FLAMMABLE
KEEP FLAMES AND HEAT AWAY

FG	10 x 14	71932
AL	7 x 10	43239
AL	10 x 14	43240
PL	7 x 10	25662
PL	10 x 14	25663
SS	7 x 10	85179
SS	10 x 14	85180

DANGER

FUEL
OIL

FG	10 x 14	76092
AL	7 x 10	41305
AL	10 x 14	41306
PL	7 x 10	22741
PL	10 x 14	22742
SS	7 x 10	85485
SS	10 x 14	85486

DANGER

ASBESTOS
CANCER AND LUNG
DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING ARE REQUIRED
IN THIS AREA

FG	20 x 14	74520
AL	10 x 7	41285
AL	14 x 10	41286
PL	10 x 7	22721
PL	14 x 10	22722
B-836	18 x 12	78058
SS	10 x 7	85437
SS	14 x 10	85438

DANGER

CAUSTIC

FG	7 x 10	72392
FG	10 x 14	72394
AL	7 x 10	40869
AL	10 x 14	40870
PL	7 x 10	22305
PL	10 x 14	22306
SS	3½ x 5	84344
SS	7 x 10	84345
SS	10 x 14	84346

DANGER

DIESEL FUEL

FG	7 x 10	70265
FG	10 x 14	70266
FG	14 x 20	70267
AL	7 x 10	43005
AL	10 x 14	43006
PL	7 x 10	25428
PL	10 x 14	25429
SS	7 x 10	84375
SS	10 x 14	84376

DANGER

EXPLOSIVES

FG	10 x 14	75638
AL	7 x 10	43231
AL	10 x 14	43232
PL	7 x 10	25654
PL	10 x 14	25655
SS	7 x 10	85167
SS	10 x 14	85168

DANGER

FLAMMABLE LIQUIDS

FG	10 x 14	72238
AL	7 x 10	43241
AL	10 x 14	43242
PL	7 x 10	25664
PL	10 x 14	25665
SS	7 x 10	85181
SS	10 x 14	85182

DANGER

FUEL STORAGE
NO SMOKING

FG	10 x 14	71951
AL	7 x 10	43249
AL	10 x 14	43250
PL	7 x 10	25672
PL	10 x 14	25673
SS	7 x 10	85189
SS	10 x 14	85190

DANGER

BENZENE

FG	7 x 10	75974
FG	10 x 14	75975
AL	7 x 10	41287
AL	10 x 14	41288
PL	7 x 10	22723
PL	10 x 14	22724
SS	3½ x 5	89175
SS	7 x 10	85439
SS	10 x 14	85440

DANGER

CHLORINE

FG	10 x 14	72408
AL	7 x 10	40877
AL	10 x 14	40878
PL	7 x 10	22313
PL	10 x 14	22314
SS	7 x 10	84355
SS	10 x 14	84356

DANGER

DO NOT BURN
OR WELD
ON THIS VESSEL

SS	7 x 10	85157

DANGER

ETHYLENE OXIDE

AL	10 x 14	43506

DANGER

EXPLOSIVES
KEEP AWAY

FG	14 x 20	71895
AL	7 x 10	43233
AL	10 x 14	43234
PL	7 x 10	25656
PL	10 x 14	25657
SS	7 x 10	85169
SS	10 x 14	85170

DANGER

FLAMMABLE MATERIAL
NO SMOKING

FG	7 x 10	47148
FG	10 x 14	47024
FG	14 x 20	75662
AL	7 x 10	43245
AL	10 x 14	43246
PL	7 x 10	25668
PL	10 x 14	25669
SS	7 x 10	85185
SS	10 x 14	85186

DANGER

GASOLINE
AND
OIL

FG	10 x 14	69285
AL	7 x 10	41309
AL	10 x 14	41310
PL	7 x 10	22745
PL	10 x 14	22746
SS	7 x 10	85489
SS	10 x 14	85490

CHEMICAL HAZARD

NOTICE
DO NOT DUMP CHEMICALS DOWN THIS DRAIN

FG	10 x 14	70270	
AL	7 x 10	40919	
AL	10 x 14	40920	
PL	7 x 10	22355	
PL	10 x 14	22356	
SS	7 x 10	84463	
SS	10 x 14	84464	

NOTICE
NON-POTABLE WATER
NOT TO BE USED FOR DRINKING, WASHING OR COOKING PURPOSES

FG	10 x 14	69394	
AL	7 x 10	40925	
AL	10 x 14	40926	
PL	7 x 10	22361	
PL	10 x 14	22362	
SS	7 x 10	84469	
SS	10 x 14	84470	

WARNING

AL	10 x 14	43503	

WARNING

FG	10 x 14	69615	
AL	7 x 10	40941	
AL	10 x 14	40942	
PL	7 x 10	22377	
PL	10 x 14	22378	
SS	7 x 10	84491	
SS	10 x 14	84492	

CORROSIVE LIQUIDS
USE PERSONAL PROTECTIVE EQUIP.

AL	7 x 10	40946	
PL	7 x 10	22382	
SS	3½ x 10	84499	
SS	7 x 10	84500	

HYDROGEN

SS	2¼ x 4½	43989	

OXYGEN

SS	2¼ x 4½	43987	

NOTICE
MSDS AND THE WRITTEN HAZARDOUS COMMUNICATION PROGRAM FOR THIS WORK PLACE IS LOCATED IN FOREMAN'S OFFICE

FG	10 x 14	70430	
AL	7 x 10	40921	
AL	10 x 14	40922	
PL	7 x 10	22357	
PL	10 x 14	22358	
SS	7 x 10	84465	
SS	10 x 14	84466	

NOTICE
"RIGHT TO KNOW" INFORMATION AVAILABLE IN THIS OFFICE

FG	10 x 14	70513	
AL	7 x 10	40929	
AL	10 x 14	40930	
PL	7 x 10	22365	
PL	10 x 14	22366	
SS	7 x 10	84473	
SS	10 x 14	84474	

WARNING

FG	10 x 14	69573	
AL	7 x 10	40935	
AL	10 x 14	40936	
PL	7 x 10	22371	
PL	10 x 14	22372	
SS	7 x 10	84483	
SS	10 x 14	84484	

ACETYLENE

SS	2¼ x 4½	43988	

DANGER—ACIDS
WEAR GOGGLES
AVOID FUMES AND SKIN CONTACT
WASH WITH WATER IMMEDIATELY

FG	10 x 14	72434	
AL	7 x 10	43321	
PL	7 x 10	25744	
SS	7 x 10	85562	
SS	10 x 14	85563	

OXYGEN
NO SMOKING
NO OPEN FLAMES

FG	10 x 14	70471	
AL	7 x 10	42715	
PL	7 x 10	25138	
SS	7 x 10	88455	
SS	10 x 14	88456	

NOTICE
NON-POTABLE WATER

FG	10 x 14	69407	
AL	7 x 10	40923	
AL	10 x 14	40924	
PL	7 x 10	22359	
PL	10 x 14	22360	
SS	7 x 10	84467	
SS	10 x 14	84468	

SAFETY FIRST
IF YOU GET CHEMICALS ON YOUR BODY OR EYES WASH THOROUGHLY WITH PLENTY OF WATER

FG	14 x 20	74616	
AL	7 x 10	40931	
AL	10 x 14	40932	
PL	7 x 10	22367	
PL	10 x 14	22368	
SS	7 x 10	84475	
SS	10 x 14	84476	

WARNING
PROPANE

FG	10 x 14	69604	
AL	7 x 10	40937	
AL	10 x 14	40938	
PL	7 x 10	22373	
PL	10 x 14	22374	
SS	7 x 10	84487	
SS	10 x 14	84488	

ACETYLENE
NO SMOKING
NO OPEN FLAMES

FG	10 x 14	69370	
AL	7 x 10	40943	
PL	7 x 10	22379	
SS	7 x 10	84493	
SS	10 x 14	84494	

DIRTY REFRIGERANT
DO NOT USE WITHOUT RECYCLING

SS	7 x 10	43984	

SPRAY PAINT BOOTH
PAINT FUMES MAY BE PRESENT

AL	10 x 14	43502	

NOTICE
NON-POTABLE WATER
NOT FOR DRINKING OR COOKING USE

FG	7 x 10	72546	
AL	7 x 10	40927	
AL	10 x 14	40928	
PL	7 x 10	22363	
PL	10 x 14	22364	
SS	7 x 10	84471	
SS	10 x 14	84472	

SAFETY FIRST
WEAR FACESHIELDS, RUBBER GLOVES AND APRONS WHEN WORKING WITH ACIDS

FG	14 x 20	74464	
AL	7 x 10	40933	
AL	10 x 14	40934	
PL	7 x 10	22369	
PL	10 x 14	22370	
SS	7 x 10	84477	
SS	10 x 14	84478	

WARNING

FG	14 x 20	69610	
AL	7 x 10	40939	
AL	10 x 14	40940	
PL	7 x 10	22375	
PL	10 x 14	22376	
SS	7 x 10	84489	
SS	10 x 14	84490	

CHEMICAL
GOGGLES REQUIRED

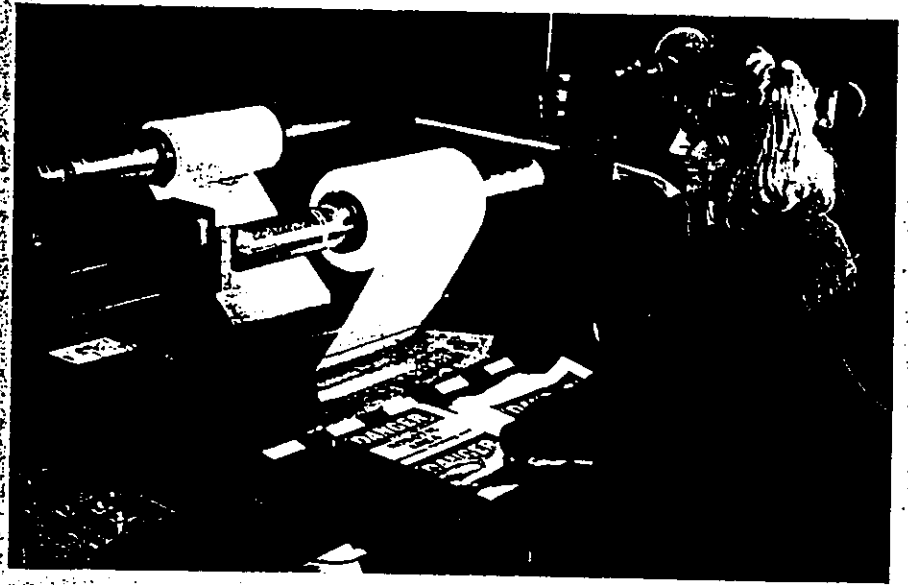
FG	10 x 14	73033	
AL	7 x 10	40944	
AL	10 x 14	40945	
PL	7 x 10	22380	
PL	10 x 14	22381	
SS	7 x 10	84497	
SS	10 x 14	84498	

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CALL DAY OR NIGHT

FG	14 x 20	69256	
AL	7 x 10	40947	
AL	10 x 14	40948	
PL	7 x 10	22383	
PL	10 x 14	22384	
SS	7 x 10	84505	
SS	10 x 14	84506	

USED OIL

SS	7 x 10	43983	



GAS
NO SMOKING, MATCHES OR LIGHTS

FG	10 x 14	69261	
AL	7 x 10	40949	
PL	7 x 10	22385	
SS	7 x 10	84507	
SS	10 x 14	84508	

WARNING
IF YOU COME IN CONTACT WITH CORROSIVE CHEMICALS GET UNDER A SHOWER IMMEDIATELY —SECONDS COUNT— LARGE VOLUMES OF WATER ARE NECESSARY

FG	14 x 20	72982	
AL	7 x 10	40950	
PL	7 x 10	22386	
SS	7 x 10	84511	
SS	10 x 14	84512	

SATISFACTION GUARANTEED

A special overlaminating process applied here by Katy Krostag, Graphic Artist, makes every Brady self-sticking sign even more durable.

Find it fast! See the Safety Sign Locator, pages 6-13.

HAZARDOUS MATERIALS

DANGER
H_2S
POISONOUS GAS

FG	10 x 14	72473
AL	7 x 10	41311
AL	10 x 14	41312
PL	7 x 10	22747
PL	10 x 14	22748
SS	7 x 10	85491
SS	10 x 14	85492

DANGER
HIGHLY COMBUSTIBLE AREA
NO WELDING, BURNING OR OPEN FLAMES PERMITTED

FG	14 x 20	71954
AL	7 x 10	43251
AL	10 x 14	43252
PL	7 x 10	25674
PL	10 x 14	25675
SS	7 x 10	85191
SS	10 x 14	85192

DANGER
SULFURIC ACID

FG	14 x 20	72587
AL	7 x 10	41328
AL	10 x 14	41329
PL	7 x 10	22764
PL	10 x 14	22765
SS	7 x 10	85521
SS	10 x 14	85522

NOTICE
NON-POTABLE WATER
NOT TO BE USED FOR DRINKING, WASHING OR COOKING PURPOSES

AL	7 x 10	40925
AL	10 x 14	40926
PL	7 x 10	22361
PL	10 x 14	22362
SS	7 x 10	84469
SS	10 x 14	84470

FG	10 x 14	69768
AL	7 x 10	43319
AL	10 x 14	43320
PL	7 x 10	25742
PL	10 x 14	25743
SS	3½ x 5	89170
SS	7 x 10	85553
SS	10 x 14	85554

EMPTY CYLINDERS

FG	10 x 14	70317
AL	7 x 10	43322
PL	7 x 10	25745
SS	7 x 10	85564
SS	10 x 14	85565

DANGER
HAZARDOUS AREA

FG	10 x 14	69000
AL	7 x 10	41313
AL	10 x 14	41314
PL	7 x 10	22749
PL	10 x 14	22750
SS	7 x 10	85493
SS	10 x 14	85494

DANGER
HYDROCHLORIC ACID

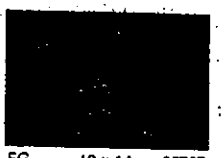
FG	7 x 10	72503
AL	7 x 10	43025
AL	10 x 14	43026
PL	7 x 10	25448
PL	10 x 14	25449
SS	7 x 10	84407
SS	10 x 14	84408

DANGER
TOXIC MATERIALS

FG	14 x 20	72593
AL	7 x 10	41330
AL	10 x 14	41331
PL	7 x 10	22766
PL	10 x 14	22767
SS	7 x 10	85525
SS	10 x 14	85526

SAFETY FIRST
IF YOU GET CHEMICALS ON YOUR BODY OR EYES WASH THOROUGHLY WITH PLENTY OF WATER

FG	14 x 20	74618
AL	7 x 10	43313
AL	10 x 14	43314
PL	7 x 10	25736
PL	10 x 14	25737
SS	7 x 10	85543
SS	10 x 14	85544



FG	10 x 14	69767
AL	7 x 10	40775
AL	10 x 14	40776
PL	7 x 10	22211
PL	10 x 14	22212
SS	7 x 10	84216
SS	10 x 14	84217

FULL CYLINDERS

FG	10 x 14	70356
AL	7 x 10	43323
PL	7 x 10	25746
SS	7 x 10	85566
SS	10 x 14	85567

DANGER
HAZARDOUS MATERIALS

FG	10 x 14	69002
AL	7 x 10	41315
AL	10 x 14	41316
PL	7 x 10	22751
PL	10 x 14	22752
SS	7 x 10	85497
SS	10 x 14	85498

DANGER
INORGANIC ARSENIC CANCER HAZARD AUTHORIZED PERSONNEL ONLY NO SMOKING OR EATING RESPIRATOR REQUIRED

AL	10 x 14	43505

NOTICE
CHAIN ALL CYLINDERS SECURELY

FG	10 x 14	70239
AL	7 x 10	41332
AL	10 x 14	41333
PL	7 x 10	22768
PL	10 x 14	22769
SS	7 x 10	85531
SS	10 x 14	85532

FG	10 x 14	69585
AL	7 x 10	43315
AL	10 x 14	43316
PL	7 x 10	25738
PL	10 x 14	25739
SS	7 x 10	85547
SS	10 x 14	85548

CANCER SUSPECT AGENT AREA
PROTECTIVE EQUIPMENT REQUIRED
AUTHORIZED PERSONNEL ONLY

FG	10 x 14	69781
AL	7 x 10	43459
AL	10 x 14	43460
PL	7 x 10	25882
PL	10 x 14	25883
SS	7 x 10	85557
SS	10 x 14	85558

SPILL CONTROL STATION

SS	7 x 10	43979

DANGER
HAZARDOUS WASTE

FG	10 x 14	69003
AL	7 x 10	41317
AL	10 x 14	41318
PL	7 x 10	22753
PL	10 x 14	22754
SS	7 x 10	85499
SS	10 x 14	85500

DANGER
LIVE STEAM

FG	10 x 14	69337
AL	7 x 10	41324
AL	10 x 14	41325
PL	7 x 10	22760
PL	10 x 14	22761
SS	7 x 10	85512
SS	10 x 14	85513

NOTICE
CYLINDERS NOT CONNECTED MUST BE CAPPED

FG	10 x 14	70261
AL	7 x 10	41334
AL	10 x 14	41335
PL	7 x 10	22770
PL	10 x 14	22771
SS	7 x 10	85533
SS	10 x 14	85534

FG	10 x 14	76085
AL	7 x 10	43317
AL	10 x 14	43318
PL	7 x 10	25740
PL	10 x 14	25741
SS	7 x 10	85549
SS	10 x 14	85550

CANCER SUSPECT AGENT EXPOSED IN THIS AREA. IMPERVIOUS SUIT INCLUDING GLOVES, BOOTS AND AIR SUPPLIED HOOD REQUIRED AT ALL TIMES. AUTHORIZED PERSONNEL ONLY

FG	20 x 28	69782
AL	7 x 10	43456
AL	10 x 14	43457
PL	7 x 10	25879
PL	10 x 14	25880
SS	7 x 10	85559
SS	10 x 14	85560

WARNING
IF YOU COME IN CONTACT WITH CORROSIVE CHEMICALS GET UNDER A SHOWER IMMEDIATELY -SECONDS COUNT- LARGE VOLUMES OF WATER ARE NECESSARY

FG	14 x 20	72982
AL	7 x 10	40950
PL	7 x 10	22386
SS	7 x 10	84511
SS	10 x 14	84512

DANGER
HIGH PRESSURE GAS LINE

FG	10 x 14	72489
AL	7 x 10	41319
AL	10 x 14	41320
PL	7 x 10	22755
PL	10 x 14	22756
SS	7 x 10	85501
SS	10 x 14	85502

DANGER
PCB
REPORT LEAKS OR SPILLS IMMEDIATELY TO MAINTENANCE SUPERINTENDENT

FG	14 x 20	70473
AL	7 x 10	41326
AL	10 x 14	41327
PL	7 x 10	22762
PL	10 x 14	22763
SS	7 x 10	85516
SS	10 x 14	85517

NOTICE
DRUMS MUST BE LABELED

FG	10 x 14	69178
AL	7 x 10	43311
AL	10 x 14	43312
PL	7 x 10	25734
PL	10 x 14	25735
SS	7 x 10	85535
SS	10 x 14	85536

WARNING NATURAL GAS PIPELINE
HIGH PRESSURE BEFORE DIGGING CALL COLLECT

SS	14 x 3	85551

CORROSIVE LIQUIDS
USE PERSONAL PROTECTIVE EQUIP.

SS	3½ x 10	84499
SS	7 x 10	84500

DANGER - ACIDS
WEAR GOGGLES
AVOID FUMES AND SKIN CONTACT
WASH WITH WATER IMMEDIATELY

FG	10 x 14	72434
AL	7 x 10	43321
PL	7 x 10	25744
SS	7 x 10	85562
SS	10 x 14	85563

DANGER
HIGH PRESSURE OIL LINE

FG	10 x 14	69018
AL	7 x 10	41321
AL	10 x 14	41322
PL	7 x 10	22757
PL	10 x 14	22758
SS	7 x 10	85503
SS	10 x 14	85504

DANGER
POISON

FG	10 x 14	69441
AL	7 x 10	40901
AL	10 x 14	40902
PL	7 x 10	22337
PL	10 x 14	22338
SS	3½ x 5	84434
SS	7 x 10	84435
SS	10 x 14	84436

NOTICE
NON-POTABLE WATER NOT FOR DRINKING OR COOKING USE

FG	7 x 10	72546
AL	7 x 10	40927
AL	10 x 14	40928
PL	7 x 10	22363
PL	10 x 14	22364
SS	7 x 10	84471
SS	10 x 14	84472

WARNING PETROLEUM PIPELINE
BEFORE EXCAVATING OR IN EMERGENCY CALL COLLECT

SS	14 x 3	85552

SATISFACTION GUARANTEED

Make it yourself! See p.156 for Safety Sign Software and Sign Blanks.

NOTICE
PLEASE TURN OUT LIGHTS WHEN NOT IN USE

FG	10 x 14	69437
AL	7 x 10	41007
AL	10 x 14	41008
PL	7 x 10	22443
PL	10 x 14	22444
SS	7 x 10	84583
SS	10 x 14	84584

NOTICE
SAVE ENERGY
CLOSE DOORS WHEN NOT IN USE

FG	10 x 14	69483
AL	7 x 10	41009
AL	10 x 14	41010
PL	7 x 10	22445
PL	10 x 14	22446
SS	7 x 10	84585
SS	10 x 14	84586

THINK
CONSERVE ENERGY

FG	10 x 14	69056
AL	7 x 10	41011
AL	10 x 14	41012
PL	7 x 10	22447
PL	10 x 14	22448
SS	7 x 10	84587
SS	10 x 14	84588

THINK
CONSERVE WATER

FG	10 x 14	69060
AL	7 x 10	41013
AL	10 x 14	41014
PL	7 x 10	22449
PL	10 x 14	22450
SS	7 x 10	84589
SS	10 x 14	84590

FG	7 x 10	70623
FG	10 x 14	70624
AL	7 x 10	41968
AL	10 x 14	41969
PL	7 x 10	25943
PL	10 x 14	25944
SS	7 x 10	86023
SS	10 x 14	86024

ALUMINUM CANS ONLY

FG	7 x 10	70627
FG	10 x 14	70628
AL	7 x 10	41972
AL	10 x 14	41973
PL	7 x 10	25947
PL	10 x 14	25948
SS	7 x 10	86027
SS	10 x 14	86028

B-500 2¼ x 2¼ 76289

B-500 2¼ x 2¼ 76288

B-500 2¼ x 2¼ 76287

B-500 2¼ x 2¼ 76285

FG	12 x 12	76879
AL	7 x 10	41015
PL	7 x 10	22451
SS	10 x 14	84596

GLASS ONLY

FG	7 x 10	70625
FG	10 x 14	70626
AL	7 x 10	41970
AL	10 x 14	41971
PL	7 x 10	25945
PL	10 x 14	25946
SS	7 x 10	86025
SS	10 x 14	86026

HELP SAVE OUR ENVIRONMENT
RECYCLE

FG	10 x 14	69014
AL	7 x 10	41016
PL	7 x 10	22452
SS	7 x 10	84598
SS	10 x 14	84599

B-500 2¼ x 2¼ 76875

NON RECYCLABLE WASTE

FG	7 x 10	70621
FG	10 x 14	70622
AL	7 x 10	41966
AL	10 x 14	41967
PL	7 x 10	25941
PL	10 x 14	25942
SS	7 x 10	86021
SS	10 x 14	86022

PAPER ONLY

FG	7 x 10	70629
FG	10 x 14	70630
AL	7 x 10	41974
AL	10 x 14	41975
PL	7 x 10	25949
PL	10 x 14	25950
SS	7 x 10	86029
SS	10 x 14	86030

RECYCLABLE
ALUMINUM CANS ONLY

FG	7 x 10	70613
FG	10 x 14	70614
AL	7 x 10	41958
AL	10 x 14	41959
PL	7 x 10	25933
PL	10 x 14	25934
SS	7 x 10	86013
SS	10 x 14	86014

RECYCLABLE
BOTTLES ONLY

FG	7 x 10	70605
FG	10 x 14	70606
AL	7 x 10	41950
AL	10 x 14	41951
PL	7 x 10	25925
PL	10 x 14	25926
SS	7 x 10	86005
SS	10 x 14	86006

RECYCLABLE
CANS ONLY

FG	7 x 10	70611
FG	10 x 14	70612
AL	7 x 10	41956
AL	10 x 14	41957
PL	7 x 10	25931
PL	10 x 14	25932
SS	7 x 10	86011
SS	10 x 14	86012

RECYCLABLE
METALS ONLY

FG	7 x 10	70617
FG	10 x 14	70618
AL	7 x 10	41962
AL	10 x 14	41963
PL	7 x 10	25937
PL	10 x 14	25938
SS	7 x 10	86017
SS	10 x 14	86018

RECYCLABLE
NEWSPRINT ONLY

FG	7 x 10	70619
FG	10 x 14	70620
AL	7 x 10	41964
AL	10 x 14	41965
PL	7 x 10	25939
PL	10 x 14	25940
SS	7 x 10	86019
SS	10 x 14	86020

RECYCLABLE
PAPER ONLY

FG	7 x 10	70609
FG	10 x 14	70610
AL	7 x 10	41954
AL	10 x 14	41955
PL	7 x 10	25929
PL	10 x 14	25930
SS	7 x 10	86009
SS	10 x 14	86010

RECYCLABLE
PLASTIC ONLY

FG	7 x 10	70607
FG	10 x 14	70608
AL	7 x 10	41952
AL	10 x 14	41953
PL	7 x 10	25927
PL	10 x 14	25928
SS	7 x 10	86007
SS	10 x 14	86008

RECYCLABLE
WASTE ONLY

FG	7 x 10	70615
FG	10 x 14	70616
AL	7 x 10	41960
AL	10 x 14	41961
PL	7 x 10	25935
PL	10 x 14	25936
SS	7 x 10	86015
SS	10 x 14	86016

RECYCLABLE
SAVE OUR RESOURCES
ALUMINUM

SS	10 x 14	84601

RECYCLABLE
SAVE OUR RESOURCES
CARDBOARD

SS	10 x 14	84602

RECYCLABLE
SAVE OUR RESOURCES
GLASS

SS	10 x 14	84603

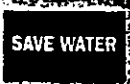
RECYCLABLE
SAVE OUR RESOURCES
PAPER

SS	10 x 14	84604

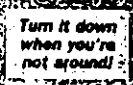
RECYCLABLE
SAVE OUR RESOURCES
PLASTIC

SS	10 x 14	84605

B-500 2¼ x 2¼ 76886

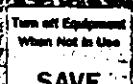


B-500 2¼ x 2¼ 76887

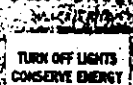


B-500 2¼ x 2¼ 76888

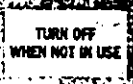
B-500 2¼ x 2¼ 76889



B-500 2¼ x 2¼ 76890



B-500 2¼ x 2¼ 76891



B-500 2¼ x 2¼ 76892

FG 12 x 12 76893
B-500 2¼ x 2¼ 76894

OVERHEAD Sectional Doors
Selection Guide

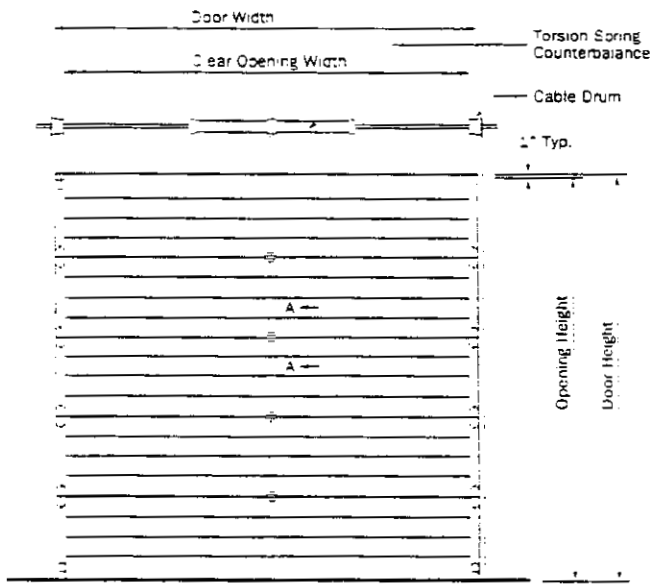
		Visual Access	Glazing	Ventilation	Thermal Insulation	Sound Insulation	Air Infiltration Resistance	Windload Resistance	Security	Fire Rated	Pedestrian Pass Door	Oversized Openings	High Usage
Insulated Steel Doors	Thermacore® 592 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 591 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 595 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 593 Series	◐	●	○	●	●	●	●	●	○	○	○	●
	418 Series	◐	●	○	◐	◐	◐	●	●	○	○	●	◐
	422 Series	◐	●	○	◐	◐	◐	●	●	○	◐	●	◐
	426 Series	◐	●	○	◐	◐	◐	●	●	○	◐	●	◐
	432 Series	◐	●	○	◐	◐	◐	●	●	○	○	◐	◐
	445 Series	◐	◐	○	◐	◐	◐	◐	●	○	○	○	◐
Steel Doors	416 Series	◐	●	○	○	○	◐	●	●	○	○	●	◐
	420 Series	◐	●	○	○	○	◐	●	●	○	◐	●	◐
	424 Series	◐	●	○	○	○	◐	●	●	○	◐	●	◐
	430 Series	◐	●	○	○	○	◐	●	●	○	○	◐	◐
	444 Series	◐	◐	○	○	○	◐	◐	●	○	○	○	◐
Aluminum Doors	520 Series	●	●	◐	○	○	◐	◐	◐	○	○	◐	○
	511 Series	●	●	◐	○	○	◐	◐	◐	○	○	○	○
Special Application Doors		◐	●	◐	◐	◐	◐	●	●	○	◐	●	●

○ Not Applicable
◐ Applicable in Certain Conditions
● Applicable

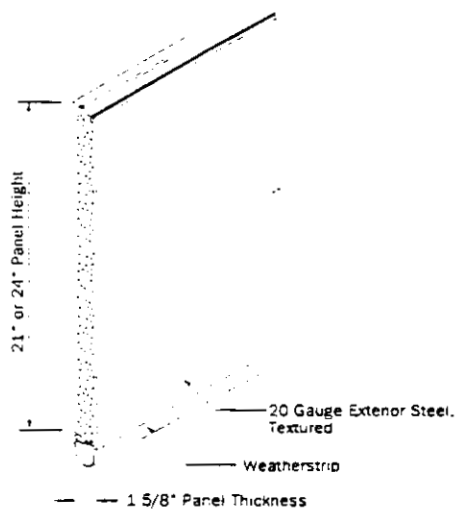
595 Series
Thermacore® Insulated Steel Doors

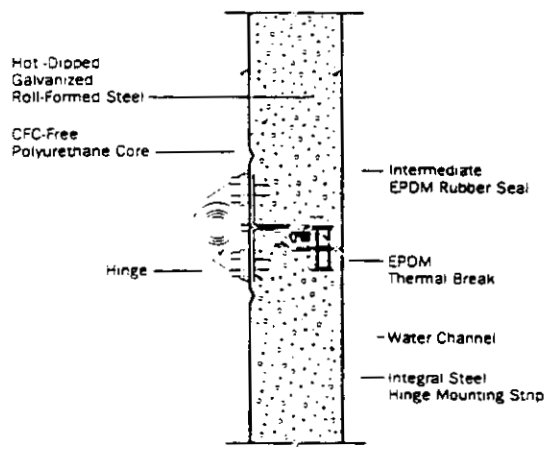
Interior Elevation

For clearance details on electrically operated doors, see Motor Operator detail pages at back of this section.



Panel Detail

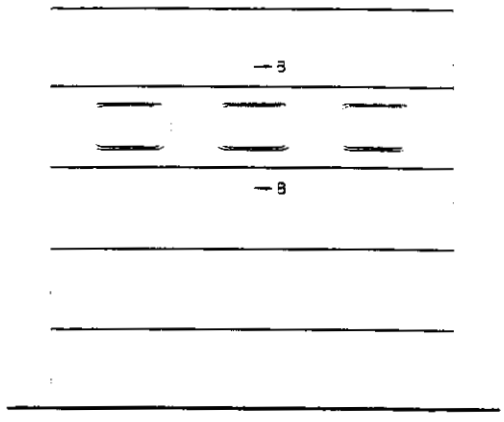


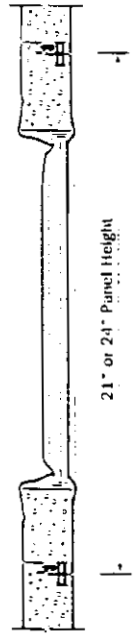


Section A-A

Insulated Thermal Acrylic Window Lite
24" x 11"

Exterior Elevation

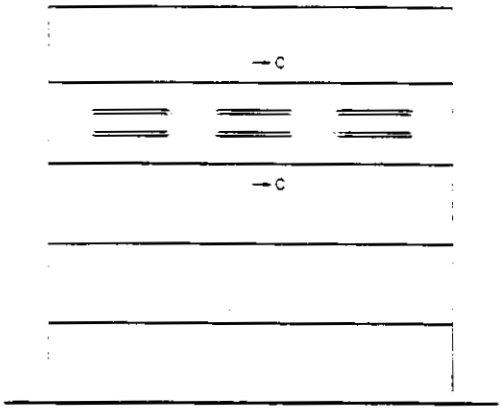


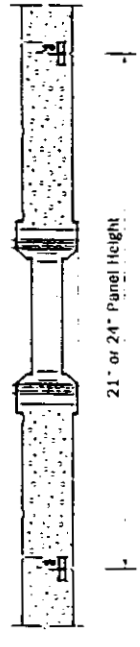


Section B-B

Insulated 1/8" DSB Window Lite
24" x 7"

Exterior Elevation



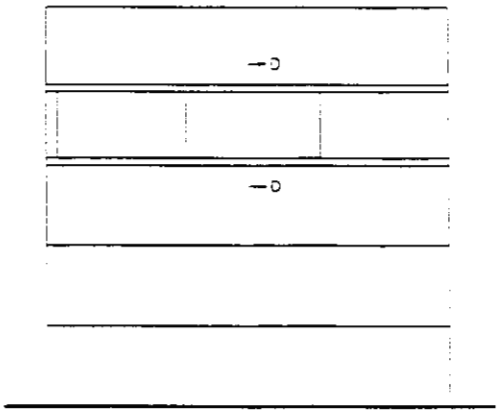


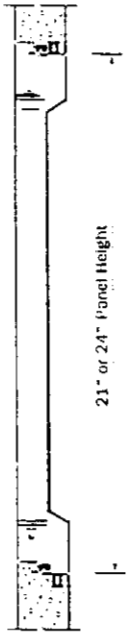
Section C-C

595 Series
Glazing Options

Aluminum Full View Glazing Section

Exterior Elevation





Section D-D

ALASKA WINDOW

The Frame of the Future Is Made in Alaska

ALASKA WINDOW COMPANY is pleased to announce that we are now manufacturing the exciting PRIMO PVC window and patio door systems that have become the *preferred* window products throughout Europe.

Check out these *important* features:

1. The PVC framing sytem is over 1300 times more energy efficient than aluminum systems.

2. This system allows the use of a variety of insulated glass units from 3/4" to 1 3/8" with dead air spaces that range from 3/8" to 3/4" used in conjunction with double and triple pane units.

3. The availability of *Double Sided HEAT MIRROR 88 and KRYPTON Gas* can produce overall "R" values to 5.56.

4. Double weather seal on all units.

5. Unique Tilt and Turn hardware.

6. Clean and re-glaze from inside the building.

7. Custom sizes and styles at *stock prices.*

8. Thoroughly tested and proven under the harshest climatic conditions.

You now have all the advantages of a system that is secure, tested and proven to be energy efficient, with maintenance a breeze. All of our production equipment is of the latest technology so design requirements can be accurately met.

Whether your project is new construction, or remodeling an existing structure, we can produce the units that meet your needs and specifications.

(AW#1)

4141 INGRA, #A □ ANCHORAGE, ALASKA 99503 □ (907) 563-4141 □ FAX: (907) 563-0941 □ 1-800-478-4141

ALASKA WINDOW manufactures a Scandinavian designed PVC window system which has excellent cold weather characteristics. These units are extremely well suited for cold and rough use applications. The window has a 1 3/8 inch glazing pocket which allows the use of triple pane glass with 1/2 inch air spaces between the panes or "HEAT MIRROR" with two 9/16 air spaces. They will not freeze shut under any condition, which makes them the most desirable **EGRESS** window available.

Two separate EPDM weatherstrips are used in the operating windows which significantly reduces air infiltration. This weatherstripping will not become brittle at temperatures of -70 degrees F.

Maintenance is very low for the following reasons:

1. The sash is fully adjustable. It can be adjusted vertically as well as horizontally at the top and the bottom. The sash also is adjustable for vertical movement. The compression on the weather seals can be increased or decreased.

2. New weather seals can be installed by the homeowner, inexpensively and without the use of tools.

3. In the event of broken glass, a new insulated unit can be installed by the homeowner without the use of special tools or special skills. (The type of glass and the size can be found under the left glazing bead.)

4. Retrofitting and new construction are made easier because windows are available in any size and *almost* any shape. Complete and simple installation instructions accompany each window.

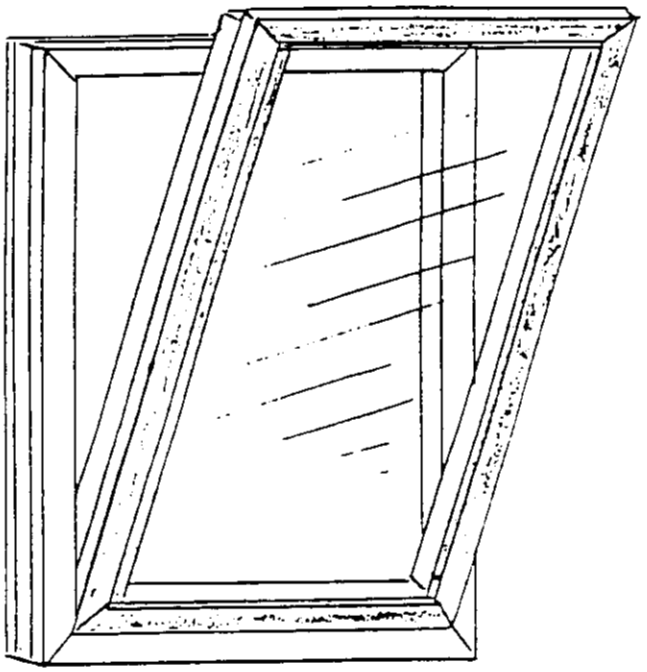
5. The windows will last as long as the building they are installed in and there is no painting or preservation of any kind required.

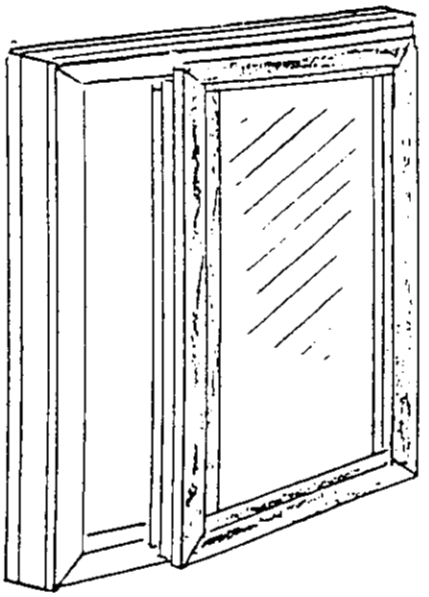
The **ALASKA WINDOW COMPANY** is located at Mile 353.6 on the George Parks Highway, between Fairbanks and Ester. To arrange a tour of the factory please call Monday through Friday, 8:00 AM to 5:00 PM

ALASKA WINDOW Co. is a privately financed Alaskan owned and operated business.

(AW#2)

PRIMO SERIES 400





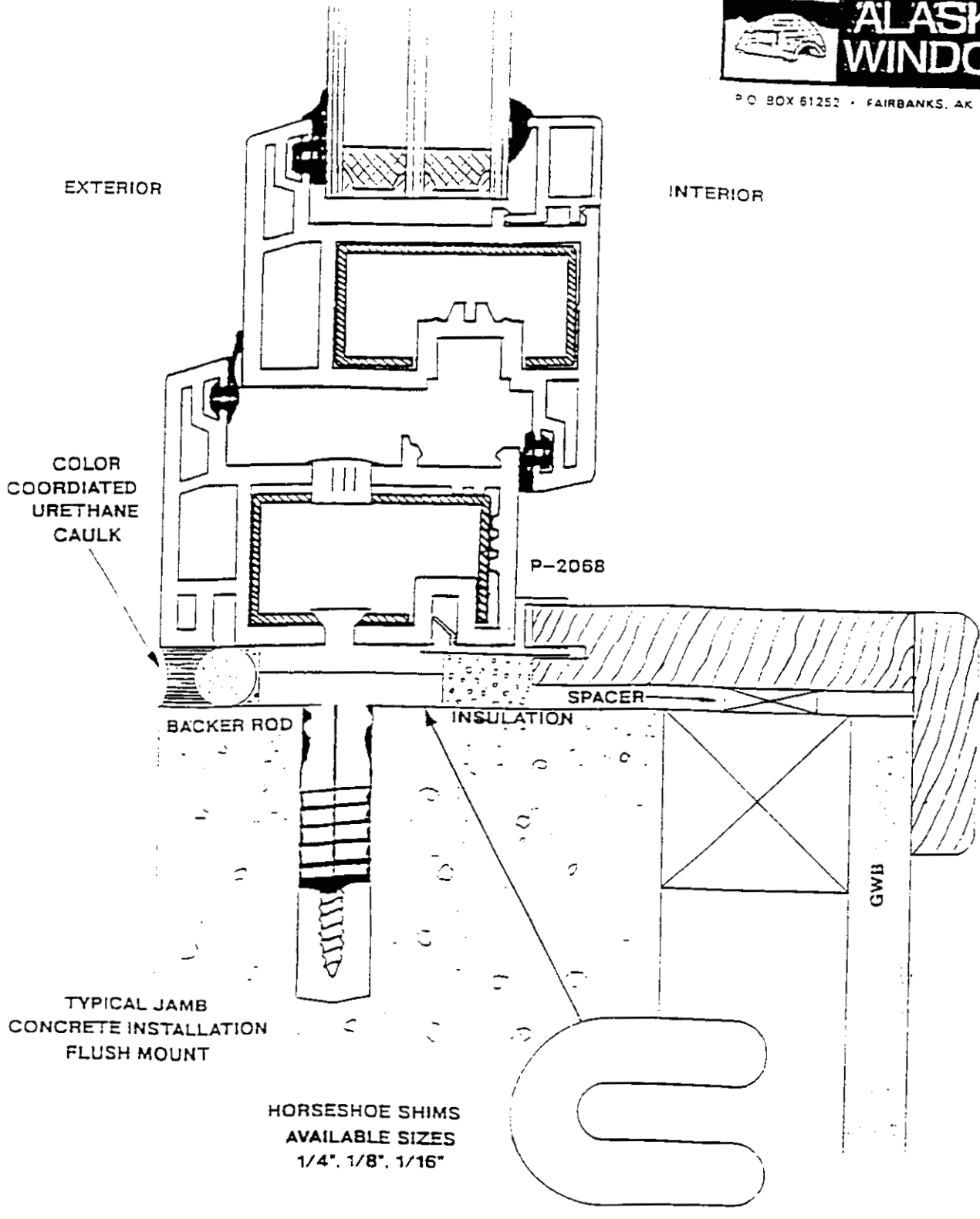
TILT and TURN (T / T)

Minimum Size: 20" x 20"

Maximum Size: 48" wide

This unit should not be
manufactured more than
1.25 times wider than it is tall

ALASK
WINDO
P O BOX 61252 • FAIRBANKS, AK 9

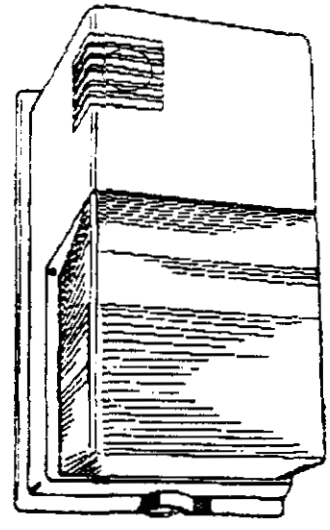


GE Lighting Systems

WALLIGHTER 70 LUMINAIRE

APPLICATIONS

Office and shopping complexes, schools, malls, parking garages, motels, condominiums and residences. Small, aesthetically attractive luminaire with the power saving advantage of high pressure sodium (HPS) lighting



SPECIFICATION FEATURES

- UL1572 Listed SUITABLE FOR WET LOCATIONS
- CSA Certified
- Standard construction is IP55
- Die-cast aluminum mounting base with dark bronze paint finish
- Compact one-piece polycarbonate front housing
- Versatile mounting provisions allow for mounting to standard 3-in. or 4-in. (76mm or 102mm) outlet boxes, 1/2-in. (13mm) conduit, or directly onto any flat surface
- Easy access to optical and electrical compartments affords quick installation and maintenance
- Knockout for field installation of PE control
- Standard and tamper resistant hardware included
- Medium base socket with coated lamp
- NPF reactor ballast

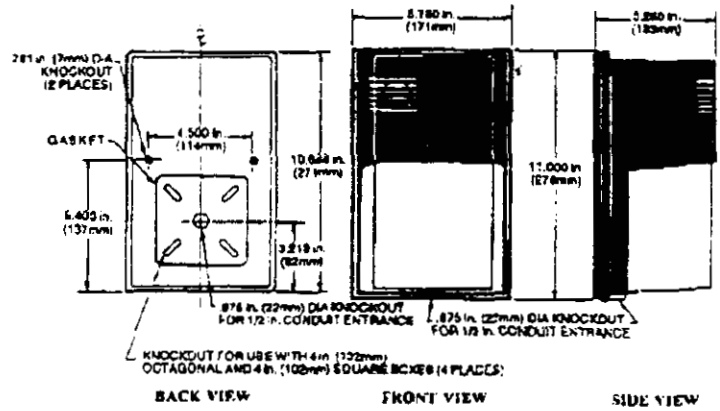
ORDERING NUMBER LOGIC

SP LISTED

WL 03 S 1 PE

PRODUCT ID. XX	WATTAGE XX	LIGHT SOURCE X	VOLTAGE X	BALLAST TYPE XX
WL = Wallighter 70 Luminaire	03 = 35 05 = 50 07 = 70	S = HPS Standard: Lamp included	1 = 120	PE = PE if required

DIMENSIONS



BALLAST AND PHOTOMETRIC SELECTION TABLE

Voltage	Light Source	Ballast Type 120 Volt	IES Distribution Type	Photometric Curve Number 35-17 - - - -
35, 50, 70	HPS (Coated)	NPF Reactor	Long Non-Cutoff Type IV	7604

DATA

Approximate Net Weight	6 lbs (3 kgs)
Suggested Mounting Height	5-12 ft (2-4M)

REFERENCES

See Page 5980 for Explanation of Options and Other Terms Used

SP VL The catalog numbers, options and modifications on this page are UL Listed unless otherwise noted.

Data subject to change without notice

GE Lighting Systems

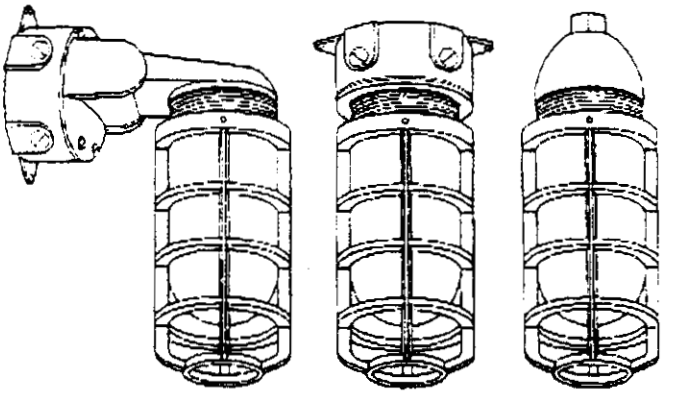
H7 ENCLOSED AND GASKETED LUMINAIRE

APPLICATIONS

Indoor or outdoor non-hazardous locations where lamp protection from rain and the elements is needed

SPECIFICATION FEATURES

- UL Listed SUITABLE FOR WET LOCATIONS
- Standard construction is IP55
- Low copper aluminum alloy housing with gray paint finish
- Incandescent model up to 150 watts (A-21)
- Fluorescent model uses 13 watt biaxial lamp
- Luminaires are single packed and shipped in one carton



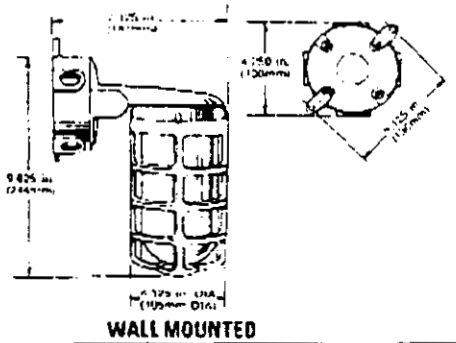
Wall Bracket Mounted | Ceiling Mounted | Pendant Mounted

ORDERING NUMBER LOGIC

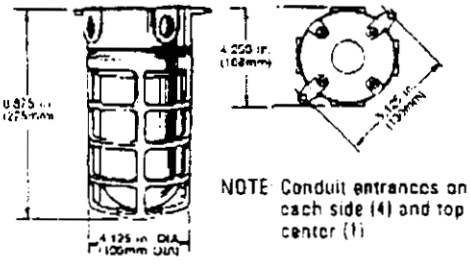
LISTED

H7	1	13B	3C	DD
PRODUCT I.D. XX	VOLTAGE X	LAMP TYPE XXX	MOUNTING XX	OPTIONS XX
H7 = An Enclosed and Gasketed Luminaire	1 = 120 X = 250 volt maximum	13B = 13 watt Biaxial Fluorescent 120 volt (Standard: Lamp included) 15F = 150 watt Medium Base Incandescent A-21 Bulb 250 volt max (Standard: Lamp not included)	3C = 3/4-in. Ceiling 3P = 3/4-in. Pendant 3W = 3/4-in. Wall	DD = Clear Globe with Guard

DIMENSIONS

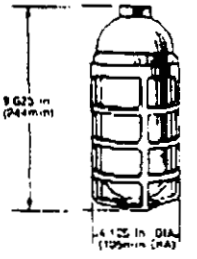


WALL MOUNTED



NOTE: Conduit entrances on each side (4) and top center (1)

CEILING MOUNTED



PENDANT MOUNTED

DATA

NOTE: Operating amperes is 0.3 for 13 watt fluorescent

Approximate Net Weight:		
Pendant with Guard	2.75 lbs	(1.25 kgs)
Ceiling with Guard	2.75 lbs	(1.25 kgs)
Wall Bracket with Guard	3.30 lbs	(1.50 kgs)

The catalog numbers listed on this page are UL Listed unless otherwise noted.

REFERENCES

See Page 2900 for start of Accessories

APPENDIX E

Valdez EVOS Station Preliminary Design
March 7, 1997

Valdez EVOS Station
Preliminary Design

Prepared for
Prince William Sound Economic Development Council

March 7, 1997

Stephl Engineers
2525 Blueberry, Suite 203
Anchorage, Alaska 99503
(907) 274-7170

In association with
USKH

CONTENTS

Section 1
Purpose of Preliminary Design Memorandum

The purpose of this submittal is to present the proposed preliminary design of the Environmental Operation Stations (EVOS Stations) project. This memorandum will be reviewed and evaluated by members of the Sound Waste Management Plan (SWMP) Committee.

A SWMP Committee meeting was held on January 28, 1997, in Anchorage, to discuss the conceptual design, make changes, and answer questions about the proposed projects.

A second SWMP Committee meeting will be held during March. The purpose of this meeting is to receive input from the stakeholders before proceeding with the final design and construction of the facilities.

This project is being designed by Stephl Engineers in association with USKH. Stephl Engineers is under contract to the Prince William Sound Economic Development Council, Inc. (PWSEDC), the organization managing the project. The Alaska Department of Environmental Conservation (ADEC) is the lead state agency administering the project.

Section 2
Project Description

The EVOS Station design has been modified, based on what we learned during the conceptual design, and from input received during the first Sound Waste Management Plan (SWMP) meeting held in January. The purpose of the modifications is to better meet the goals of the community as well as maintaining the project within the available funding limit.

The project will still accomplish the overall goal of preventing marine pollution that is generated from the five Prince William Sound communities.

The purpose of the EVOS Station in Valdez is to handle used oil, provide storage for household hazardous waste (HHW) and provide storage for recycled materials.

The City's first priority is to have the new EVOS Station building constructed. A preliminary design of the building is attached to this memorandum. The 1200-square foot building will contain used oil processing equipment in one 800-square foot room and contain oil collection, household hazardous waste storage and recycling storage bins in a second 400 square foot room. A door will be provided in the wall between the two rooms. The larger room will be enclosed and heated with a used oil furnace. The furnace will include an oil filtration system and a ducting system that can be adjusted to temper incoming air as well as discharging extra heated air.

The larger room will have a curb around its base that will create a containment sump with the capacity to contain a spill that is 110% of the volume of the 1000 gallon oil storage tank. The smaller room will have a sump also. A mechanical ventilation system and electrical system will be provided. Hose bibs will be provided inside the building for washing. City electricity will power the building systems and equipment placed in the building.

A site has not been selected for the EVOS Station in Valdez. Water and sewer service to the building will be designed after the site is selected. The location of the building also has a bearing on how bilge water is collected and processed.

The building will be bid as a stand-alone project. The construction contractor will be selected based on the lowest bid price.

The City's second priority is to install oil collection and oil processing equipment in the new building. To meet this need, a 1000 gallon oil storage tank, oil/water separator, 500 gallon buffer tank, mobile oil pump and miscellaneous containers and equipment will be purchased. This equipment will be purchased directly from equipment suppliers by the PWSEDC. It will be installed by City crews or the building contractor.

The City's third highest priority is to pump and handle oily bilge water. This equipment includes a pump, tank, and miscellaneous piping and controls. This equipment will be purchased directly from equipment suppliers by PWSEDC. If there are sufficient funds remaining, an oil filter crusher and oily material burner may be purchased.

Section 3
Equipment

Equipment will be purchased by PWSEDC after contractor bids are received for the EVOS Station building and the amount of remaining funds are better known. The equipment requested by Valdez is listed below in order of priority.

Priority	Item
1	1000 gallon oil storage tank
2	oily water separator
3	500 gallon oily water buffer tank
4	miscellaneous collection containers
5	O&M manual and training
6	bilge water pump and tank
7	oil filter crusher
8	oily material burner

A brief description of the equipment is provided below. Manufacturer's cut sheets are provided at the end of this memorandum.

The 1000 gallon oil storage tank will be a single containment circular steel tank mounted on skids. It will include a manhole and appropriate fittings and valves.

The oily water separator will be a Highland or similar type coalescing plate unit capable of treating liquid at a 10 gpm flow rate. The separator will be designed to discharge water treated to less than 10 ppm free oil and grease. It will be mounted on a stand and will be covered. A sample port will be installed in the discharge line. Clean liquid from the separator will be discharged directly into a sewer line stub located in the floor of the new building.

A 500 gallon oily water buffer tank will be installed upstream of the oily water separator. The purpose of the tank is to provide storage for oily water received from the bilge water collection system and to provide detention of the oily water to allow better separation of the oil in the water. The 500 gallon tank will be a single wall steel tank mounted on an elevated stand to allow gravity flow of water into the oily water separator. The 500 gallon tank will include a manhole, sight gauges and fittings and valves. A flexible hose will be installed between the tank and the separator to convey the contaminated water.

Miscellaneous collection containers will be used for daily collection of used oil, oil filters, anti-freeze, oily solid waste, HHW and recyclable materials. These will be off-the-shelf premanufactured containers.

O&M manual and training will include development of an O&M manual for equipment in the building and recommendations for handling and disposal of collected materials. Manufacturers equipment operation manuals will be included in the O&M manual. The extent of training has not been determined. One recommendation was to gather all the operators together and have a materials disposal specialist provide a training seminar.

The bilge water pump and tank will be a skid mounted unit containing a 400 gallon steel tank and electric pump with a suction hose. This piece of equipment will be fabricated specifically for this purpose. Operation of the unit will be accomplished by placing the suction line into the bilge and manually turning on the suction pump. The user or operator will watch the level of liquid in the adjacent steel tank and turn off the pump when pumping is complete or when the skid mounted tank is full. The tank will have a level gauge or sight glasses installed to determine the liquid level. Permanent piping and valves installed between the tank and pump will allow the user to both fill and empty the tank with the pump as needed. The pump will be provided with an explosion-proof electric motor to reduce the chance of fire if flammable or explosive products are pumped by accident. A diaphragm type pump is recommended. A typical 2-inch diameter pump is capable of pumping up to a 25 foot suction lift at 20 gpm or 33 gpm at a 15 foot lift. Water collected in the bilge tank will be transferred via tank truck to the EVOS Station for processing. If the building is located near the harbor, direct pumping from the 400 gallon dock mounted bilge tank to the 500 gallon tank in the building may be accomplished.

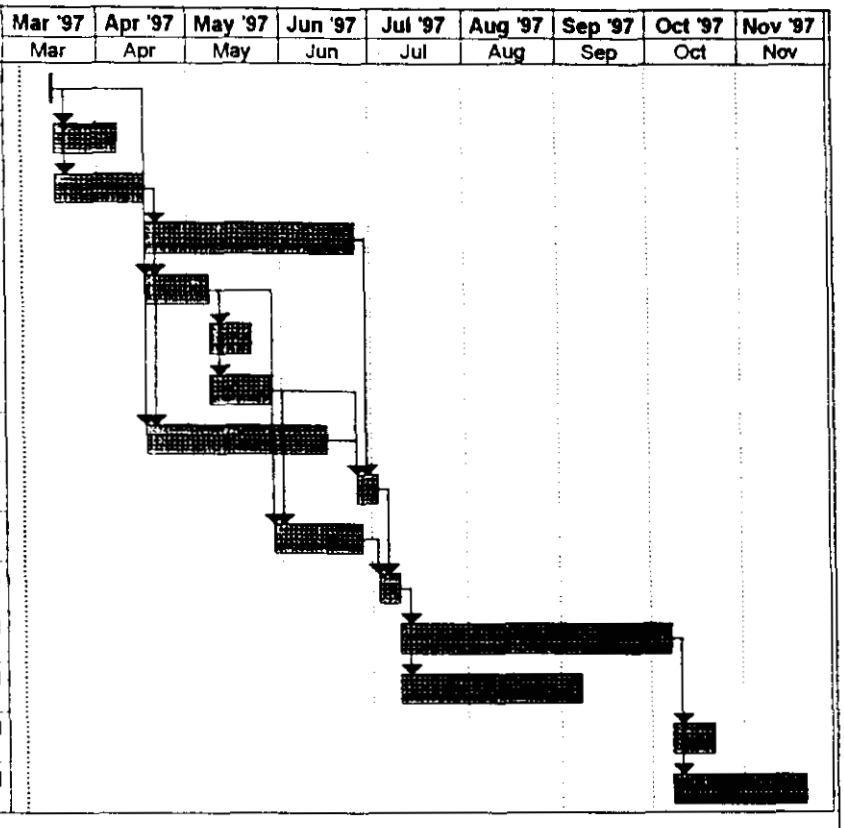
The oil filter crusher will be a Oberg model P300 electric/hydraulic unit capable of crushing up to 20 inch-tall filters.

The oily material burner will be a SmartAsh model that is power by two 120V blowers. This unit fits on a 55gallon drum.

Section 4
Project Schedule

The proposed schedule for this project is shown on the following bar chart.

ID	Task Name	Duration
1	Second SWMP Meeting	1d
2	ADEC Preliminary Review	21d
3	Site selection (assume 30 days)	30d
4	NEPA Environmental Assessmnt	70d
5	Final design	21d
6	City Building Dept Review	14d
7	ADEC, Fire Marshal Review	21d
8	Community Approval/Agreement	60d
9	ADEC Approval of Phase II	7d
10	Bid Advertise	30d
11	Bid Award	7d
12	Building Const.	90d
13	Equipment Purchase	60d
14	Equipment Install	14d
15	O&M Manuals and Training	45d



Project: Valdez EVOS Station
Date: Fri 3/7/97

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

Section 5
Project Costs

There is $275,500 in funding available from the project to construct the building, purchase equipment and complete the O&M manual and training. A more detailed cost estimate of the EVOS Station building will be completed during the week of March 10.

Valdez EVOS Station Cost Estimate				
3/8/97 15:58				
				Extended
Description	Unit	Quantity	Unit Price	Total
Base Bid				
Mobilization/demobilization	LS	1	$20,000	$20,000
Site work	LS	1	$4,000	$4,000
Water/sewer utilities	LS	1	$2,600	$2,600
Building	SF	1200	$135	$162,000
Electrical service	LS	1	$1,000	$1,000
175,000 BTU heater	EA	1	$7,000	$7,000
Oil filtration system	EA	1	$500	$500
Contingency (20%)				$39,320
Subtotal				$236,420
Option 1 Oil Collection and Handling				
1000 gallon storage tank	EA	1	$1,500	$1,500
Oily water separator, 10 gpm	EA	1	$8,000	$8,000
500 gallon oily water buffer tank	EA	1	$1,000	$1,000
Misc. containers and equipment	LS	1	$2,000	$2,000
O&M manual and training	LS	1	$5,000	$5,000
Contingency (20%)				$3,500
Subtotal				$21,000
Option 2 Bilge Water Handling Equipment				
Bilge water pump and 400 gallon tank	EA	1	$10,000	$10,000
Contingency (20%)				$2,000
Subtotal				$12,000
Option 3 Equipment				
Oil filter crusher	EA	1	$6,500	$6,500
Oily material burner	EA	1	$4,000	$4,000
Subtotal				$10,500
TOTAL COST				$279,920

Section 6
Building Code Review and Issues

A building code review has been completed to determine the EVOS Stations building classification, safety requirements, ventilation requirements, fire detection and prevention requirements, access requirements, interior finish requirements, separation to adjacent structures, electrical equipment requirements, fire suppression needs, and any other special needs. This code review is based on the 1994 Uniform Building Code (UBC). The results of the review are presented in this section.

THERE ARE RESTRICTIONS ON CERTAIN TYPES OF WASTE HANDLING ACTIVITIES THAT CAN OCCUR IN THIS BUILDING.

The building has been designed to meet an F and S occupancy. The building has not been designed to meet the more costly Class I Division II requirements. To conform to the F and S occupancy, the user must be aware of the following limitations:

- Explosive materials [I A(gas) III.B(oil)] such as gasoline and paint thinners will be limited to a combined volume of 30 gallons to be approved for storage in the building.
- Quantities of materials shall <u>not</u> be in excess of those listed in U.B.C. Table 3-D and Table 3-E (see attached tables).
- Storage and use of flammable ad combustible liquids shall be in accordance with the 1994 Uniform Fire Code.

The following paragraphs contain a description of the various codes and rules that apply to the construction and operation of the EVOS Stations.

Occupancy classification: Table 3-A

F1 Refuse incineration Sec. 306
Quantity of used oil (III-B) is less than quantity allowed in Table 3-D (13,200 Gallons), therefore occupancy is not a H2 (hazardous) occupancy.

S1 Storage - combustible materials

Table 3-B Required Separation in Buildings of Mixed Occupancy (Hours)

F1 to S1 = N (no requirements for fire resistance)

Type of Construction: II-N Metal

Location on property: Table 5-A
F1 and S1; II N

Exterior walls, bearing = 1 hr < 20 ft.

TABLE 3-D—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS PRESENTING A PHYSICAL HAZARD
MAXIMUM QUANTITIES PER CONTROL AREA[1]

When two units are given, values within parentheses are in cubic feet (cu. ft.) or pounds (lbs.)

CONDITION		STORAGE[2]			USE[2]—CLOSED SYSTEMS			USE[2]—OPEN SYSTEMS	
Material	Class	Solid Lbs.[3] (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons[3] (Lbs.) × 3.785 for L × 0.4536 for kg	Gas Cu. Ft. × 0.0283 for m³	Solid Lbs. (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons (Lbs.) × 3.785 for L × 0.4536 for kg	Gas Cu. Ft. × 0.0283 for m³	Solid Lbs. (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons (Lbs.) × 3.785 for L × 0.4536 for kg
1.1 Combustible liquid[4,5,6,7,8,9]	II	N.A.	120[10]	N.A.	N.A.	120	N.A.	N.A.	30
	III-A	N.A.	330[10]	N.A.	N.A.	330	N.A.	N.A.	80
	III-B	N.A.	13,200[10,11]	N.A.	N.A.	13,200[11]	N.A.	N.A.	3,300[11]
1.2 Combustible fiber (loose) (baled)		100) 1,000)	N.A. N.A.	N.A. N.A.	(100) (1,000)	N.A. N.A.	N.A. N.A.	(20) (200)	N.A. N.A.
1.3 Cryogenic, flammable or oxidizing		N.A.	45	N.A.	N.A.	45	N.A.	N.A.	10
2.1 Explosives[12]		[13]	(1)[10,13]	N.A.	1/4	(1/4)	N.A.	1/4	(1/4)
3.1 Flammable solid		25[6,10]	N.A.	N.A.	[14]	N.A.	N.A.	[14]	N.A.
3.2 Flammable gas (gaseous) (liquefied)		N.A. N.A.	N.A. 15[6,10]	750[6,10] N.A.	N.A. N.A.	N.A. 15[6,10]	750[6,10] N.A.	N.A. N.A.	N.A. N.A.
3.3 Flammable liquid[4,5,6,7,8,9]	I-A	N.A.	30[10]	N.A.	N.A.	30	N.A.	N.A.	10
	I-B	N.A.	60[10]	N.A.	N.A.	60	N.A.	N.A.	15
	I-C	N.A.	90[10]	N.A.	N.A.	90	N.A.	N.A.	20
	Combination I-A, I-B, I-C[15]	N.A.	120[10]	N.A.	N.A.	120	N.A.	N.A.	30
4.1 Organic peroxide, unclassified detonatable		[10,12]	(1)[10,12]	N.A.	1/4[12]	(1/4)[12]	N.A.	1/4[12]	(1/4)[12]
4.2 Organic peroxide	I	5[6,10]	(5)[6,10]	N.A.	1[6]	(1)[6]	N.A.	1[6]	(1)[6]
	II	50[6,10]	(50)[6,10]	N.A.	50[6]	(50)[6]	N.A.	10[6]	(10)[6]
	III	125[6,10]	(125)[6,10]	N.A.	125[6]	(125)[6]	N.A.	25[6]	(25)[6]
	IV	500[6,10]	(500)[6,10]	N.A.	500[6]	(500)[6]	N.A.	100[6]	(100)[6]
	V	N.L.	N.L.	N.A.	N.L.	N.L.	N.A.	N.L.	N.L.
4.3 Oxidizer	4	1[10,12]	(1)[10,12]	N.A.	1/4[12]	(1/4)[12]	N.A.	1/4[12]	(1/4)[12]
	3[16]	10[6,10]	(10)[6,10]	N.A.	2[6]	(2)[6]	N.A.	2[6]	(2)[6]
	2	250[6,10]	(250)[6,10]	N.A.	250[6]	(250)[6]	N.A.	50[6]	(50)[6]
	1	4,000[6,10]	(4,000)[6,10]	N.A.	4,000[6]	(4,000)[6]	N.A.	1,000[6]	(1,000)[6]
4.4 Oxidizer—gas (gaseous)[6,10] (liquefied)[6,10]		N.A. N.A.	N.A. 15	1,500 N.A.	N.A. N.A.	N.A. 15	1,500 N.A.	N.A. N.A.	N.A. N.A.
5.1 Pyrophoric		1[10,12]	(1)[10,12]	50[10,12]	1[12]	(1)[12]	10[10,12]	0	0
6.1 Unstable (reactive)	4	1[10,12]	(1)[10,12]	10[10,12]	1/4[12]	(1/4)[12]	2[10,12]	1/4[12]	(1/4)[12]
	3	5[6,10]	(5)[6,10]	50[6,10]	1[6]	(1)[6]	10[6,10]	1[6]	(1)[6]
	2	50[6,10]	(50)[6,10]	250[6,10]	50[6]	(50)[6]	250[6,10]	10[6]	(10)[6]
	1	N.L.	N.L.	750[6,10]	N.L.	N.L.	N.L.	N.L.	N.L.
7.1 Water reactive	3	5[6,10]	(5)[6,10]	N.A.	5[6]	(5)[6]	N.A.	1[6]	(1)[6]
	2	50[6,10]	(50)[6,10]	N.A.	50[6]	(50)[6]	N.A.	10[6]	(10)[6]
	1	125[10,11]	(125)[10,11]	N.A.	125[11]	(125)[11]	N.A.	25[11]	(25)[11]

N.A.—Not applicable. N.L.—Not limited.

[1]Control areas shall be separated from each other by not less than a one-hour fire-resistive occupancy separation. The number of control areas within a building used for retail or wholesale sales shall not exceed two. The number of control areas in buildings with other uses shall not exceed four. See Section 204.

[2]The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

[3]The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials within a single control area of Group M Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

[4]The quantities of alcoholic beverages in retail sales uses are unlimited provided the liquids are packaged in individual containers not exceeding four liters. The quantities of medicines, foodstuffs and cosmetics containing not more than 50 percent of volume of water-miscible liquids and with the remainder of the solutions not being flammable in retail sales or storage occupancies are unlimited when packaged in individual containers not exceeding four liters.

[5]For aerosols, see the Fire Code.

[6]Quantities may be increased 100 percent in sprinklered buildings. When Footnote 10 also applies, the increase for both footnotes may be applied.

[7]For storage and use of flammable and combustible liquids in Groups A, B, E, F, H, I, M, R, S and U Occupancies, see Sections 303.8, 304.8, 305.8, 306.8, 307.1.3 through 307.1.5, 308.8, 309.8, 310.12, 311.8 and 312.4.

[8]For wholesale and retail sales use, also see the Fire Code.

[9]Spray application of any quantity of flammable or combustible liquids shall be conducted as set forth in the Fire Code.

[10]Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the Fire Code. When Footnote 6 also applies, the increase for both footnotes may be applied.

[11]The quantities permitted in a sprinklered building are not limited.

[12]Permitted in sprinklered buildings only. None is allowed in unsprinklered buildings.

[13]One pound of black sporting powder and 20 pounds (9 kg) of smokeless powder are permitted in sprinklered or unsprinklered buildings.

[14]See definitions of Divisions 2 and 3 in Section 307.1.

[15]Containing not more than the exempt amounts of Class I-A, Class I-B or Class I-C flammable liquids.

[16]A maximum quantity of 200 pounds (90.7 kg) of solid or 20 gallons (75.7 L) of liquid Class 3 oxidizers may be permitted in Groups L, R and U Occupancies when such materials are necessary for maintenance purposes or operation of equipment as set forth in the Fire Code.

TABLE 3-E—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS PRESENTING A HEALTH HAZARD MAXIMUM QUANTITIES PER CONTROL AREA[1,2]

When two units are given, values within parentheses are in pounds (lbs.)

MATERIAL	STORAGE[3]			USE[3]—CLOSED SYSTEMS			USE[3]—OPEN SYSTEMS	
	Solid Lbs.[4,5,6]	Liquid Gallons[4,5,6] (Lbs.)	Gas Cu. Ft.[5]	Solid Lbs.[4,5]	Liquid Gallons[4,5] (Lbs.)	Gas Cu. Ft.[5]	Solid Lbs.[4,5]	Liquid Gallons[4,5] (Lbs.)
	× 0.4536 for kg	× 3.785 for L × 0.4536 for kg	× 0.028 for m^3	× 0.4536 for kg	× 3.785 for L × 0.4536 for kg	× 0.028 for m^3	× 0.4536 for kg	× 3.785 for L × 0.4536 for kg
1. Corrosives	5,000	500	810^6	5,000	500	810^6	1,000	100
2. Highly toxics[7]	1	(1)	20^8	1	(1)	20^8	1/4	(1/4)
3. Irritants[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
4. *Sensitizers*[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
5. Other health hazards[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
6. Toxics[7]	500	(500)	810^6	500	(500)	810^8	125	(125)

[1]Control areas shall be separated from each other by not less than a one-hour fire-resistive occupancy separation. The number of control areas within a building used for retail or wholesale sales shall not exceed two. The number of control areas in buildings with other uses shall not exceed four. See Section 204.

[2]The quantities of medicines, foodstuffs and cosmetics, containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, in retail sales uses are unlimited when packaged in individual containers not exceeding 4 liters.

[3]The aggregate quantity in use and storage *shall not exceed the quantity* listed for storage.

[4]The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid health hazard materials within a single control area of Group M Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

[5]Quantities may be increased 100 percent in sprinklered buildings. When Footnote 6 also applies, the increase for both footnotes may be applied.

[6]Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the Fire Code. When Footnote 5 also applies, the increase for both footnotes may be applied.

[7]For special provisions, see the Fire Code.

[8]Permitted only when stored in approved exhausted gas cabinets, exhausted enclosures or fume hoods.

[9]Irritants, sensitizers and other health hazards do not include commonly used building materials and consumer products which are not otherwise regulated by this code.

Exterior walls, nonbearing = 1 hr < 20 ft.

Openings: Not permitted < 5 ft.
Protected < 10 ft.

Allowable Floor Areas: Table 5-B

F-1, S-1, II-N = 12,000 square feet.

Actual Floor Area: 1200 square feet.

The actual area is less than the allowable area and therefore the building complies.
Area increases are not required and neither are area separation walls.

Allowable Height and number of stories: Table 5-B

F-1, S-1 II N Max height = 2 stories 55 ft.

The building complies.

Review the building for conformity with the occupancy requirements.

302.5 Heating Equipment Room Occupancy Separation. In Groups A; B; E; F; I; M; R, Division 1; and S Occupancies, rooms containing a boiler, central heating plant or hot-water supply boiler shall be separated from the rest of the building by not less than a one-hour occupancy separation.

EXCEPTIONS: In Groups A, B, F, I, M and S Occupancies, boilers, central heating plants or hot water supply boilers where the largest piece of fuel equipment does not exceed 400,000 Btu per hour (117.2kW) input.

NOTE: Heating equipment is less than 400,000 BTU per hour, therefore separation is not required.

Section 306, F occupancies (F1). #35 Refuse Incineration

306.5 Light, Ventilation and Sanitation. In Group F Occupancies, light, ventilation and sanitation shall be as specified in Chapter 12 and 29. At least 6 continuous air changes per hour will be required.

306.8 Special Hazards. For special hazards of Group F Occupancies, see Section 304.8

304.8 Special Hazards. Chimneys and heating apparatus shall conform to the requirements of Chapter 31 of this code and the Mechanical Code.

Storage and use of flammable and combustible liquids shall be in accordance with the Fire Code.

Devices generating aglow, spark or flame capable of igniting flammable vapors shall be installed such that sources of ignition are at least 18 inches (457 mm) above the floor of any room in which Class I flammable liquids or flammable gases are used or stored.

Section 311 - Group S Occupancies (S1)

311.5 Light, Ventilation and Sanitation. In Group S Occupancies, light, ventilation and sanitation shall be as contained in Chapters 12 and 29.

311.8 Special Hazards. For special hazards of Group S Occupancies, see Section 304.8 Storage and use of flammable and combustible liquids shall be in accordance with the Fire Code.

Section 7
Permits Required Prior to Beginning Construction

Approval is needed from a number of different local, state and federal agencies before construction can begin on the new building.

Local Permits

A City of Valdez building permit will be required. Final plans of the Valdez EVOS building will be submitted to the City's building department for review. It is assumed that the City will not charge a review fee for this project.

State Permits

A Coastal Questionnaire will be filled out and submitted to the Department of Governmental Coordination (DGC).

An approval of the plans will be required from the ADEC. The preliminary design will be submitted to the Valdez office of ADEC for review and a follow up meeting will be held with the Department representative to discuss any critical issues identified in the preliminary design. After the plans are revised, the final design will be submitted to the agency along with a request for an "approval to construct" the facilities. At completion of the construction, asbuilts and other necessary forms will be submitted to ADEC and a request for an "approval to operate" the facilities will be requested.

Final plans and specifications of the EVOS Station will be submitted to the State of Alaska Fire Marshall's office for review and approval.

Federal Permits

To meet the requirements for EVOS funded projects, a document will be prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project.

An Environmental Assessment (EA) will be completed and published for comment by the public for 30 days. Comments received will be incorporated into the final EA. Assuming there are no significant impacts identified, it is anticipated the USFS will approve the EA.

Section 8
Community Authorization and Acceptance of Project

Before construction of the EVOS Stations can proceed, Valdez will be required to authorize and accept responsibility for operation of the proposed facilities. Phase II construction will be approved by EVOS and ADEC, after the appropriate legally binding notarized Letter of Agreement with Valdez is received. This agreement must be signed by an executive officer of the community who is legally entitled to obligate the community and the Executive Director of the PWSEDC. The letter of agreement must contain, but is not limited to, agreement that:

A.) The community will obtain all titles, easements, and permits necessary to provide clear title and authority to construct and maintain the proposed project.
B.) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management, and maintenance of the EVOS facility after construction has been completed. Accidental discharge of waste products from the facilities, after final transfer to the community had been affected, is the sole responsibility of the community where the accident occurs. In the event of an accident, PWSEDC, its agents, subcontractors, and consultants will be held harmless for resultant damages.
C.) The PWSEDC and its subcontractors may enter upon the community's property and construct the project.
D.) The location, construction, and management of these buildings will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream, or body of water.
E.) The PWSEDC and the community will hold harmless, the ADEC and the EVOS Trustee Council, its officers, agents, and employees from liability of any kind, including costs and expenses, for or on account of any and all suits or damages of any nature, sustained by any person, persons or property, by virtue of performance of the PWSEDC or community acting in place of or for PWSEDC for this project.

Section 9
Questions

Your community's assistance with the following questions is requested.

1. Identify a site for the EVOS building. This will allow us to move forward with completion of the EA and completion of the final design.
2. After a site is selected, please provide information concerning the site legal description and adjacent City utilities.
3. Please provide any available soils information about the selected site.

Section 10
Equipment Cut Sheets

The following pages contain manufacturer's catalog cuts of equipment for the EVOS Station.

Oil/Water Separators and Interceptors

Working Together for a Cleaner Environment.

Highland Tank

The Highland Advantage

Highland's Oil/Water Separators provide unparalleled performance, greater structural strength, superior product compatibility, and unsurpassed corrosion resistance. Highland patented oil/water separators have a proven record of reliability with thousands of high-performance separators in commercial operation around the world.

Highland engineers have designed a functional means of primary oil/water separation that not only assists in meeting federal, state and local oil and grease discharge limitation requirements, but surpasses them. And unlike other oil/water separators, Highland Separators are easy to operate and maintain!

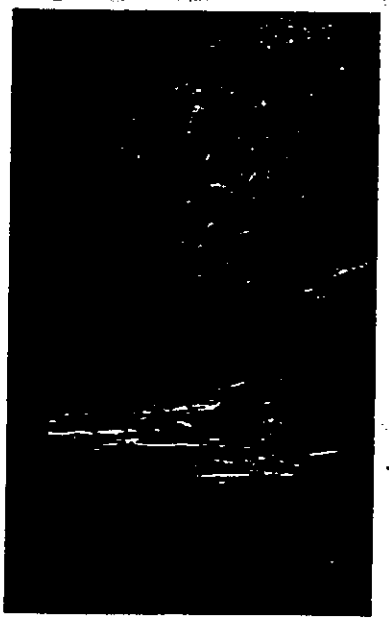
Highland Oil/Water Separators can be sized to accommodate a wide range of oily pollutant discharges from petroleum and non-petroleum based industries. Highland's Oil/Water Separators come in a variety of industry-proven designs, available in either a cylindrical or rectangular vessel. Single and double-wall construction is available for both underground and aboveground applications.

Each oil/water separator is backed by Highland Tank's professional design, engineering, fabrication, delivery and service. Highland never subcontracts — you receive your separator directly from one of Highland's six strategically located manufacturing facilities. This practice ensures complete quality control, from expert design to timely delivery by our professional drivers experienced with tank handling. The safety and security of a Highland protected steel oil/water separator is guaranteed by Highland and by the Steel Tank Institute's 30-year limited warranty against corrosion and structural failure.

When you invest in a Highland product, you benefit from a heritage that spans five decades. From the solid heavyweight construction to the patented design and operating simplicity, a Highland Oil/Water Separator is a product of experience, backed by a debt-free company with almost 50 years of private ownership and continuous management.

Highland Oil/Water Separators are competitively priced and are readily available from numerous regional representatives and distributors. You can depend on Highland Tank to provide you with environmentally safe and structurally sound oil/water separator solutions well into the 21st century and beyond.

C O N T E N T S



Environmental Regulations

Increasing public interest in the conservation of our nation's water resources has directly affected industries worldwide. Pressure to control harmful oil discharges and spills from industrial facilities has resulted in increasingly more stringent regulations and high penalties for noncompliance.

Oil bearing waste water discharges occur in many types of facilities, in many locations, and for many reasons. Relatively small but chronic oil discharges result from routine operations — engine and parts steam cleaning; regular vehicle maintenance and wash down; storage tank dike draining; and intentional hose-downs of loading racks, fueling stands, and vehicle parking areas.

Large, catastrophic spills usually result from human error and equipment failure associated with loading and dispensing operations. Fire and environmental codes require that the surface on which spills may

1972
Federal Water Pollution Control Act

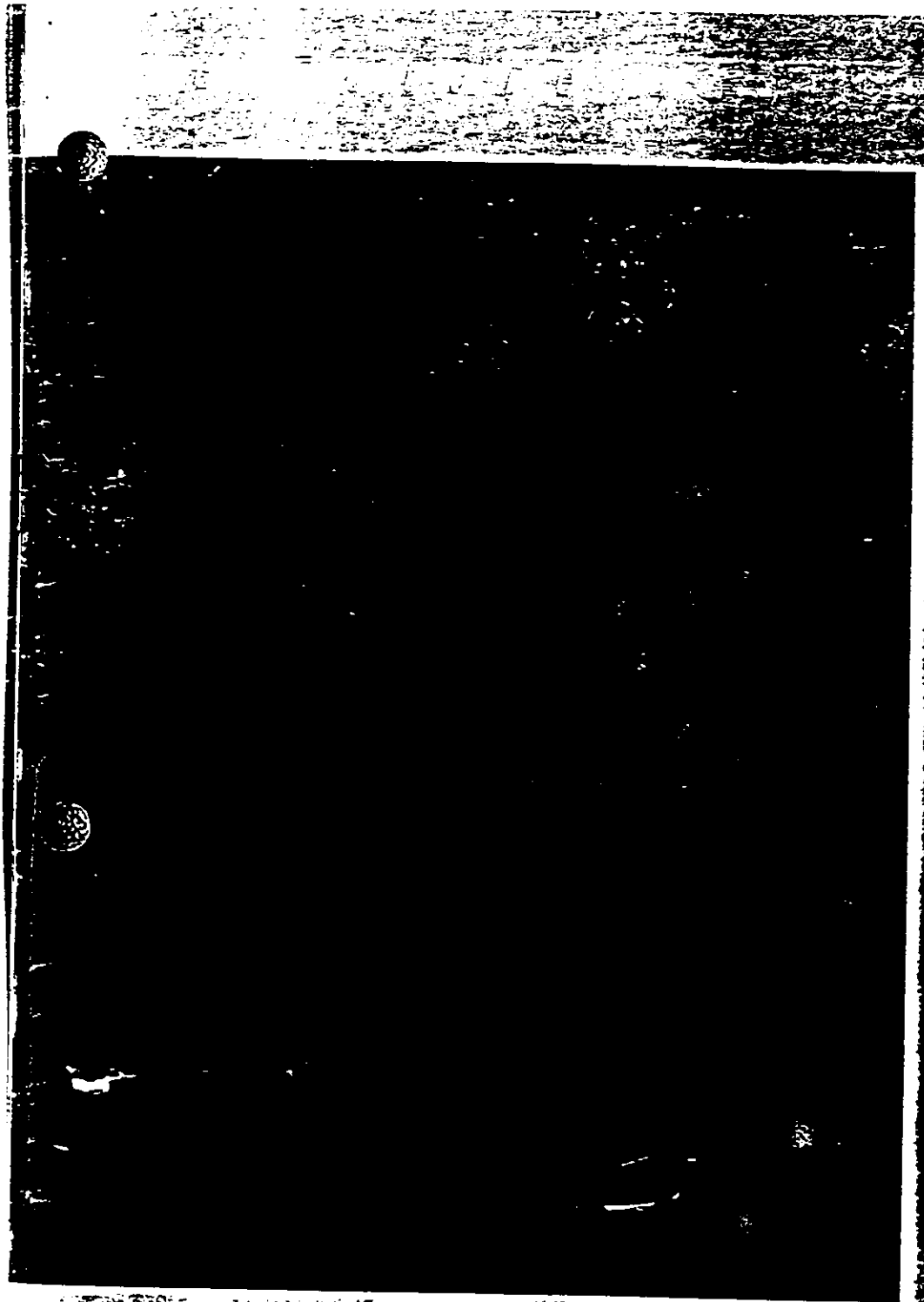
1974
Spill Prevention, Control and Countermeasures (SPCC) Plan Regulations

1976
Resource Conservation and Recovery Act (RCRA)

1977
Clean Water Act (CWA)

1980
"Superfund" Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

1984
Hazardous and Solid Waste Amendments (HSWA) to RCRA



occur be fully paved, curbed, and drained so that all spills flow to an adequately sized drain and oil/water separator. In most cases, oil and grease discharge regulations state that "any facility which discharges a harmful quantity of oil, or any petroleum product, and the oil enters a navigable body of water of the United States, by whatever means, is liable for significant penalties for clean-up costs and ecological damage."

Highland Tank offers many innovative solutions for industrial waste-water problems. Highland's Oil/Water Separator meets or exceeds current federal, state and local oil and grease limitations under the new Sewer Pretreatment Rules and Pollutant Discharge Elimination Systems Regulations for storm water discharge.

Highland Tank — helping you plan now for the future.

1985
"Superfund" Amendment and Reauthorization Act (SARA)

Safe Drinking Water Amendments

1987
Water Quality Act (WQA)

1990
Publicly-Owned Treatment Works (POTW) Pre-treatment Rules

1990
National Pollution Discharge Elimination System (NPDES) Stormwater Regulations

Oil Pollution Act (OPA)

1994
SPCC II Plan Regulation Revisions

1997
Future Regulations

?
Future Regulations

Vessel Construction

Highland Tank's Steel Oil/Water Separators and Interceptors are second to none in design, quality and workmanship. The following information describes Highland's standard vessel construction and fabrication options for steel separators and interceptors.

Single-wall

Standard single-wall vessels are constructed of mild carbon or stainless steel meeting ASTM specifications. Material thicknesses from 7 gauge to ¼" can be specified. Superior "ribbed" strength is achieved with continous exterior full-fillet lap welds, employing a minimum 1½" overlap on both head and shell joints. All separators and interceptors are factory air tested for leaks at 5 psi.

Double-wall Type I

Double-wall Type I vessels are constructed by wrapping a secondary steel wall completely around the primary vessel. Each double-wall vessel is constructed employing the same basic fabrication techniques as are used on single-wall vessels. The area between the vessel walls, known as the interstice, can be monitored with a leak detection system installed in the monitor tube, located on the vessel head.

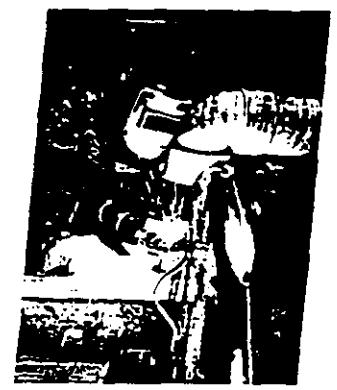
Double-wall Type II

Double-wall Type II vessels consist of a primary vessel that is completely contained by the secondary, exterior steel wall. The two walls are physically separated by standoffs that measure 1.5" on the shell, and 3" between the heads. This heavy-duty construction is based on the same fabrication techniques used on the single-wall and double-wall Type I vessels. A fitting located between the inner and outer heads of the vessel permits monitoring of the interstice with a leak detection system.

Standard 24", 30" and 36" diameter manways permit easy access to the inside of the vessel for maintenance from above. Double bolting manways for secondary containment sumps and custom, size rectangular manways are also available.

Rolling Steel
Steel plates from 7 ga. to ¼" are rolled to form the rigid shell of the vessel.

Forming Heads
Sheet steel is cut with a rotary shear and flanged to form tank head.



Welding
All separators are sealed with a continuous exterior full-fillet lap weld. Interior welding is required with interior coatings.

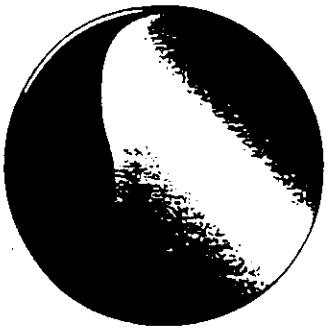
Rectangular Construction

Rectangular separators are fabricated with flanged top surfaces and removable lids for easy access. All separators are constructed of a minimum 7 gauge mild carbon or stainless steel, meeting ASTM specifications. Steel plates are formed, fitted, and welded creating a separator of superior strength.

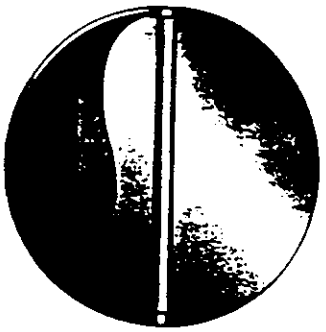
Highland Tank Oil/Water Separators carry the following patents and approvals:

U.S. Patent # 4,702,829
Canadian Patent # 1,294,205

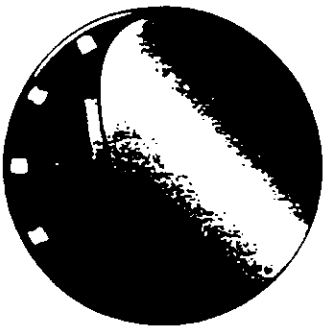
Approved by:
Oil/Water Tank Board of Surveyors and Appeals
Under Certificate Number 1311 and 52
Metropolitan Dade County, FL Code #97-0910-01
Massachusetts Board of State Examiners of Plumber and Gas Fitters Approval Code P1 1634-25



Single-wall



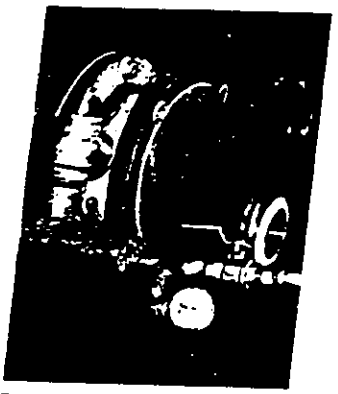
Double-wall Type I



Double-wall Type II

Rectangular

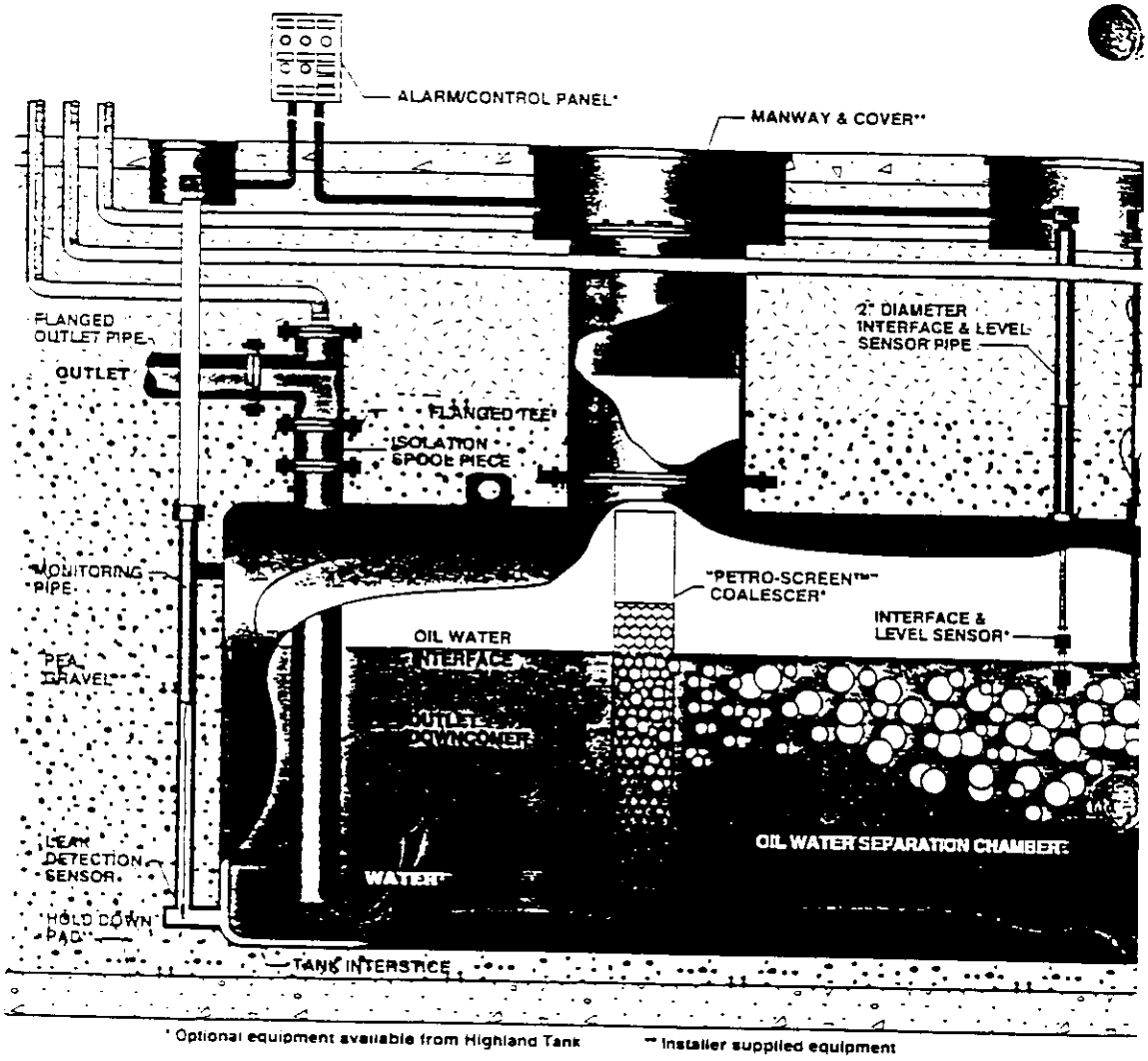
Fitting Components
Manways, flanged and threaded fittings, and other special components are fitted to the vessel, then welded in place.



Testing
All separators are air tested for leaks at 5 psi. All seams are inspected to ensure weld integrity.

Coating
Polyurethane, fiberglass reinforced polyester or other high-grade coatings are applied based on the separator's end use.

How It Works . . .



* Optional equipment available from Highland Tank ** Installer supplied equipment

Highland's Patented Design

Highland Tank's patented design combines state-of-the-art technology with time-tested materials, making Highland separators the strongest and most reliable high-performance separators in the industry.

The oil/water separator is a stationary underground, wastewater treatment vessel, filled with water. Internal baffles and coalescers accelerate the oil/water separation process. Waste accumulates within the separator while effluent is discharged by gravity.

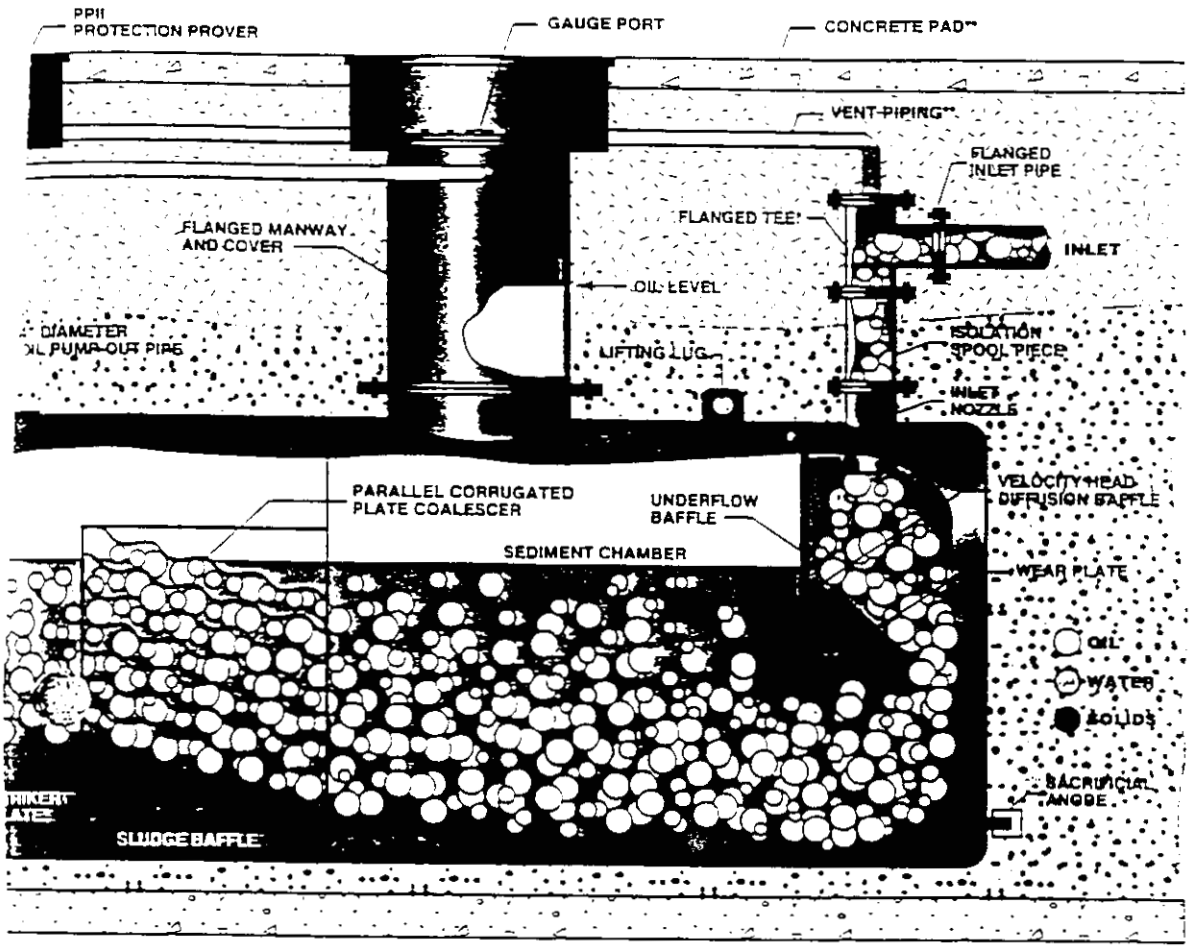
Diffusion Baffle

The velocity head diffusion baffle, located near the inlet of the separator, is designed to serve four basic functions.

1. *To dissipate the velocity head, thereby improving the overall hydraulic characteristics of the separator.*
2. *To direct incoming flow downward and outward maximizing the use of the separator volume.*
3. *To reduce flow turbulence and to distribute the flow evenly over the separator's cross-sectional area.*
4. *To isolate inlet turbulence from the rest of the separator.*

Internal Chambers

In the sediment chamber, heavy solids settle out, and concentrated oil slugs rise to the surface. As the oily water passes through the parallel corrugated plate coalescer (an inclined arrangement of parallel corrugated plates) the oil rises and coalesces into sheets on the underside of each plate. The oil then creeps up the plate surface, and breaks loose at the top in the form of large



globules. These globules then rise rapidly to the surface of the separation chamber where the separated oil accumulates.

The effluent flows downward to the outlet downcomer, where it is discharged by gravity displacement from the lower regions of the separator.

Petro-Screen™

For enhanced oil removal efficiency, a "Petro-Screen™" polypropylene coalescer a bundle of oleophilic (oil attracting) fibers, layered from coarse to fine and encased within a solid framework) is used to intercept droplets of oil too minute to be removed by the parallel corrugated plate coalescer.

Monitoring Systems

For easy and efficient operation and maintenance, an oil level sensor can sound an alarm at high oil levels so waste oil can be removed from the separator. Double-wall separators can be furnished with a leak detection system for the interstitial space.

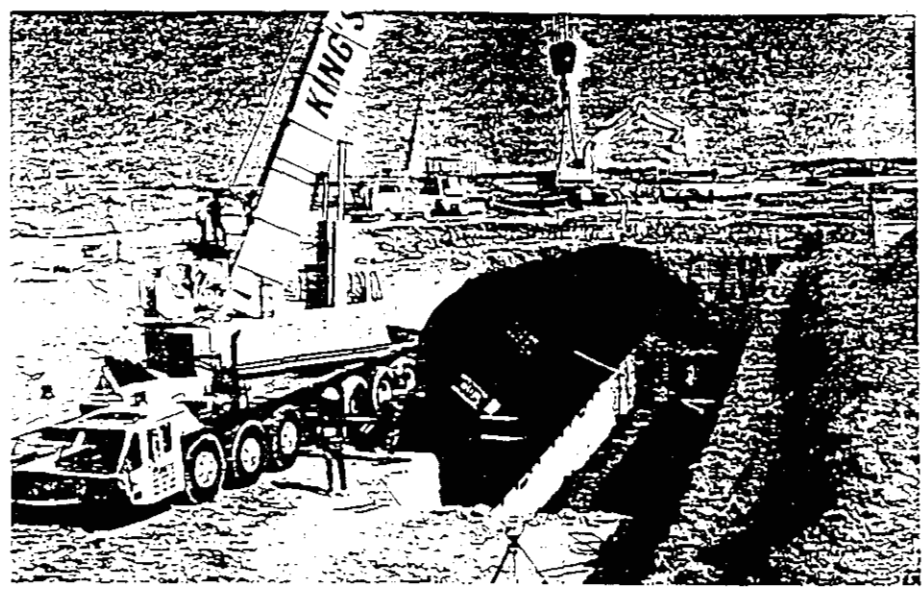
Additional monitoring equipment is available for oil or water level sensing, alarm and pumpout control.

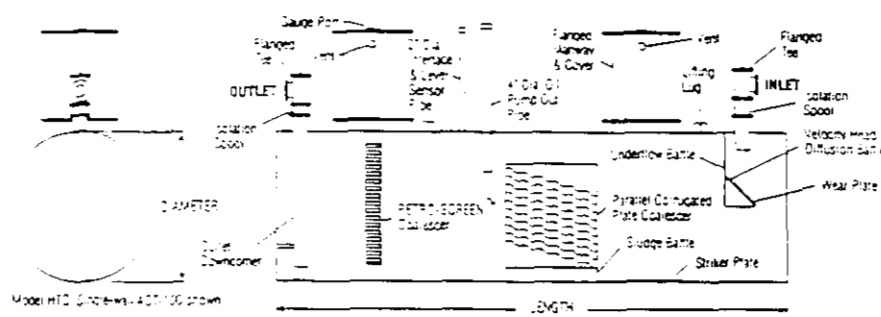
Cylindrical Design

Highland Oil Water Separators help industries comply with oil and grease discharge regulations.

Highland Oil Water Separators are used specifically for the removal of free floating oil, grease, and settleable solids from oily water discharges associated with many industrial facilities. Designed to remove oil with a specific gravity less than .95 at 60° F and grease particles greater than .15 mm in diameter. Model H™ down to .10 mm diameter. Model H™D are available.

Highland Separators are highly efficient — treating wastewater under a wide range of conditions. All separators are of the highest quality — constructed to American Petroleum Institute API, Underwriters Laboratories UL, and Steel Tank Institute STI ACT-100 or STI P3 specifications.





Model H & H™D	Total Volume (Gallons)	Total Spill Capacity (Gallons)	Inlet/ Outlet	Flow Rate (gpm)	Dimensions Diameter	Length	Approx. Wt.* (lbs.)
550	550	275	4"	65	3'6"	7'9"	2,024
1,000	1,000	500	6"	100	4'0"	10'9"	3,001
2,000	2,000	1,000	6"	200	5'4"	12'0"	4,122
3,000	3,000	1,500	6"	300	5'4"	18'0"	5,001
4,000	4,000	2,000	6"	400	5'4"	24'0"	5,760
5,000	5,000	2,500	6"	500	5'0"	20'10"	6,082
6,000	6,000	3,000	6"	600	5'0"	23'8"	9,484
7,000	7,000	3,500	6"	700	5'0"	27'4"	11,124
8,000	8,000	4,000	6"	800	5'0"	31'0"	11,959
9,000	9,000	4,500	6"	900	5'0"	24'0"	11,933
10,000	10,000	5,000	6"	1,000	5'0"	25'8"	12,696
12,000	12,000	6,000	8"	1,200	6'0"	20'6"	14,131
15,000	15,000	7,500	8"	1,500	6'0"	25'6"	15,137
20,000	20,000	10,000	8"	2,000	6'6"	31'0"	23,316
25,000	25,000	12,500	8"	2,500	7'6"	33'9"	30,456
30,000	30,000	15,000	8"	3,000	8'6"	45'6"	35,586
40,000	40,000	20,000	8"	4,000	9'0"	47'3"	41,139
50,000	50,000	25,000	8"	5,000	9'0"	59'0"	51,511

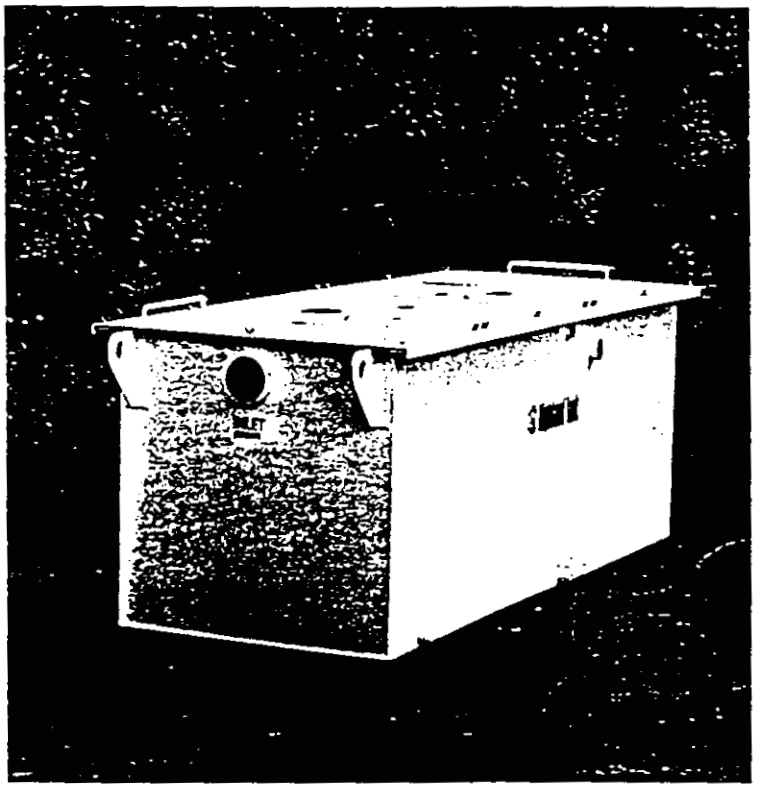
Weights shown are for Model H Single-wall Separators. Contact Highland for all other weights. Plate spacing and orientation may vary depending on site conditions.

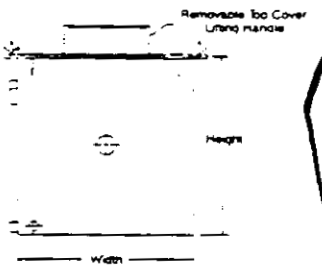
Rectangular Design

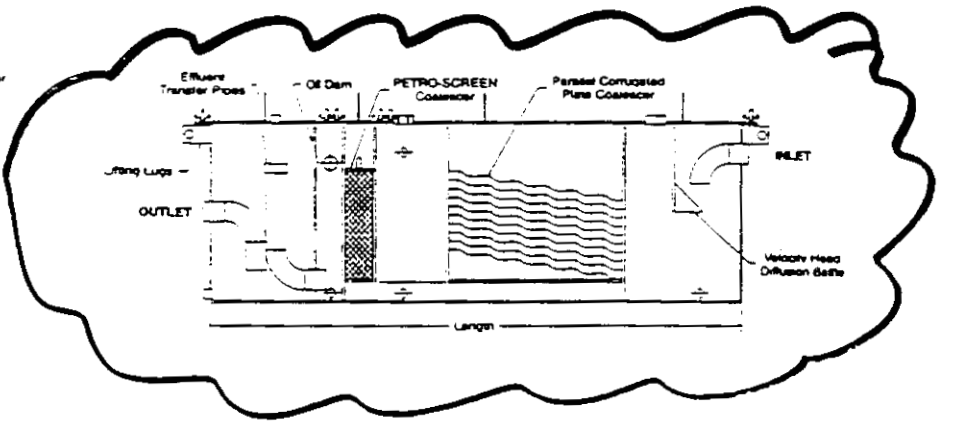
Highland's Rectangular Separators are designed for aboveground or belowground installations. These small, low flow rate models are ideal for vehicle maintenance facility wash and repair bays. The rectangular separators incorporate Highland's patented internal design and are available in both 10 gpm (R-HT) and 15 gpm (R-HTC) models.

All rectangular models have removable top panels for easy access and maintenance.

Oil/water level sensing, alarm and automatic shutoff controls, special coatings and other options are available to customize a separator to your specific needs.





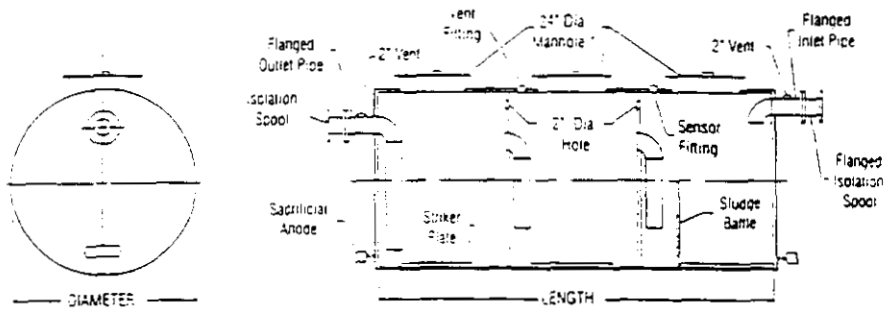


Model R-HT or R-HTC	Nominal Capacity (Gallons)	Spill Capacity (Gallons)	Flow Rate (gpm)	Dimensions L x W x H	Inlet/Outlet Diameter	Approx. Wt.* (lbs.)
200	200	80	10	5'0" x 2'0" x 3'0"	2"	975
300	300	130	25	7'0" x 2'0" x 3'0"	3"	1,150
600	600	300	50	9'0" x 3'0" x 3'0"	4"	1,850
900	900	350	75	10'0" x 3'0" x 4'0"	6"	2,145
1,000	1,000	400	100	11'0" x 4'0" x 4'0"	6"	4,380
2,000	2,000	750	200	12'0" x 5'0" x 5'0"	8"	7,150

Cylindrical Design

Highland Single, Double and Triple Basin Interceptors are engineered to collect sand, grit, grease and free oil hydrocarbons and other petroleum products from storm water from roofs and vehicle maintenance operations. Highland Interceptors can be used in conjunction with high-performance oil/water separators. An optional overflow bypass is available on double basin interceptors to divert flow around the oil/water separator overflow. Double or triple basin interceptors may be connected directly to a sanitary sewer system or be used in conjunction with a recycle wash water system.

Highland Interceptors are highly dependable — operating under a wide range of conditions. Highland's Interceptors are constructed of the highest quality materials — to ASTM C-913 and AASHTO specifications. Single or double-wall construction and options and accessories similar to those for separators are available.



Triple basin interceptor shown; double and single basin also available. * Manway extensions are available as an option.

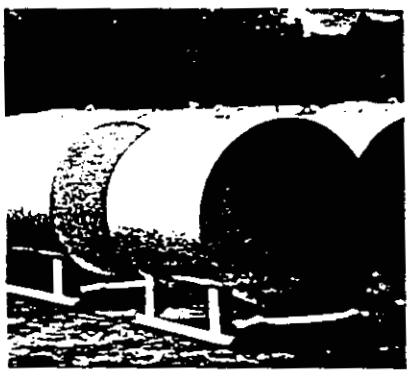
Nominal Capacity (Gallons)	Sludge Capacity SB	Sludge Capacity DB (Cubic Ft.)	Sludge Capacity TB	Flow Rate (gpm)	Inlet/ Outlet Diameter	Dimensions Diameter	Dimensions Length	Approx. Wt.* (lbs.)
550	30	20	10	55	6"	5'6"	7'9"	1,253
1,000	60	40	18	100	6"	4'0"	10'9"	1,734
2,000	120	80	35	200	8"	5'4"	12'0"	2,519
3,000	180	120	53	300	8"	5'4"	18'0"	3,323
4,000	250	160	71	400	8"	5'4"	24'0"	4,339
5,000	310	200	89	500	10"	6'0"	23'10"	6,646
6,000	375	275	107	600	10"	6'0"	28'8"	8,547
7,000	425	315	125	700	10"	7'0"	24'4"	8,361
8,000	500	365	143	800	10"	7'0"	28'0"	8,912
9,000	540	400	160	900	12"	8'0"	24'0"	9,632
10,000	600	465	178	1,000	12"	8'0"	26'8"	10,853
12,000	750	600	214	1,200	12"	10'0"	20'6"	12,279
15,000	900	685	267	1,500	14"	12'0"	25'6"	16,959
20,000	1,200	1,000	356	2,000	16"	13'5"	31'0"	20,299
25,000	1,525	1,250	445	2,500	18"	10'6"	38'9"	27,942
30,000	1,850	1,530	535	3,000	20"	10'6"	46'6"	33,089
40,000	2,400	2,000	713	4,000	24"	12'0"	47'3"	40,121
50,000	3,080	2,550	891	5,000	24"	12'0"	59'6"	47,187

*Weights given are for Triple Basin Interceptors. Other weights available upon request.

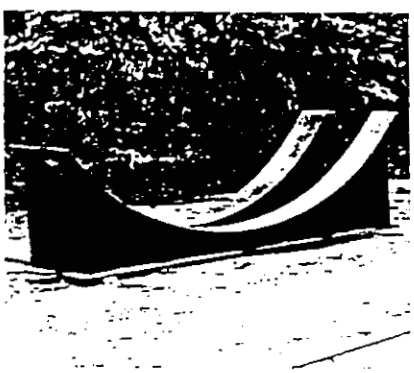
Design Options

Highland Tank custom fabricates oil/water separators and interceptors to satisfy your specific need. Separator and interceptor installations vary greatly with each location. Highland offers a wide range of design options to handle these situations. The following information illustrates some of the support options available for aboveground and belowground product handling options and other operating accessories available from Highland Tank.

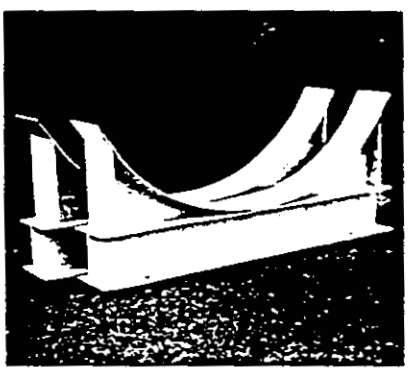
***Heavy duty skids** for 48" – 96" diameter vessels.*



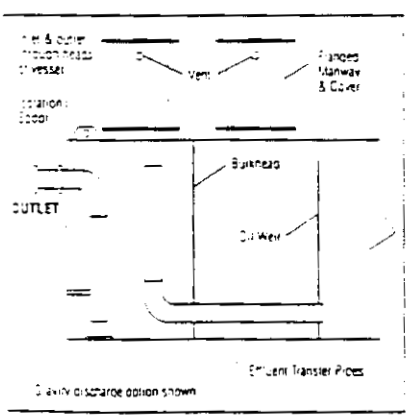
***Light duty skids** for 38" – 48" diameter vessels.*



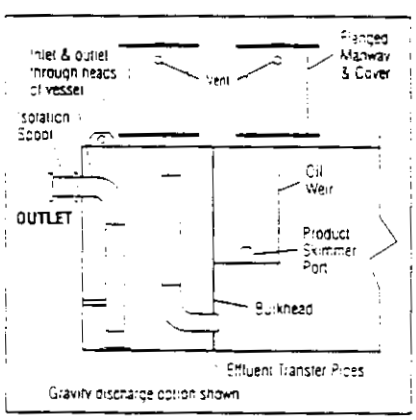
***Heavy duty saddles** for 84" – 144" diameter vessels.*



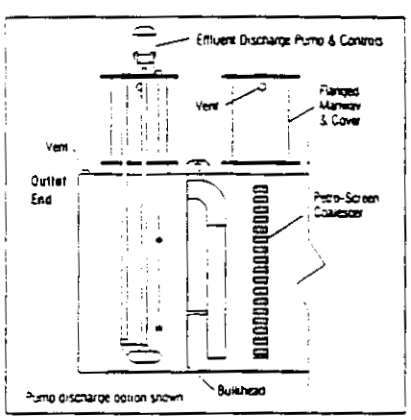
***Light duty saddles** for 38" – 72" vessels.*



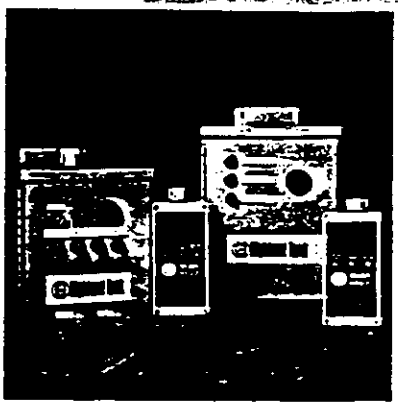
Series H
Series H Oil/Water Separators feature an integral product sump for holding separated oil. A special product weir permits the removal of only the skimmed oil by pump-out. The effluent is discharged by either pump or gravity flow.



Series I
Series I Oil/Water Separators feature an integral product reservoir for receiving skimmed oil. The oil is removed by pump or gravity through a side port to a remote oil storage tank. The effluent is discharged by either pump or gravity flow.

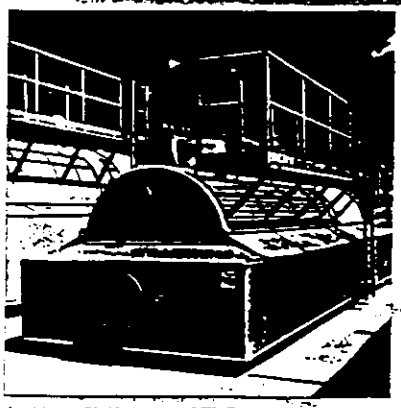


Series J
Series J Oil/Water Separators feature an integral effluent pump-out chamber with level controls to operate a pump at prescribed levels. The pumped effluent can then be routed through Highland's Activated Carbon Filtration unit.



Alarm Control Panels

Activated Carbon Filtration



Ladders, Platforms and Walkways

STI P3®
UNDERGROUND STORAGE TANKS

STI-P3 Protection System

Protective Coating
A tough, heavy duty dielectric coating of either polyurethane or fiberglass reinforced polyester covers the separator and seals it from the surrounding soil providing the first line of defense against stray current and galvanic corrosion.

Electrical Isolation
UL-Listed dielectric nylon bushings or flange isolation kits are used in each opening to electrically isolate the separator from piping, preventing the entry of stray currents or galvanic action through piping connections.

Cathodic Protection
Galvanic anodes provide protective current flow to any scratches in the coating that may occur during shipping/handling. The anodes are self-regulating, supplying current only as needed, for extra long life. Every STI-P3 separator is shipped with factory installed PP2 Protection prover cathodic protection monitoring system.

ACT-100®

ACT-100 Protection System

Protective Coating
A tough, heavy duty dielectric coating of 100 mil fiberglass reinforced polyester covers the separator and seals it from the surrounding soil providing the first line of defense against stray current and galvanic corrosion.

Electrical Isolation
UL-Listed dielectric nylon bushings or flange isolation kits are used in each opening to electrically isolate the separator from piping, preventing the entry of stray currents or galvanic action through piping connections.

Highland Tank

Wastewater Treatment Applications

Ever increasing oil and grease discharge regulations at industrial facilities necessitate the development of spill and wastewater treatment plans and installation of equipment to implement those plans.

Typically Regulated Facilities

- Airport Services
- Arcades
- Ambulance Services
- Automobile Dealers
- Automobile Rental Services
- Bus Companies
- Construction Companies
- Garbage Carters
- Gasoline Service Stations
- Industrial Facilities
- Military Installations
- Municipalities
- Railroads
- Taxi Cab Companies
- Trucking Companies
- Utilities

Vehicle services associated with each of these facilities might include:

  - Fueling Facilities
  - Repair and Maintenance Shops
  - Wash Areas
- Bulk Storage Tank Farms
- Hazardous Waste Sites
- Leaking Petroleum Storage Tank and Piping Remediation
- Petroleum Marketing Facilities
- Parking Lots
- Refineries
- Utility Switch Yards

Highland Design Assistance

Developing a spill control or wastewater treatment system and then selecting the proper equipment is no ordinary task!

Highland has a network of knowledgeable factory representatives located worldwide to assist you in this process. In addition, Highland offers a wide array of information that includes an engineering manual with detailed information for selecting and specifying products and accessories. Specifications and engineering drawings for standard models of separators are also available on 3.5" floppy disk.

For assistance in selecting and specifying Highland high performance oil/water separator and/or interceptor, and for the nearest Highland Oil/Water Separator representative, call or write:

Highland Tank
One Highland Rd.
Stoystown PA 15563
814-893-5701
FAX 814-893-6126

Highland Tank

Highland Manufacturing Locations

One Highland Road
Stoystown, PA 15563-0338
Phone (814) 893-5701
Fax (814) 893-6126

99 West Elizabethtown Road
Manheim, PA 17545-9410
Phone (717) 664-0600
Fax (717) 664-0617

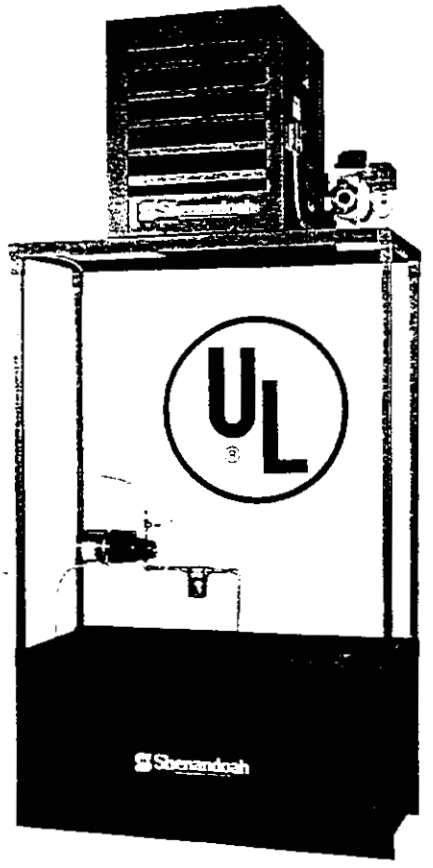
958 19th Street
Watervliet, NY 12189
Phone (518) 273-0801
Fax (518) 273-1365

2225 Chestnut Street
Lebanon, PA 17042
Phone (717) 664-0602
Fax (717) 664-0631

2001 East Pontiac Street
Fort Wayne, IN 46803
Phone (219) 422-6191

2700 Patterson Street
Greensboro, NC 27407
Phone (910) 218-0801
Fax (910) 218-1292

Shenandoah



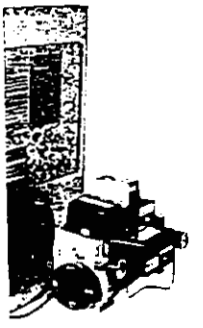
Select the heat

Right fo

Offering you the bene

- **Patented burner design**
- **User-friendly maintenance**
  Slide out gun assembly.
  Clean-out panels on both ends of heat exchanger.
- **Safe, dependable ease of operation**
  Thermostatically controlled, 24V wall thermostat
  Flame sensor with cutoff controls.

OF-1
CORDOVA
VALDEZ
WHITTER



125

	.25,000	*31,500 KCAL*
Output (approx. BTU/hr.)	100,000	*25,200 KCAL*
Stack size / ship wt. with burner	6"/ 337 lbs.	*15.2 cm / 153 k*
Heater dimensions (L x W x H) *includes outside measurements of fan and burner*	30" x 43" x 33"	*76 cm x 109 x 84*
Electrical requirements *Maximum circuit protection*	115/60 20 AMPS	
Approx. oil consumption	.90 GPH	*3.4 LPH*
Air Flow through fan	1800 CFM	*50.4 m³/min.*
Agency listing	UL, CSA, C-UL,	M

Compressed air for all models 2 CFM @ 40 PSI *(.057 m³/min. @ .28 M*
Fuels Used crankcase oil, transmission and hydraulic fluids, as well as other petroleur based lubricants (any weight combination up to SAE 50 as well as #1 and #2 fuel oi

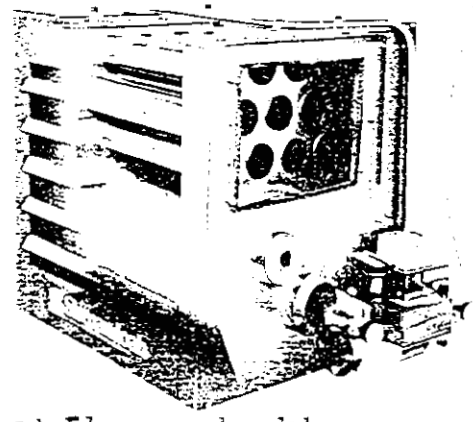
MADE in the USA

...that's
...your shop

...of...

Ten year warranty
Limited warranty on aluminized steel fire chamber and heat exchanger.

Efficient, clean combustion
Air atomizing nozzle.
Fuel and compressed air are preheated.
Stop-drip nozzle prevents carbonizing.

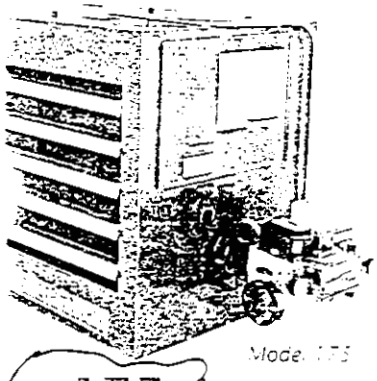


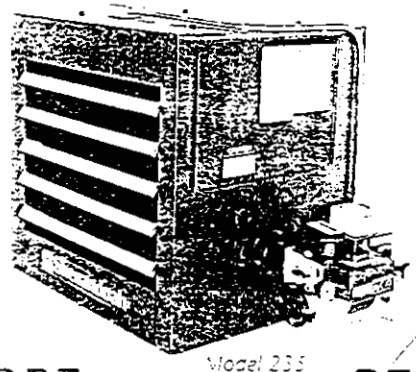
Today's ideal heating system...

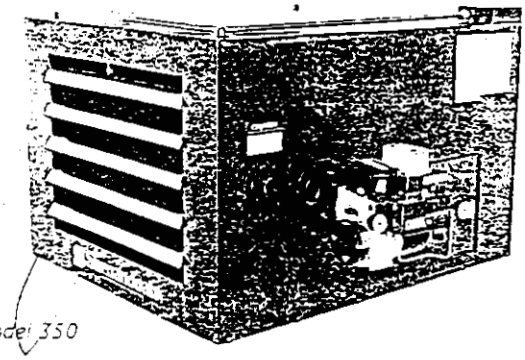
- **Auto service centers**
- **Construction & heavy equipment garages**
- **Quick lube shops**
- **Auto dealerships**
- **Fleet garages**
- **Any location that generates used oil**

Aluminized steel fire chamber and heat exchanger

Only at Shenandoah!
Heavy gauge 100% aluminized steel
Corrosion resistant alloy designed for rust resistance and greater heat transfer.

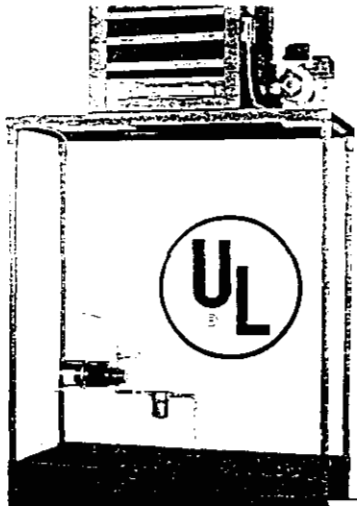

Model 175


Model 235


Model 350

175	235	350	500
75,000 44,100 KCAL	235,200 59,270 KCAL	350,000 88,200 KCAL	500,000 126,000 KCAL
50,000 37,800 KCAL	200,000 50,400 KCAL	300,000 75,600 KCAL	400,000 100,800 KCAL
449 lbs. 20.3 cm 204 kg	8" 487 lbs. 20.3 cm 221 kg	8" 735 lbs. 20.3 cm 334 kg	8" 829 lbs. 20.3 cm 376 kg
40" x 45" x 36" 102 cm x 114 x 91	40" x 51" x 36" 102 cm x 130 x 91	62" x 57" x 33" 158 cm x 145 x 84	62" x 57" x 33" 158 cm x 145 x 84
115/60 20 AMPS	115/60 20 AMPS	115/60 30 AMPS	220V/60 30 AMPS
1.25 GPH 4.7 LPH	1.68 GPH 6.4 LPH	2.5 GPH 9.5 LPH	3.5 GPH 13.3 LPH
2500 CFM 70 m³/min.	2900 CFM 81.3 m³/min.	4700 CFM 131.8 m³/min.	5800 CFM 162.4 m³/min.
UL, CSA, C-UL, ETLM	UL, CSA, C-UL, ETLM	UL, CSA, C-UL, ETLM	ETLM (UL pending)

Oil transfer pump 18 GPH @ 40 PSI (68 LPH @ 2.8 MPa) for all models except Model 125: 2.5 GPH @ 40 PSI (9.5 LPH @ 2.8 MPa).
Patents **US:** 5,067,894 utility, 331,104 des., 331,105 des. **Can:** Pat. 2,029,366, 69,374 des., 69,157 des.

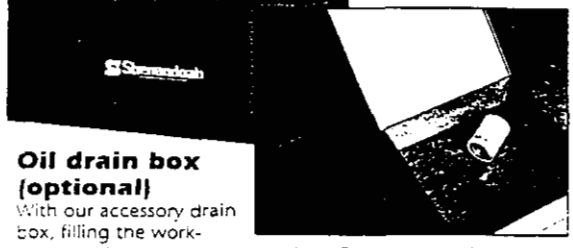


for a complete installation

add value

Convenient oil storage
Use the tank as your primary or secondary storage area. Your fuel stays at room temperature for improved performance.

Safety tested by UL
The design of the Shenandoah Workbench Tank meets the strict safety requirements of Underwriters Laboratories.



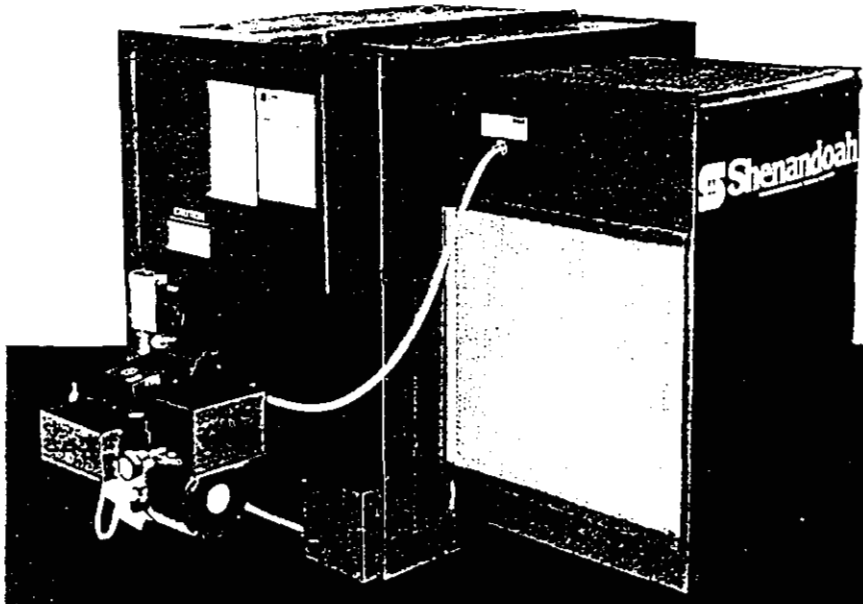
Quick access for servicing
Your heater is within easy step-ladder reach for routine cleaning and maintenance.

Oil drain box (optional)
With our accessory drain box, filling the work-bench tank is a no-mess procedure. Extra large drain box (20" sq. x 6" deep) allows quick disposal. The drain pipe extends to within several inches of the tank bottom, providing an air lock that eliminates the need for plugs and satisfies fire codes.

Model	WBT-250	WBT-350
Capacity	250 gal. *948 L*	350 gal. *1327 L*
Size (L x W x H) (add 2" height for retainer lip sides and back)	60" x 30" x 33" *152 cm x 76 x 84*	60" x 42" x 33" *152 cm x 107 x 84*
Height of mounting rack	96" *244 cm*	96" *244 cm*
Weight		
Tank	280 lbs. *127 kg*	430 lbs. *195 kg*
Rack	105 lbs. *48 kg*	105 lbs. *48 kg*
Threaded openings		
2" fill *5 cm*	2" vent *5 cm*	2" top outlet *5 cm*
1" end drain *2.5 cm*	4" emergency vent *10 cm*	
Construction	12 gage material *(3 mm)* mounted on heavy duty skids.	

Ductible Furnaces distribute heat

If your shop is large, you can distribute heat directly to each service bay through a duct system. The Shenandoah Waste Oil Furnace with its quiet squirrel cage fan delivers heat through your duct system to where it's needed most.



Ductible furnaces

are identical to unit heaters with the addition of the ductible kit at the factory. Refer to heater specs on the previous page.

Overall dimensions (L x W x H)

175	51" x 45" x 36" *130 cm x 114 x 91*	**235**	51" x 51" x 36" *130 cm x 130 x 91*
350	73" x 57" x 33" *185 cm x 145 x 84*	**500**	73" x 57" x 33" *185 cm x 145 x 84*

Shipping weight with burner

175	538 lbs. *244 kg*	**235**	578 lbs. *262 kg*
350	934 lbs. *424 kg*	**500**	1063 lbs. *482 kg*

Model	Blower CFM	Voltage	Duct Opening
175	2,420 @ .25" SP *69 m³/min. @ .64 cm*	115V	23-1/4" x 23-1/4" *59 cm x 59*
235	2,860 @ .5" SP *81 m³/min. @ 1.3 cm*	115V	29" x 23-1/4" *74 cm x 59*
350	4,800 @ .75" SP *136 m³/min. @ 1.9 cm*	115V, 220V	29" x 23-1/4" *74 cm x 59*
500	5,800 @ .75" SP *164 m³/min. @ 1.9 cm*	220V	29" x 23-1/4" *74 cm x 59*

Ductible kit available for heater add-on
Yes for Models 175, 235, 350 and 500
Not available for Model 125

EF-1
EF-2

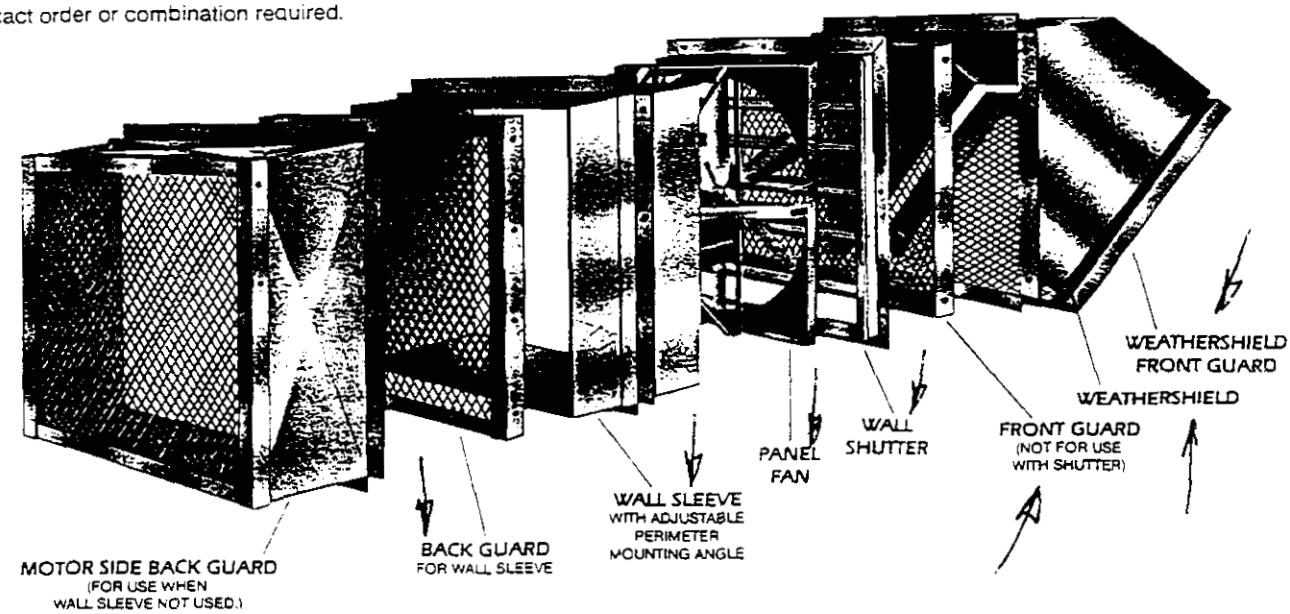
ACCESSORIES

CORDOVA, VALDEZ & WHITTIER

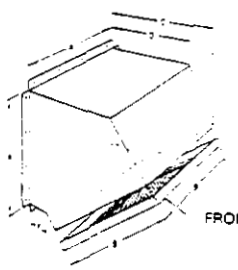
ACCESSORIES

ACCESSORIES

Penn provides a wide variety of accessory components for Breezeway Panel Fans. These accessory items can be used in different combinations to suit your application. The drawing below represents the variety of accessory items available, not necessarily in the exact order or combination required.



WEATHERSHIELD



Weathershields are designed to exclude rain and snow from wall openings and shutters. Standard construction is galvanized steel, optional front guard is available. Weathershields may be surface mounted or used in conjunction with wall sleeves.

DIMENSIONAL DATA

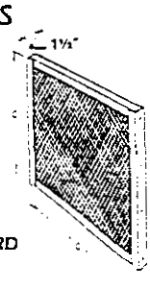
SIZE	10	12	16	18	20	24*	24	30	36	42	48	54	60	72
Wo	15¾	17¾	23½	25	27½	33¼	28¾	34¾	40¾	46¾	55	61	67	79
A	15¼	17¼	23	24½	27	32¾	28¼	34¼	40¼	46¼	54¼	60¼	66¼	78¼
B	15¼	17¼	23	24½	27	32¾	28¼	34¼	40¼	46¼	54¼	60¼	66¼	78¼
C	17⅞	19⅞	23¼	24¼	26⅛	30⅛	7⅛	31¾	36⅝	41	45¾	50⅛	55⅛	62¼
D	12⅜	13⅛	15½	16⅛	17¼	19½	17⅝	20¼	23⅜	25⅞	28⅜	31	34¼	38¼

* TYPE P.

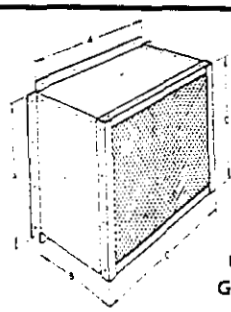
ALL DIMENSIONS IN INCHES.

BACK AND FRONT GUARDS

Guards are available for both the rear (motor side) of the fan and (less often) the front face of the fan. All guards conform to OSHA specifications. Rear guards are removable or have a removable access section for fan maintenance. Rear guards can be shipped knocked down. Guards which comply with OSHA regulations should be installed when fans are located within seven feet of floor and/or working level, or within reach of personnel. Review OSHA codes.



FRONT GUARD



BACK GUARD

DIMENSIONAL DATA

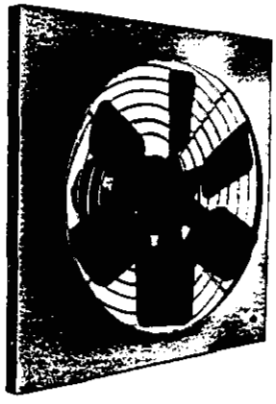
SIZE	10	12	16	18	20	24*	24	30	36	42	48	54	60	72
A	**	**	**	**	**	**	28¾₁₆	34¾₁₆	40¾₁₆	46¾₁₆	54¼	60¼	66¼	78¼
B	**	**	**	**	**	**	13½	16½	16½	20½	25	25	25	25
Screen	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	2Pieces	2Pieces	2Pieces	2Pieces
C SQ.	15½	17½	23¼	24¾	27¼	33	28⅝	34⅝	40⅝	46⅝	54¾	60¾	66¾	78¾

* TYPE P. ** MOTOR SIDE GUARD OF CONCENTRIC RINGS INTEGRAL TO UNIT.

ALL DIMENSIONS IN INCHES.

BREEZEWAY TYPE P

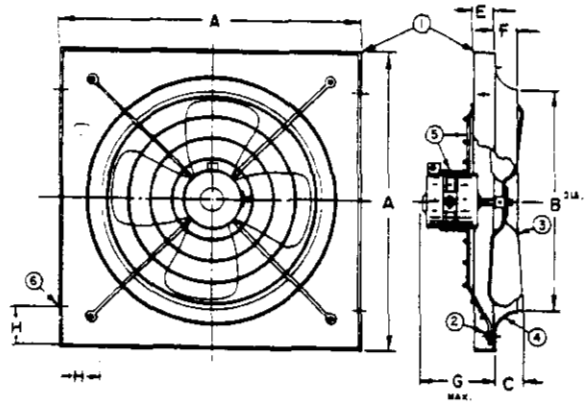
INDUSTRIAL / COMMERCIAL / SMALL DIAMETER / DIRECT DRIVE



FRONT

BACK

TYPE P
SIZES 10 TO 24



LEGEND

1. Painted Steel Panel
2. Anti-Vibration Mounts
3. Fan Blade
4. Venturi Orifice
5. Wire Guard and Motor Mount
6. Mounting Holes 17/64"

The popular, Type P Br irect drive models, 10" diar split phase, shaded pole ar are resiliently mounted in l are concentric rings of heav ons. The spun steel venturis ged panel for commercial a ited finish is bonded on the p ides are made of die-formec

EF-1
CORDOVA
&
VALDEZ

DIMENSIONAL DATA

FAN DIA.	A	B DIA.	C	E	F	G MAX.	H	APPROX. SHIP WT. (LBS.)
10	15	10¾	2 5/16	1	1½	6	2½	12
12	17	12½	2⅜	1	1½	6	3 15/16	14
16	22¾	17¼	2⅞	1	2	10	4 15/32	30
18	24¼	18¾	2⅞	1	2	10	4 31/32	40
20	26¾	21	2⅞	1	2	10¾	5½	50
24	32⅛	25½	4	2	3	12	4⅜	60

ALL DIMENSIONS IN INCHES.

amca CERTIFIED RATINGS AIR PERFORMANCE AIR MOVEMENT AND CONTROL ASSOCIATION INC.

Penn Ventilator certifies that the Type P Breezeway Fans, models 10" through 24", are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Standard 211 and comply with the requirements of the AMCA Certified Ratings Program.

Penn Breezeway Fans are also certified with Canadian Standards Association.

SUGGESTED SPECIFICATIONS

PROPELLER PANEL FANS shall be Penn Breezeway, Type P, direct drive series, manufactured by Penn Ventilator Co., Inc., Philadelphia, PA 19115. Continuous duty motors shall be resiliently mounted in a basket rear guard of concentric rings meeting OSHA specifications. Propeller blades shall be statically and dynamically balanced. Fan panels shall be permanently painted and feature a deep spun steel venturi and welded corners. (Specify accessories from pages 13-15).

PERFORMANCE DATA

MODEL DIRECT DRIVE	HP	FAN DIAM	RPM	TIP SPD (FPM)	FAN CAPACITY IN CUBIC FEET PER MINUTE (CFM) 0.000" SP CFM	0.125" SP CFM	0.250" SP CFM	0.375" SP CFM	0.500" SP CFM	MAX. BHP	SONES @ .125"
P10V	1/25	10"	1050	2749	545	265					1.9
P10R	1/10		1550	4058	830	610	375				3.1
P12V	1/20	12"	1045	3283	975	645					2.3
P12R	1/7		1550	4869	1110	955	730	385			3.9
P16T	1/8	16"	1140	4775	1680	1410	1000	610	450		6.2
P16Q	1/4		1725	7226	2200	2060	1890	1680	1380		10.6
P18T	1/4	18"	1140	5372	3200	2840	2340	1590	1270		7.4
P18Q	1/2		1725	8129	3735	3530	3275	2975	2570	.555	12.8
P20T	1/3	20"	1140	5969	3795	3470	3060	2330	1500	.400	9.2
P20Q	1		1725	9032	5185	4950	4720	4470	4220	1.000	15.6
P24W	1/2	24"	825	5184	4860	4110	2345	1310		.410	10.1
P24T	3/4		1140	7163	6565	6080	5470	4090	3340	.740	15.0

RPM SHOWN IS NOMINAL AND PERFORMANCE IS BASED ON ACTUAL SPEED OF TEST. PERFORMANCES SHOWN ARE FOR FANS WITHOUT DUCTS. THE AMCA CERTIFIED RATINGS SEAL APPLIES TO AIR CAPACITIES ONLY.

NON-FREEZE POST AND GROUND HYDRANTS

SMITH®
CUSTOMER DRIVEN

POST HYDRANT

FUNCTION: Used where an above ground water outlet is required in areas which are subject to freezing temperatures. Freezing is prevented by burying the valve housing below the frost line and draining water from the casing after shut-off.

REGULARLY FURNISHED:
Bronze Non-Freeze Post Hydrant with Cast Iron Casing Guard and "T" Handle Key. Inlet and Hose Connection Size Furnished as indicated by Figure Number Selected.

NOTE: Addition of vacuum breaker will not allow draining of the casing. Smith is not responsible for any casings that burst or related incidents if the hydrant is supplied with a vacuum breaker.

VARIATIONS:
"3/4" Vacuum Breaker (Fig. 5910 only) -H
1/8" NPT Drain Hole -NV
Secured Wheel Handle -WH

OPTIONAL MATERIALS:
Aluminum Casing Guard -AG

HB-1

POST HYDRANT FOR CORDOVA & VALDEZ

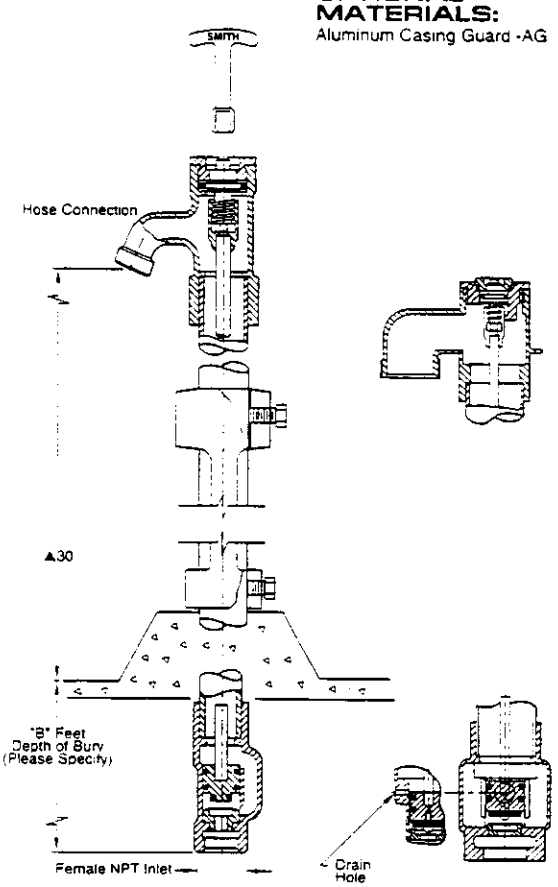


Fig. 5910 - 11
▲Regularly Furnished (Unless otherwise specified)

Fig. 5912 - 14

Fig. 5910 ....3/4"
Fig. 5911 ....1"
Fig. 5912 ....1 1/4"
Fig. 5913 ....1 1/2"
Fig. 5914 ....2"
} INLET AND HOSE CONNECTIONS

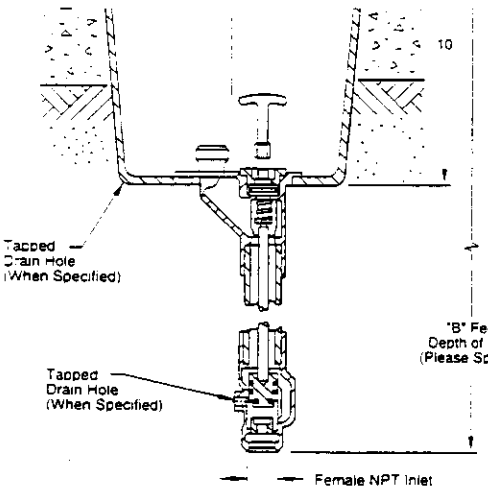


Fig. 5950 .....3/4" INLET
Fig. 5951 .....1" INLET

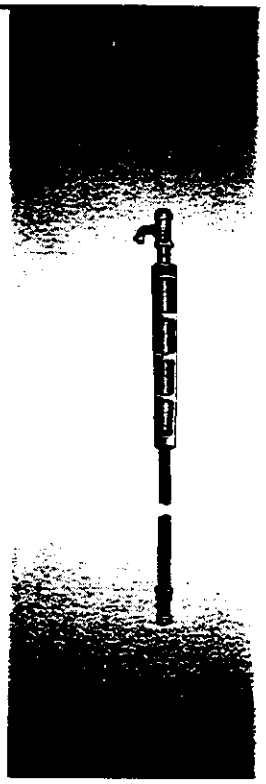
Refer to page 5-12 for table.

NOTE: All Jay R. Smith hydrants are manufactured with "NO-LEAD" brazing rings and USDA approved lubricants.

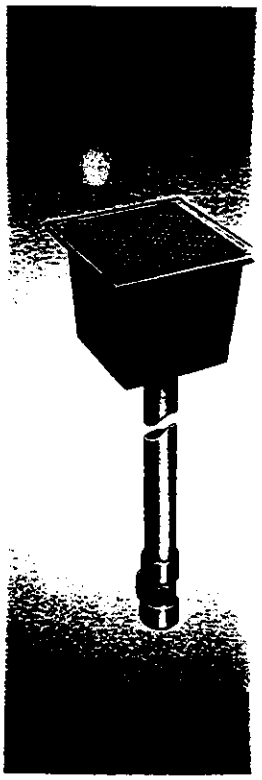
B (Depth of Bury) = 02B, 03B, 04B, 05B, 06B, 07B or 08B Feet

NOTE: Jay R. Smith hydrants are manufactured with "NO-LEAD" brazing rings and USDA approved lubricants.

B (Depth of Bury) = 02B, 03B, 04B, 05B, 06B, 07B or 08B Feet



5910 SERIES



5950 5951

Alyeska Pump & Equipment

A DIVISION OF FAMILIAN NORTHWEST #74
6251 Tuttle Place #102
Anchorage, AK 99507
(907) 561-5842
Fax (907) 561-5072

FAX TRANSMISSION COVER SHEET

Date: 02/11/96

To: MATT STEPINC PE.

Fax: 277-4722

Subject: Elec. Diaphragm. Pump

Sender: Timothy J. Bergin P.E.

YOU SHOULD RECEIVE 3. PAGE(S), INCLUDING THIS COVER SHEET. IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (907) 561-5842.

NOTES:

Model 5515-15 = $1705.—

Available on the floor -

3" Diaphragm 1ϕ - 1.5 H.P. — 1750 RPM.

115/230V.

W/ this we can easily package a tank.

And 2's Please call.

AVAILABLE:

WITHOUT POWER OR WITH HEAVY DUTY GASOLINE ENGINE

CH&E
QUALITY PRODUCTS

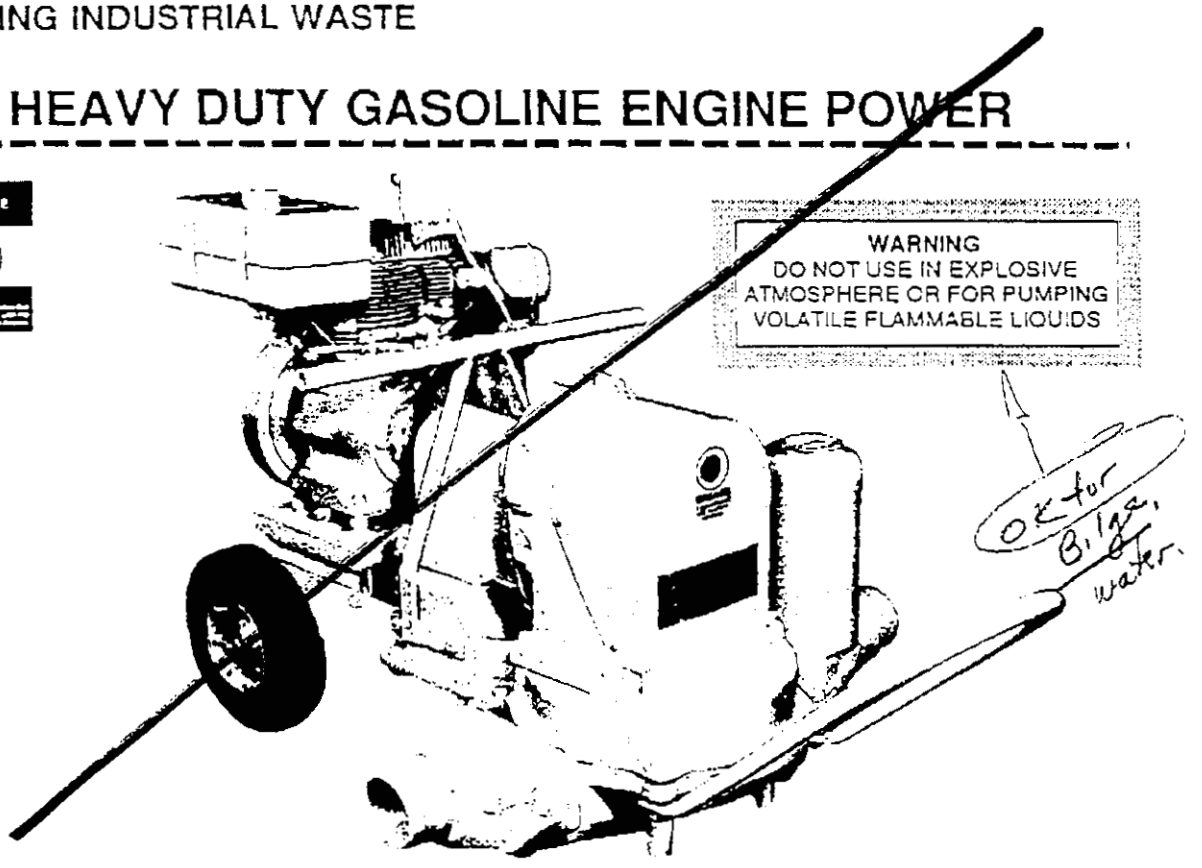
Long Coupled Diaphragm Pumps Series
5400-6400 2"
5500-6500 3"

DIAPHRAGM PUMPS ARE BEST FOR:

- SEEPAGE DEWATERING
- SANDY - MUDDY - MUCKY WATER
- HIGH SUCTION LIFT
- CLEANING SEPTIC TANKS
- PUMPING INDUSTRIAL WASTE

HEAVY DUTY GASOLINE ENGINE POWER

CERTIFIED PERFORMANCE



B&S AIR COOLED ENGINE. 8 H.P. STANDARD SHAFT ENGINES CONNECTED THROUGH FLEXIBLE COUPLING. ENGINES HAVE AMPLE OIL CAPACITY FOR CONTINUOUS OPERATION. ENGINES RUN AT 2600 RPM FOR LONG SERVICE. A 1750 RPM ELECTRIC MOTOR MAY BE USED WHICH WILL DECREASE PUMPING CAPACITIES.

C. H. & E. Manufacturing Co. 3849 N. Palmer St. Milwaukee, Wis. 53212
phone 414-964-3400 • FAX 414-964-0677

FEATURES:

- Lightweight all aluminum . . . or water end parts abrasive resistant cast iron.
- Identical construction on two and three inch pumps except for size.
- Totally enclosed double gear reduction running in oil. Needle and ball bearing.
- Large opening RUBBER swing type valves.
- Self-cleaning straight water flow through valves and waterbox.
- Suction air chamber cushions stroke.
- Fast sure priming at all lifts.
- Roller bearing crankshaft and eccentric.
- Male hose connections for fast coupling.
- Skid or wheel mounting for all pumps.

PUMPS ANY LIQUID SUFFICIENTLY FLUID TO FLOW TO AND THROUGH THE PUMP

CAPACITIES – ALL PUMPS	GALLONS PER HOUR	
	TWO INCH PUMPS	THREE INCH PUMPS
* 5 Foot Suction Lift	3000	6000
10 Foot Suction Lift	2500	5500
15 Foot Suction Lift	2000	4500
20 Foot Suction Lift	1500	3500
25 Foot Suction Lift	1250	3000

SPECIFICATIONS

TWO INCH DIAPHRAGM PUMPS

MODEL		POWER	NET WEIGHT	
ALUMINUM CONSTR.	CAST IRON WATER END		SKID MOUNTED	4 x 6 Semi-Pneumatic Tires
5420	6420	WITHOUT POWER— 2600 RPM INPUT SPEED	102 129	91 118
5422	6422	8 H.P. AIR COOLED ENG. BRIGGS MODEL 190402	146 175	137 164

THREE INCH DIAPHRAGM PUMPS

MODEL		POWER	NET WEIGHT	
ALUMINUM CONSTR.	CAST IRON WATER END		SKID MOUNTED	4 x 6 Semi-Pneumatic Tires
5520	6520	WITHOUT POWER— 3600 RPM INPUT SPEED	122 175	115 168
5522	6522	8 H.P. AIR COOLED ENG. BRIGGS MODEL 190402	168 221	161 214

*THESE HEAD CONDITIONS ARE OPEN DISCHARGE. WHEN YOU USE THIS MUCH HORSEPOWER ON A DIAPHRAGM PUMP, DAMAGE CAN BE DONE BY EXCESSIVE DISCHARGE HEAD CONDITIONS. PLEASE CONTACT FACTORY WITH YOUR HEAD CONDITIONS.

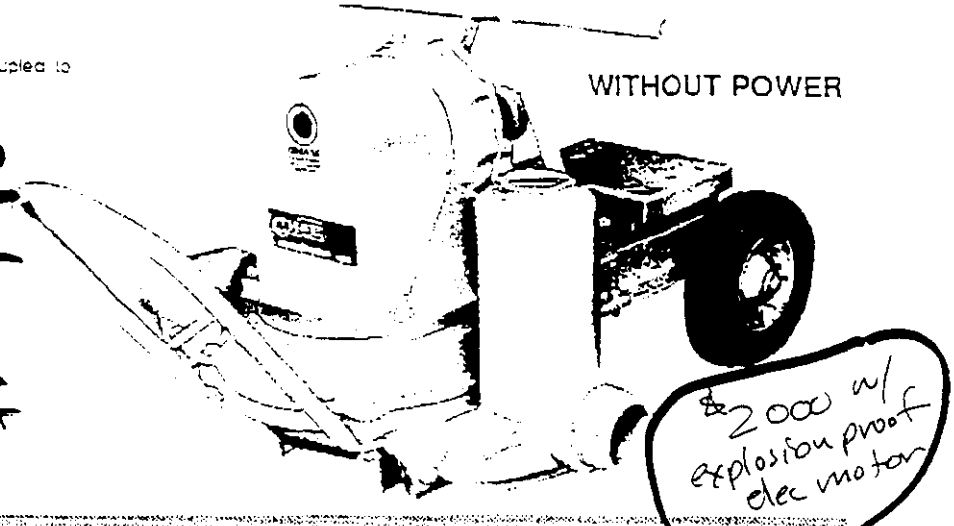
- Either engine or motor can be directly coupled to pump shaft with flexible coupling.

Bilge Pump

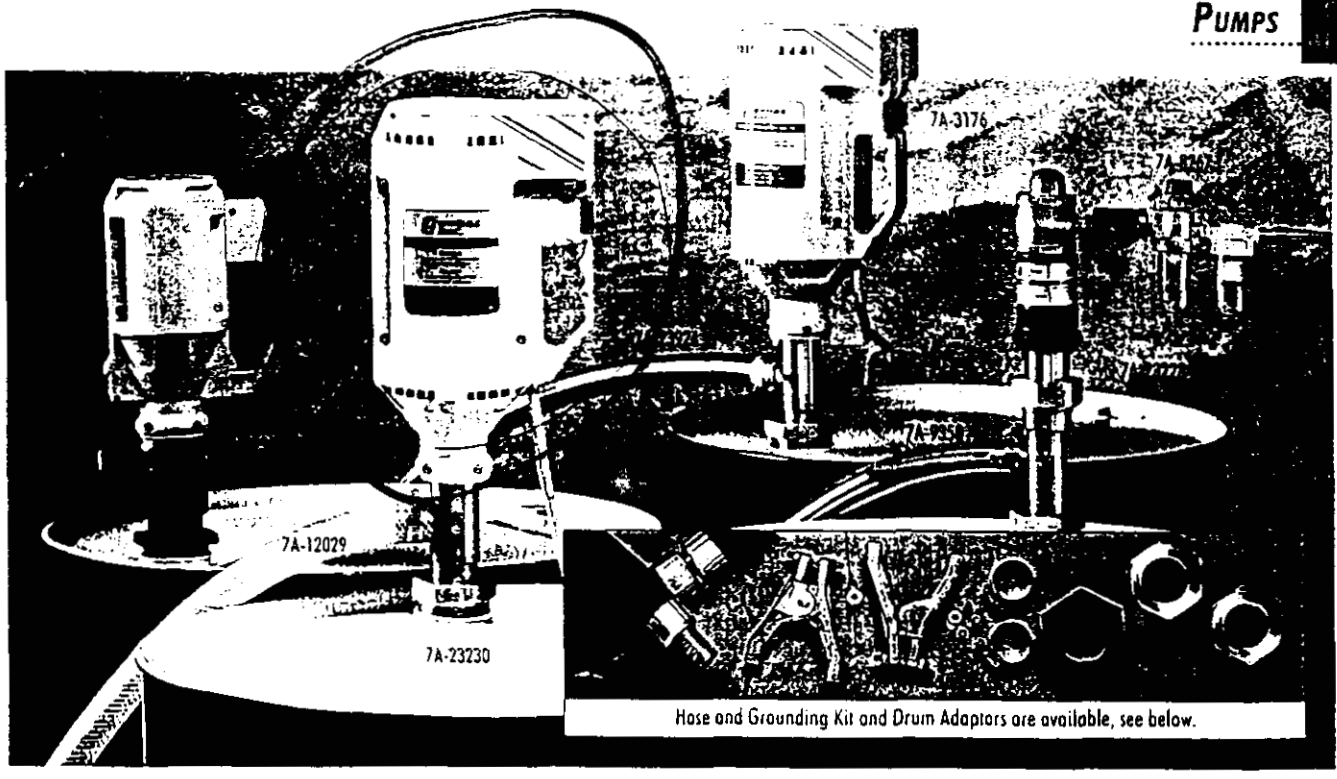
Add elec motor

CONTACT FACTORY FOR OVER-ALL DIMENSIONS ON SPECIFIC MODELS.

explosion proof



C. H. & E. Manufacturing Co. 3849 N. Palmer St. Milwaukee, Wis. 53212
phone 414-964-3400 • FAX 414-964-0677



Hose and Grounding Kit and Drum Adaptors are available, see below.

Finish-Thompson Automatic Drum Pumps

Select from Many Tube and Motor Types to Suit a Wide Range of Uses and Applications

Heavy-duty automatic pumps quickly and safely transfer your workplace liquids.

Specifications: All pumps are designed to fit standard 2" drum openings. *Air-Drive* motor features ½hp, 300–6000 rpm, 50–80 psi and 17–25 cfm. *Totally Enclosed Fan-Cooled* (TEFC) double-insulated, ¼hp motor and *Open-Dripproof* (ODP) ½hp motor features 110V, 60 Hz, single-phase, 10,000 rpm and 12' grounded cord with plug. Handle contains built-in switch with manual reset to protect against thermal overload. TEFC motor is designed for corrosive environments. ODP motor is designed for non-corrosive environments. *Explosion-Proof*, double-insulated motor features 110V, 60 Hz, single-phase, 5000 rpm, ¼hp and a 12' 3-wire cord without plug. Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232 and 23233 have a 30-minute run-dry capability. Choose from Polypropylene and 316 Stainless Steel material types below. Call 1-800-356-2501 for chemical compatibility.

Accessories: *Hose and Grounding Kit* are used for pumping flammables and combustibles. *Filter/Lubricating Assembly* extends the life of your Air-Drive Motor. *PVC Discharge Hose and Clamp, Reinforced PVC Discharge Hose and Clamp, Teflon® Discharge Hose and Clamp* and *Drum Adaptors* let you customize your pump to your application.

Please Specify: Drum Adaptor Material: G (galvanized steel), P (polypropylene), S (316 stainless steel).

No.	Motor Type	Tube Material	Shaft	Shaft Length	Internals	Max. GPM	Max. Feet Head	Max. Temp.	Max. Viscosity (CPS)	Seal	Each
7A-9231	Air	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	32	60	160°F	500	Sealless	675.60
7A-12031	Air	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	32	60	220°F	500	Sealless	883.50
7A-3175	Air	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	16	32	150°F	800	Teflon	927.55
7A-23228	Air	Stainless Steel (USDA Sanitary)	Stainless Steel (USDA Sanitary)	36" x 1½" dia.	S.S./Teflon	16	32	150°F	800	Teflon	1355.95
7A-3174	TEFC	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1055.95
7A-23229	TEFC	Polypropylene	Inconel	40" x 2" dia.	Polypro/Inconel	40	80	160°F	500	Sealless	894.10
7A-23230	TEFC	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	40	80	220°F	500	Sealless	1102.00
7A-23231	TEFC	Stainless Steel (USDA Sanitary)	Stainless Steel (USDA Sanitary)	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1695.00
7A-9230	ODP	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	40	80	160°F	500	Sealless	675.60
7A-12030	ODP	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	40	80	220°F	500	Sealless	883.50
7A-3176	Expl. Proof	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1305.15
7A-23232	Expl. Proof	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	8	20	160°F	500	Sealless	1143.35
7A-23233	Expl. Proof	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	8	20	220°F	500	Sealless	1351.20

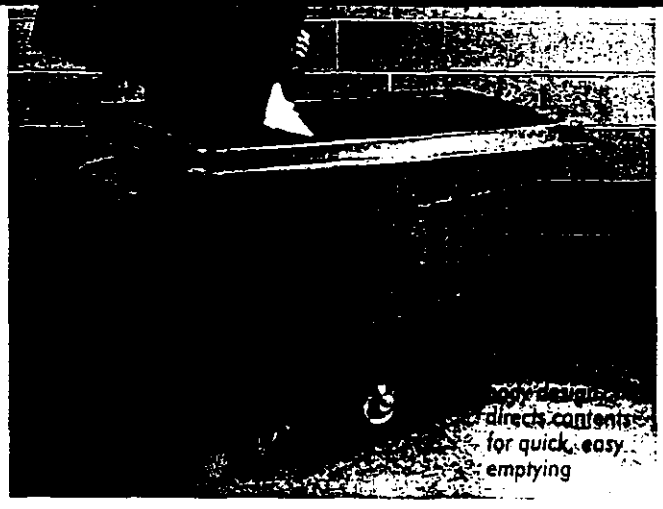
Adaptors

No.	Description	Inside Dia. (in.)	Each Galvanized	Each Polypropylene	Each Stainless Steel
7A-23925	2" NPT Drum Adaptor for Nos. 3175, 23228, 3174, 23231, 3176	1½	42.25	63.40	186.95
7A-23926	2" NPT Drum Adaptor for Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232, 23233	2	42.25	63.40	186.95

Accessories

No.	Description	Each
7A-9337	Hose and Grounding Kit	297.35
7A-8267	Filter/Lubricating Assembly	161.25
7A-9358	1" x 5'L. PVC Discharge Hose and Clamp for use with Nos. 3175, 23228, 3174, 23231, 3176	49.10
7A-12029	Reinforced 1" x 5'L PVC Discharge Hose with Hose Clamp for use with Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232, 23233	56.10
7A-23924	Teflon Discharge Hose and Clamp, 1" x 5'L for use with Nos. 3175, 23228, 3174, 23231, 3176	250.60

DRUM PUMP



Rubbermaid® Tilt Trucks

- Easy-to-clean HDPE construction inhibits bacteria growth
- Resists denting and chipping; corrosion-free

A single operator can roll truck from place to place, collecting waste quickly and efficiently. Available in three styles: *Utility*, with two semi-pneumatic rubber wheels and two rear casters; *Standard*, with two vulcanized rubber wheels and two rear casters; and *Heavy-Duty*, with two vulcanized rubber wheels, two casters and side rails. In stock.

No.	Description	Dimensions (in.) H x W x D	Volume (gal./cubic yd.)	Capacity (lbs.)	Each
7A-26445	Utility	38½ x 29 x 56¾	100½	300	309.65
7A-26446	Standard	38½ x 29 x 60½	100½	750	447.25
7A-26447	Heavy-Duty	38½ x 29 x 60½	100½	1200	516.40
7A-26448	Utility	44 x 34 x 72¼	200 1	750	422.05
7A-26449	Standard	44 x 34 x 72¼	200 1	1000	572.75
7A-26450	Heavy-Duty	44 x 34 x 72¼	200 1	2000	661.30

Note: *No. 26445 does not have steel handle.*

Insider's Tip: Ergonomics

Back injuries are the number one cause of lost-time work accidents among material handlers. Wearing a quality back support while lifting, bending, stooping and reaching for parts helps material handlers maintain proper body postures, reducing the potential for stress-and-strain injuries.

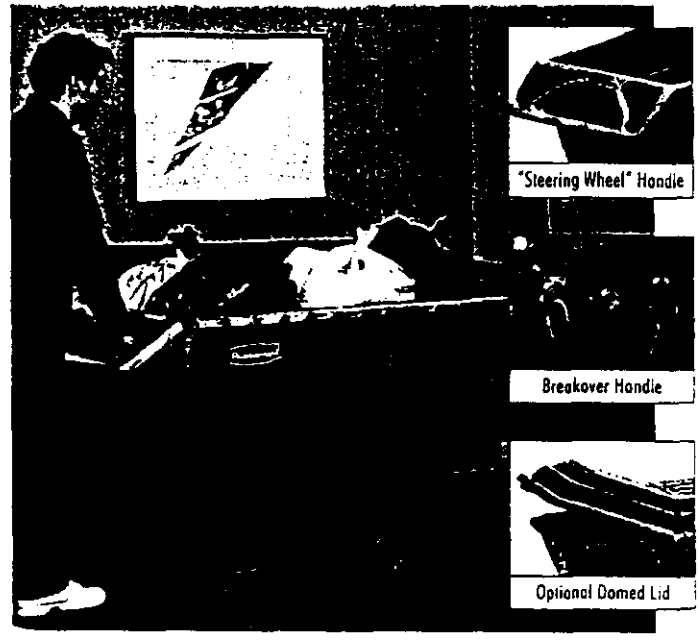
Check out our selection of Ergonomic Back Supports for material handlers on pages 270-271.

Valley Craft® Steel Tilt Trucks

- Made entirely of 14-ga. steel
- Leakproof welds along all seams
- Available with or without hand brake

Large capacity—easy to handle. Tapered on the ends for easier loading and dumping. Convenient welded-on handles allow pinpoint control. Heavy-duty wheel-and-caster assemblies are steel-reinforced for years of worry-free use. Features two 10" x 2½" solid front wheels and one or two 8" x 2" solid rear swiveling wheel(s). *4-wheel Trucks with Hand Brakes* have a remote, hand-engaged braking handle that locks the front wheels in place for stationary loading of heavy items or simplified break-over dumping.

No.	Description	Dim. (in.) H x W x D	Volume (cu. ft.)	Cap. (lbs.)	Shipping Wt. (lbs.)	Each
7A-29709	3-wheel	40 x 24 x 68	17 5	1500	169	376.00
7A-29710	4-wheel	40 x 30 x 68	22 2	2000	198	443.00
7A-29711	4-wheel	40 x 36 x 68	26 7	2000	205	477.55
7A-29712	4-wheel w/brake	40 x 30 x 68	22 2	2000	215	610.60
7A-29713	4-wheel w/brake	40 x 36 x 68	26 7	2000	225	633.60



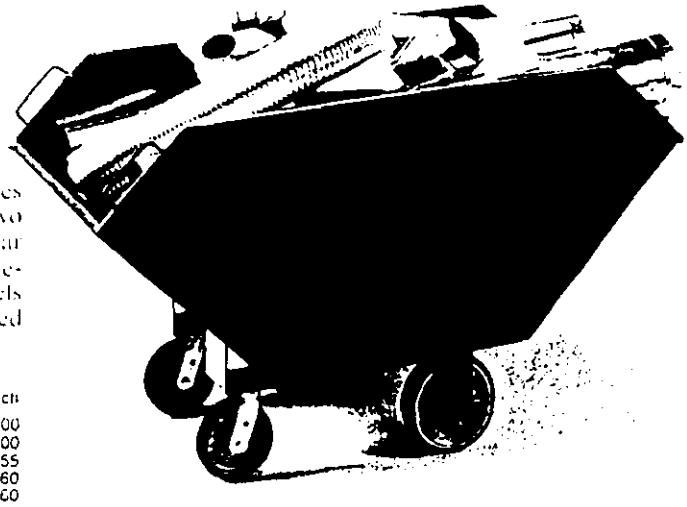
Rubbermaid® Ergonomic Tilt Trucks

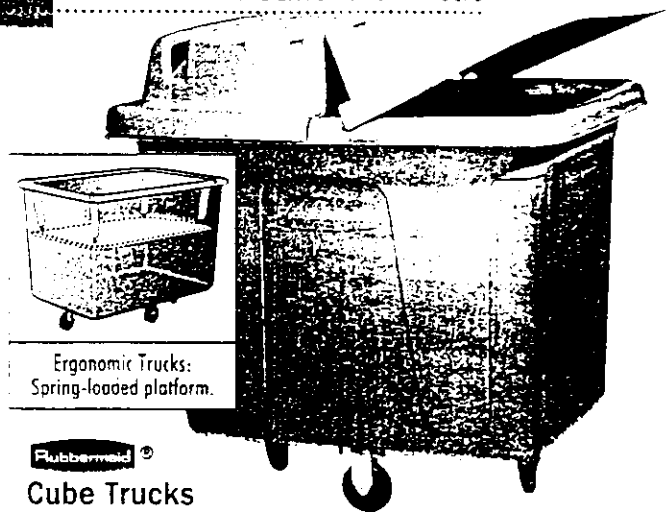
- "Pushover" design includes an extra handle to reduce the strain of dumping
- Streamlined shape, inset wheels—great in tight spaces
- Strong, rust-free structural foam body

Unique "steering-wheel" handle keeps hands and arms in a safe, natural position while you do your maneuvering. Just hose down to clean. *400-lb. Truck* has non-marking 12" x 2⅜" soft rubber wheels; *800-lb. Truck* has extra-strong, 12" x 2⅜" hard rubber wheels. Both styles measure 38"H x 30¼"W x 64½"L. Optional *Domed Lid* with hinged top section keeps cargo safely contained, yet easily accessible. In stock.

No.	Description	Each
7A-27211	400 lb Capacity Truck	474.80
7A-27212	800 lb Capacity Truck	558.65
7A-27213	Domed Lid	136.35

Recyclable Bins





Rubbermaid®

Cube Trucks

- Leakproof plastic body with metal crossbar base
- Straight, smooth walls are easy to clean and sanitize
- USDA approved for food processing

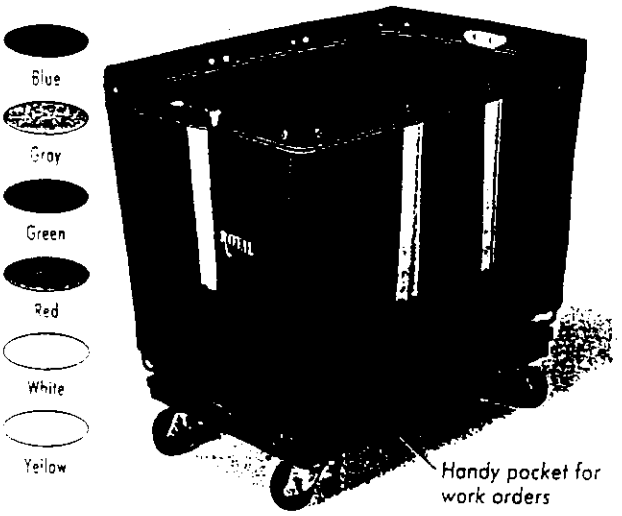
Has two fixed, two swivel casters placed in a diamond configuration. Two sizes are available with a spring-loaded interior platform that automatically brings material to a comfortable working height, reducing the need to bend and reach. Optional hinged, domed *Lids* sold separately. In stock.

Compliance: USDA approved for use in food processing.

Please Specify a Color for Cube Truck: GR (gray), W (white). Trucks with Platform and all Lids available in gray only.

No.	Description	Cap. (lbs.)	Dim. (in.) H	x W	x D	Each
7A-30925	8 cu. ft. truck	300	28⅛	25¼	38⅛	185.40
7A-30926	12 cu. ft. truck	400	23	27	43	244.30
7A-30927	14 cu. ft. truck	500	33	30⅛	44⅛	270.60
7A-30928	16 cu. ft. truck	500	37¼	30⅛	44⅛	297.00
7A-30929	20 cu. ft. truck	500	37	33¼	48⅛	348.95
7A-30930	14 cu. ft. truck w/platform	500	33	30⅛	44⅛	364.65
7A-30931	20 cu. ft. truck w/platform	800	37	33¼	48⅛	432.35
7A-30932	Lid for 8 cu. ft. truck		9	25¼	38⅛	107.95
7A-30933	Lid for 12 cu. ft. truck		9	27¼	43	117.80
7A-30934	Lid for 14 and 16 cu. ft. trucks		9	30⅛	44⅛	127.55
7A-30935	Lid for 20 cu. ft. trucks		9	34	48⅛	137.40

Note: No. 26445 does not have steel handle.



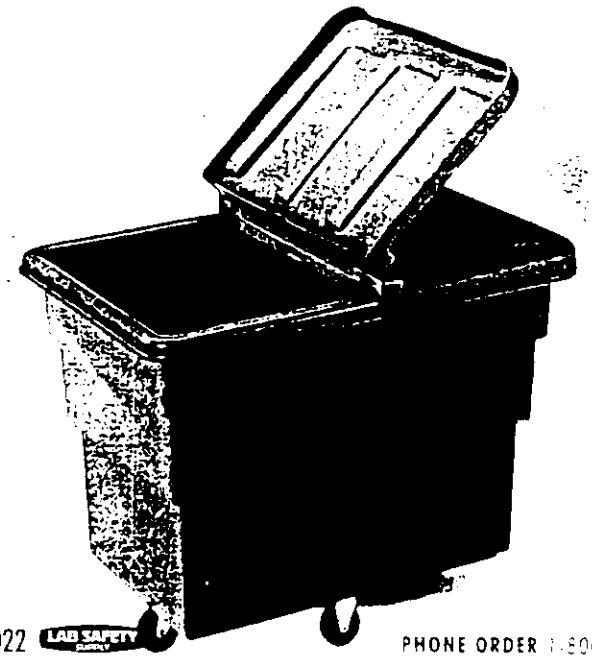
Basket Trucks

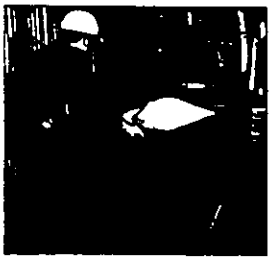
- Double-reinforced walls
- Tough, tightly woven polyester substrate
- Coated inside and out with self-bonding royal vinyl for maximum puncture, abrasion and chemical resistance

Heavy vinyl top crown, all-steel welded frame, extra coverage at all wear points—this truck is ready for many years of rugged service. Moves easily about on swiveling, 3" corner casters attached to a hardwood base. Optional pre-fitted *Vinyl Cover* with elastic hem available in black only.

Please Specify a Color: B (blue), G (green), GR (gray), R (red), W (white), Y (yellow).

No.	Capacity	Overall Height (in.)	Dim. (in.) L	x W	x D	Shipping Wt. (lbs.)	Each
7A-26993	10-bushel	31	36	24	25	33	136.90
7A-26994	12-bushel	33½	36	26	27½	38	149.60
7A-26995	16-bushel	36	40	28	30	50	188.65
7A-26996	18-bushel	36	42	30	30	56	200.25
7A-26997	20-bushel	36	48	32	30	64	210.30
7A-26998	Vinyl Cover for No. 26993					4	19.45
7A-31327-12	Vinyl Cover for No. 26994					4	20.90
7A-31327-16	Vinyl Cover for No. 26995					4	20.90
7A-31328-18	Vinyl Cover for No. 26996					5	24.05
7A-31328-20	Vinyl Cover for No. 26997					5	24.05





Rubbermaid®

Large-Capacity Utility Trucks

- Sturdy polyethylene resists cracking and denting
- Molded-in side ribs add extra strength

The ideal truck for transporting awkward or bulky items. One-piece, smooth-surface design offers easy cleaning; two fixed and two swivel casters (placed in diamond formation) provide fast, easy mobility. *No. 30447* includes a steel support ring to prevent bowing and bulging with full loads. Gray. Add a hinged *Lid* to keep contents safely inside and present a more pleasing appearance. In stock.

No.	Description	Wt. Capacity (lbs.)	Size (in.) H	x W	x D	Weight (lbs.)	Each
7A-30444	12-Bushel Utility Truck	600	34	44½	31⅛	44	298.05
7A-30445	12-Bushel Utility Truck	800	34	44½	31⅛	48	339.85
7A-30446	20-Bushel Utility Truck	800	36	53	39	77	416.00
7A-30447	20-Bushel Utility Truck	1000	36	53	39	84	457.95
7A-30448	Lid for 12-Bushel Truck	–	3¾	45⅜	31⅛	16	128.75
7A-30449	Lid for 20-Bushel Truck	–	3¾	53¼	39⅛	19	171.65

ENPAC POLY-FUNNELS™ prevent splashes without draining your budget!

Save time, money, and prevent nuisance splashes while protecting workers with our POLY-FUNNELS™. These heavy-duty performers can handle whatever you dish out - from oil filter draining to caustic solvents and chemicals.

POLY-FUNNEL 55/30™

Fits 55- and 30-gallon open- and closed-head drums. Perfect for spent drum draining. Deep 6 1/2" side wall handles the contents of a five-gallon pail all at once. Tapered bottom drains FAST! Ask about the funnel cover locking feature. Cover available.

POLY-DRUM FUNNEL 16/5™

Designed for five-gallon pails, 16-gallon drums, and 55-gallon closed-head drums. Handles up to 2.5 gallons poured at once, thanks to the deep 6 1/2" side walls. Cover available.

POLY-FUNNEL 55™

Specifically designed for closed-head 55-gallon drums. Set it and forget it. The scalloped design, 2½" side wall and gravity do the rest.
Cover available.

POLY-FUNNEL™ TALL

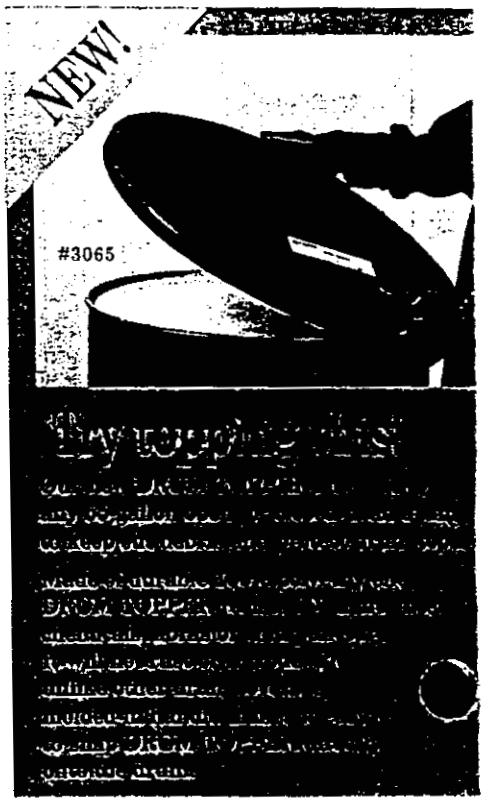
Big splash protection when you're pouring from buckets into closed-head drums. It provides a higher 3½" side wall to reduce splash.

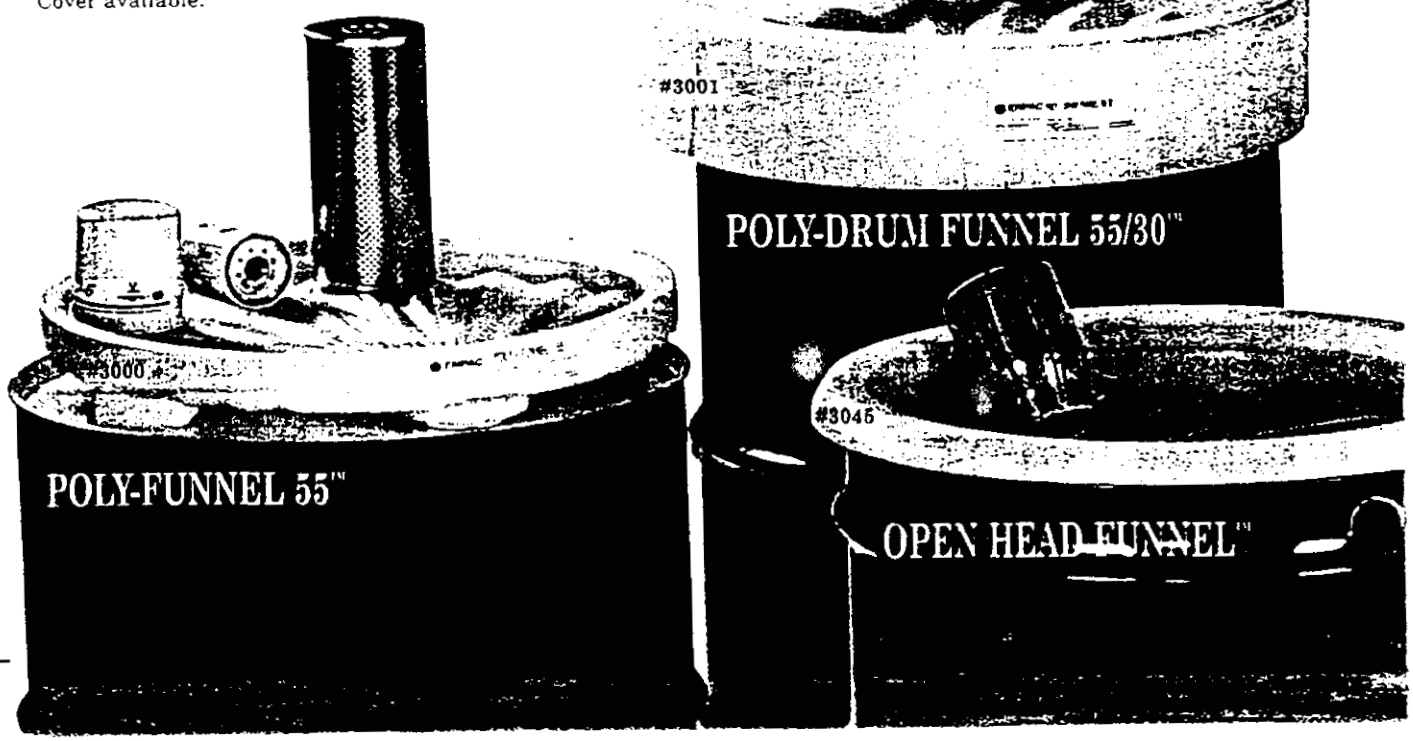
OPEN HEAD FUNNEL™

Large 24 1/2" diameter funnel sits easily on top of open-head 55-gallon drums. Five-inch side wall keeps work areas clean.

POLY-PAIL FUNNEL™

Mounts to 3 1/2-, 5-, and 6-gallon tight-head pails. Also fits open-top pails with 11 1/4" diameter.
Cover available.





FUNNELS

Specifications

POLY-DRUM FUNNEL 55/30™

Product No.	3001
Weight	6 lbs. / 3 kg
Capacity	6 gallons / 23 liters

FUNNEL 55/30™ COVER

Product No.	3056
Weight	2 lbs. / 1 kg

SAFETY FUNNEL 55/30™

Product No.	3018
Weight	6 lbs. / 3 kg

*Includes flame arrestor & POLY-DRUM FUNNEL 55/30

POLY-DRUM FUNNEL 16/5™

Product No.	3003
Weight	3 lbs. / 1.5 kg
Capacity	2½ gallons / 9 liters

FUNNEL 16/5™ COVER

Product No.	3057
Weight	1½ lbs. / 1 kg

POLY-FUNNEL™ TALL

Product No.	3002
Weight	6 lbs. / 3 kg

POLY-FUNNEL™ 55

Product No.	3000
Weight	5 lbs. / 2 kg

POLY-FUNNEL™ 55 COVER

Product No.	3050
Weight	2¼ lbs. / 1 kg

SAFETY FUNNEL™

Product No.	3090
Weight	5 lbs. / 2 kg

*Includes flame arrestor & POLY-FUNNEL 55

OPEN-HEAD FUNNEL™

Product No.	3045
Weight	10 lbs. / 5 kg

POLY-PAIL FUNNEL™

Product No.	3005
Weight	2 lbs. / 1 kg

POLY-PAIL COVER™

Product No.	3051
Weight	1 lb. / .5 kg

DRUM TOPPER™

Product No.	3065
Weight	2.5 lbs. / 2 kg

Safety Funnel™ 55/30

POLY-DRUM FUNNEL 55/30 with flame arrestor. Ideal for flamable liquids. #3018

Drain Drums!

Spent drum contents drain easily with POLY-DRUM FUNNEL 55/30, saving time and materials. #3001

ENPAC CORPORATION

EXAMPLES
EXAMPLES

SHOWN IN ACTUAL SITUATIONS

SPILL CONTAINMENT WHEN HANDLING ENVIRONMENTALLY SENSITIVE MATERIAL

SPILL PREVENTION DURING FLUID TRANSFER.

Additional Products

- FIBERGLASS **STRUCTURES**
  By RM Storage Products Ltd.
- ZORBOLITE **HYDROCARBON ABSORBENT**
  By GEM Manufacturing Ltd.
- POWERCLEAN & PREWASH **MULTIPURPOSE CLEANER**
  By EcoSolv
- POLYSHIELD **SS100**

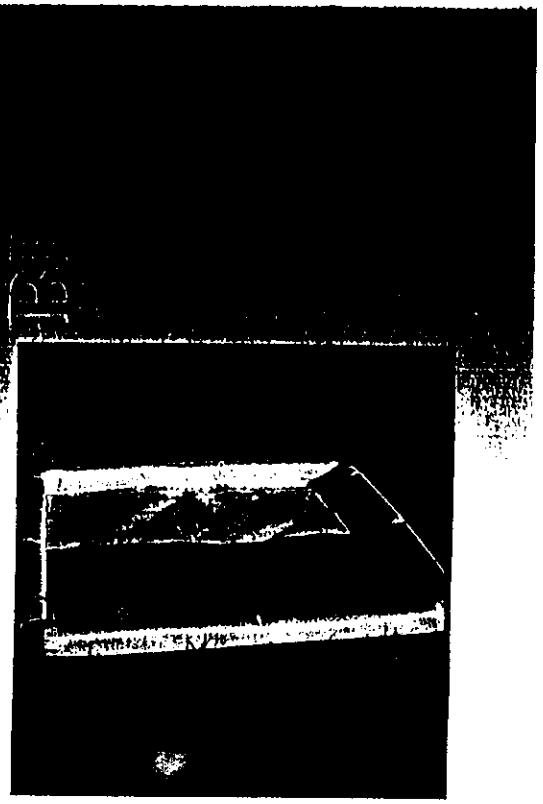
  By CCI

For more information on our other products, please call

(907)-452-7043

Or fax (909)-452-8310

KNOCK DOWN PORTABLE BERMS



Spill Containment

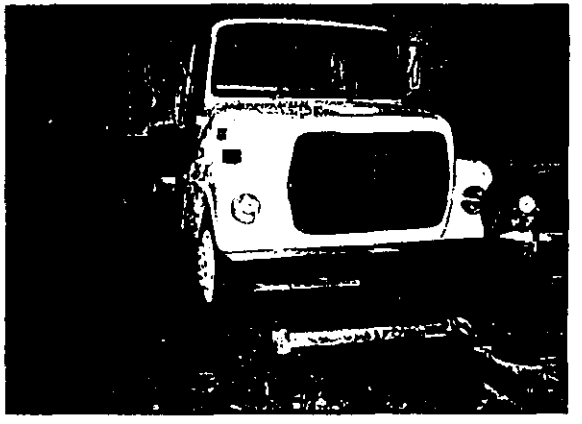
Features

- Reusable
- Light weight
- Good in temperatures down to -65° F
- Will contain petroleum & glycol products
- Stores easily
- Cost effective & in compliance with safety standards

DESCRIPTION

The knock down portable berm ("berm") consists of a liner and berm, that is formed from closed and open cell foam (for a 4" berm). The foam has been chosen for its low temperature properties and its resiliency. The liner material has been chosen for its extremely strong properties of resisting chemicals such as crude, diesel, methanol, and glycol. The liner material has also been used extensively in the Arctic and is suitable for temperatures as low as -65° F.

Berms were designed by CCI as a quick, temporary installation for the prevention of spills. The size of the containment area can be customized to fit any need. Suitable applications stem anywhere from drip pans for use under equipment to containment of spills during fuel transfers. They are also used extensively to store chemicals in.



OPTIONS
OPTIONS

The material which makes up these berms is very smooth. Thus, if personnel are going to stand in or on the berms, we offer some additional features that can be added to our berms. Ruftop is an overlay we can add that is placed on the liner to form a slip-resistant work surface and provide protection for the material against heavy traffic. Although the liner material is tough this ruftop helps prevent sharp objects from tearing down through the liner. The working overlay is a flexable cold weather matting that will offer a good slip resistant surface. When working in areas of snow or ice we offer sets of cleats that are welded to the bottom of the berm. These additions will make the berms safer when they are placed on snow or ice.

SIZES

In addition to the 4" foam berm we offer a 2" sand filled berm. Our standard 2" berm is the 18" x 18" x 2" drip pan. These berms are made from the same liner material and are designed to hold a 18" x 18" pad of absorbent material. The 2" sand filled berm allows for the containment of small spills (approximately 2.5 gallons) and it weighs 9 lbs.. The drip pan can be folded into a compact size and is handy for storing in a truck or heavy equipment cab. Different sizes can be manufactured at purchaser's request.

PRICE LIST
PRICE LIST

4" FOAM FILLED BERM

Sizes	Price (bare)	Price (w/cleats)	Price (w/cleats & ruftop)
2' x 2' x 4"	$168.00		
3' x 3' x 4"	$270.00	$285.00	$305.00
3' x 4' x 4"	$283.00	$298.00	$315.00
4' x 4' x 4"	$292.00	$305.00	$321.00
4' x 5' x 4"	$319.00	$327.00	$353.00
4' x 6' x 4"	$340.00	$354.00	$416.00
4' x 8' x 4"	$389.00	$402.00	$465.00

2" SAND FILLED BERM

Sizes	Price (1-5)	Price (5+)
18" x 18" x 2"	$59.50	$59.50
30" x 42" x 2"	$98.00	$98.00
30" x 84" x 2"	$183.00	$166.00
40" x 40" x 2"	$147.00	$133.00
40" x 74" x 2"	$187.00	$170.00
40" x 96" x 2"	$222.00	$202.00
3' x 3 x 2"	$126.00	$116.00
3' x 6' x 2"	$175.00	$159.00
4' x 4' x 2"	$171.00	$156.00
4' x 6' x 2"	$217.00	$198.00
4' x 8' x 2"	$253.00	$230.00

Quotes are avalable on any size berms

We WILL design to fit your needs

If you have any questions or wish to place an order please call

(907)-452-7043

or fax an order to

(907)-452-8310

1/26/97

Call for Current Pricing

NuERA Technologies, Inc.

NW REGIONAL OFFICE
P.O. Box 5357
Kent, WA 98064
(206) 639-3630
FAX 206-639-3622

ALASKA OFFICE
P.O. Box 112332
Anchorage AK 99511
(907) 345-6411

DATE: 6/5/96

FAX TRANSMITTAL TO: Tom Fisher
USKH
FAX # 452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 8 PAGES

MESSAGE: Ref: Oil Filter Crusher Info.
Elements > 16" Tall

Herkules - 3 pgs

Oberg - 4 pgs.

Tom,
Give me a call if you have any questions.

Tks.

Steve

RECEIVED
JUN-6-1996
USKH
FAIRBANKS, ALASKA

NuERA Technologies, Inc.
Steven R. Ransom
Profitable Waste Management
· Waste Oil Furnaces
· On Site Disposal/Recycling Eq.
· Waste Assessment & Minimization Programs

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Anchorage, AK 99511-2332
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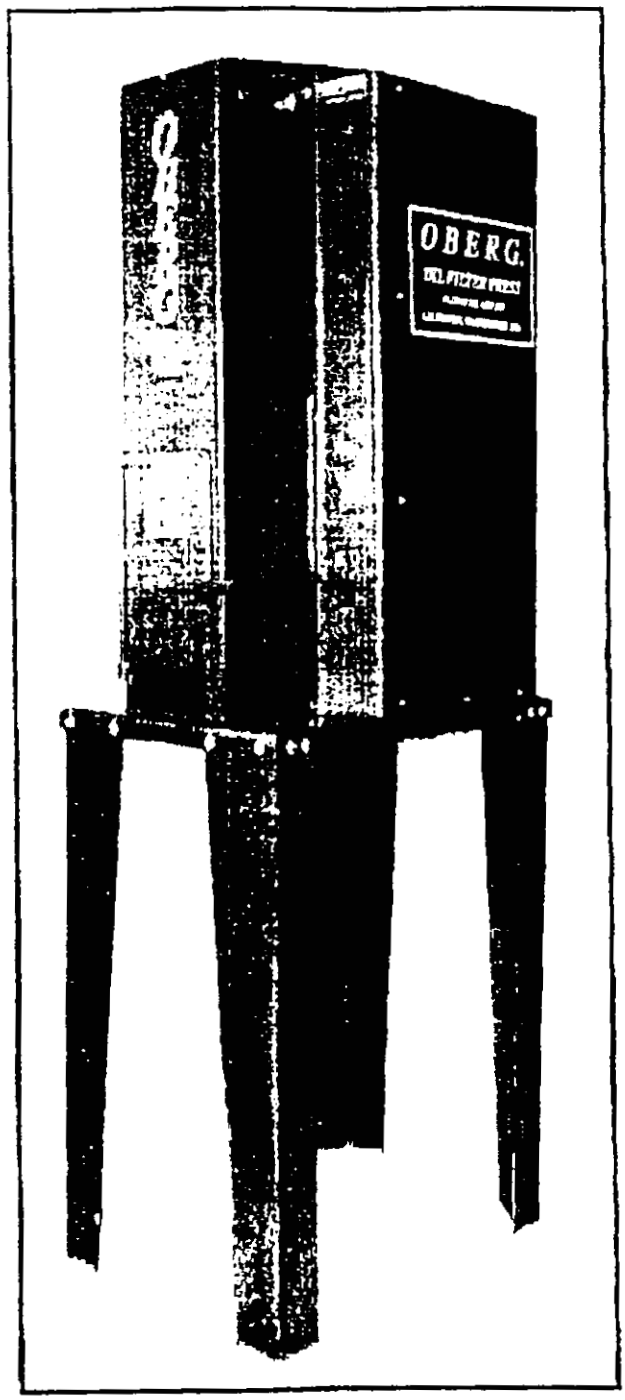
(907) 345-6411

OBERG™

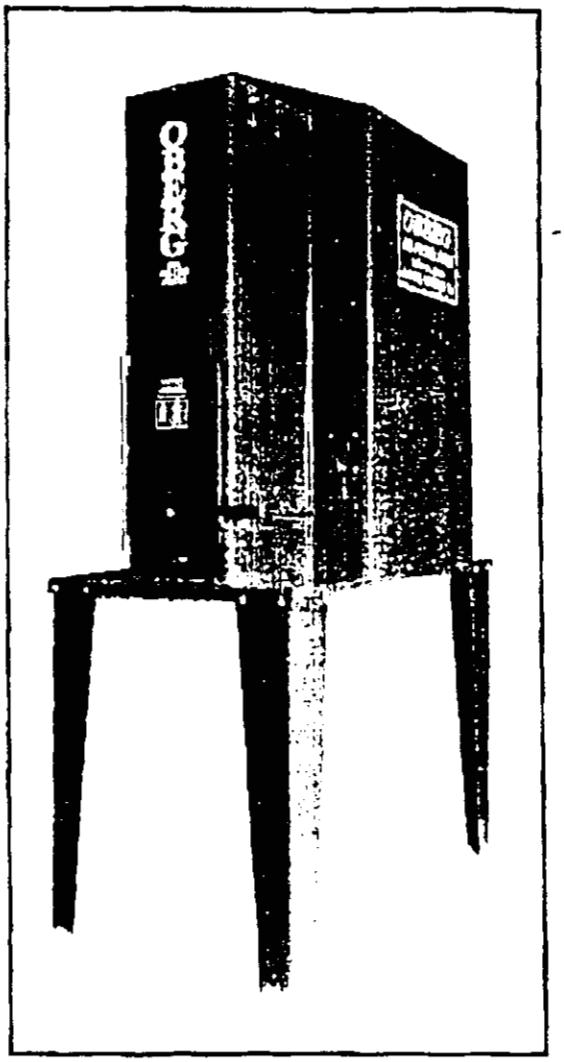
America's #1 Quality Filter Press



Models For Automotive, Heavy Truck And Industrial Filters

MODEL P-300

#1 CHOICE FOR CRUSHING INDUSTRIAL SIZE FILTERS



The *OBERG* Model P-300 provides more crushing force than any competitor, crushing filters up to 20" tall, multiple smaller filters at once, and oily shop rags. The large crushing chamber also allows crushing five gallon paint cans into thin wafers. With over 70,000 pounds of crushing force, the P-300 removes the maximum oil possible from used filters! This eliminates the fabric mess and disposal problem typical when cutting filters.

Crushed filters are deposited through a trap door in the rear of the crushing chamber directly into a transport drum. The P-300 includes legs to house two 55 gallon drums under the machine. One drum can be used for crushed filters and the other for waste oil. A drain located under the crushing chamber allows for waste oil to be plumbed directly to a drum or bulk tank.

All operation is provided by a fully self-contained electric/hydraulic power unit. This provides consistent crushing force without the need for high volume air supply, condensation filters and lubricators necessary with air units.

A push button control activates the system and a built in safety mechanism prevents the machine from operating when the loading door is open.

DIMENSIONS

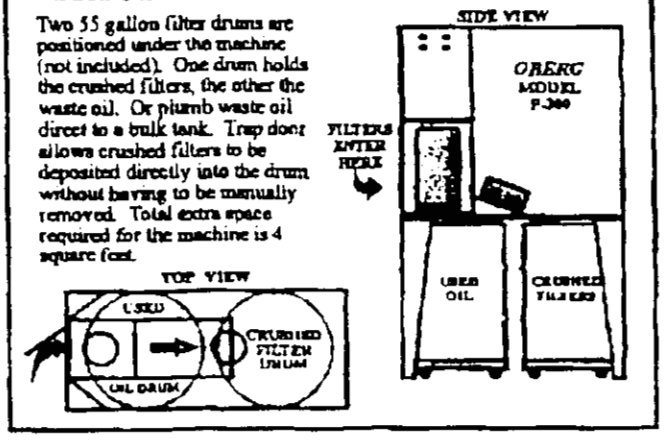
Overall Height	*104"*
Overall Width	*36"*
Overall Length	*60"*
Shipping Weight	*1,380 Lbs.*

SPECIFICATIONS

Cycle Time	*57 sec.*
Cavity Size	*15"w x 15"d x 20"h*
Electrical	*208-220v. 15 amp. Single Phase*
Crushing Force	*70,640 Lbs.*

SPACE SAVING

Two 55 gallon filter drums are positioned under the machine (not included). One drum holds the crushed filters, the other the waste oil. Or plumb waste oil direct to a bulk tank. Trap door allows crushed filters to be deposited directly into the drum without having to be manually removed. Total extra space required for the machine is 4 square feet.



OBERG International Inc.

NuERA TECHNOLOGIES
P.O. Box 112032
Anchorage, AK 99511-2032
(907) 345-6411
800-317-9575

Manufacturer of Quality Waste Reduction Equipment

OBERG OIL FILTER PRESS
USER PRICE SHEET

OBERG PART #	PRODUCT DESCRIPTION	USER PRICE	SHIPPING WEIGHT
	P100WM FILTER PRESS Automotive and Light Industrial Filter Press Mounts To Wall	1,695.00	360 lbs
	P200L FILTER PRESS H.D. Truck Filter Press (Note: Model P-200 Will Also Crush Multiple Automotive And Light Industrial Filters) With Legs To House One 55 Gallon Drum	3,880.00	615 lbs
	P300 FILTER PRESS H.D. Industrial Filter Press (Crushes Filters Up To 20" Tall) (Also Crushes 5 Gallon Size Cans) With Legs To House Two 55 Gallon Drums	5,495.00	1380 lbs
	P350 FILTER PRESS H.D. Industrial Filter Press (Crushes Railroad Type Filters Up To 40" Tall) (Also Crushes Multiple 5 Gallon Size Cans) Includes Bins For Collection Of Filters And Waste Oil	14,950.00	3000 lbs

SHIPMENTS: F.O.B. ARLINGTON, WASHINGTON
TERMS: 2%10 NET30

Prices effective September 1, 1995

OBERG™ FILTER PRESS

The American Standard For Crushing All Size Filters

Auto - Heavy Duty Truck - Industrial - Railroad

Used Filter Recycling Across America

PARTIAL COMMERCIAL CUSTOMER LIST

Cummins Service Products - Detroit Diesel
Volvo GM Heavy Truck - PACCAR
Rollins Truck Leasing - Ryder Truck Leasing
Penske Truck Leasing - United Parcel Service
Waste Management - Coca Cola - Boeing
Chicago Transit - Milwaukee Transit
Peabody Coal - Mobil

Weyerhauser
Puget Power
Tri-Met Oregon
City of Torrance
City of San Diego
Los Angeles Water & Power
Pacific Gas & Electric
Northrop
Long Beach Transit
City of Huntington Beach
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Mrnit-Lube
Sam Trans
Southern Pacific Railroad
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Atlantic Richfield - Borden
Mason & Hanger - Capitol Metro Austin
Consolidated Freightways - J.B. Hunt Transport

AND THOUSANDS MORE, REFERENCES UPON REQUEST

OBERG Also Supplies Federal Government Facilities Under Contract

GSA Contract #GS-07F-71950

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DEPARTMENT OF TRANSPORTATION - U.S. PROPERTY - F.A.A.

Call Or Fax To Request Complete Catalog And Video

OBERG International, Inc., Arlington WA U.S.A.

"America's #1 Quality Filter Press"

NuERA Technologies, Inc.

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FAX 206-639-3622

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Anchorage AK 99511
(907) 345-6411

DATE: 7/29/96

FAX TRANSMITTAL TO: Tom Fisher, USKH

FAX # 907/452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 1 PAGES

MESSAGE:

REF: Bid specs: Kerkulos oil filter crusher (manufacturer's written bid sheet not located)

Sample spec for Model OFC-4

Capable of crushing filters 20" high by 9" diameter, minimum crushing pressure 17.5 tons, maximum 55 second cycle time, air operated; supplied with air filter-regulator & gauge, and timer.

NuERA Technologies, Inc. Steven R. Ransom
Profitable Waste Management
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- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs
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NuERA Corporation

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Fax (206) 639-3622

ALASKA OFFICE
P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411
1-800-347-9575

SMART ASH

Date: 1/10/97

To: Tom Fisher - USKH

Page 1 of 5 Pages

Fax # 452-4225

From: Steve Ransom, NuERA Corporation Fax 206-639-3622

Message:

Tom,

Here's the Smart Ash information I was able to copy for you. Original Brochure Slicks enroute via US Mail, (and associated data)

List Price on Incinerator @ $3,295

"Smart Heat" Energy Recovery Unit @ $4,700

Thanks for your Call.

Sincerely,

Steve R.

NuERA Corporation
Steven R. Ransom
Profitable Waste Management
• Waste Oil Furnaces
• On Site Disposal/Recycling Eq.
• Waste Assessment & Minimization Programs

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FAX (206) 639-3622

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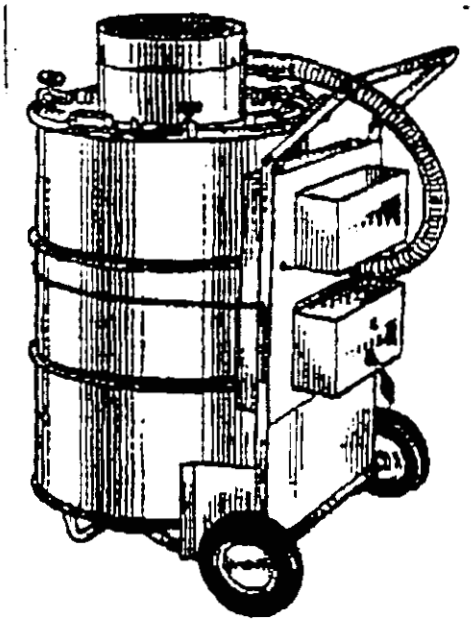
ELASTEC INC

POLLUTION CONTROL SYSTEMS

SmartAsh Power to Burn

This innovative combustion system meets EPA requirements for burning non-hazardous refuse.



SmartAsh uses no fuel. Simply load a 55 gallon, open head, steel drum; light it and clamp on the lid.

Two 120v electric high-velocity blowers create a cyclone of intense heat. Combustion is so complete the volume of materials is reduced to an average of 3% ash. Portable and convenient, SmartAsh rolls out of sight when the job is done.

The air powered SmartAsh reduces disposal cost while eliminting possible long term environmental liabilities.

SmartAsh gives you the power to burn!

REPORTED FUELS:

Absorbent Materials
(Natural & Synthetics)
Classified Papers
Office Waste
Filters
Packing Materials
Clothing

Specifications

Construction:
*Stainless Steel Lid
*Plated Tubular Steel Frame
*2-Blowers, Axial Vane 120 V Standard
or 220 V optional
*Requires: 55 Gallon Steel Open Head Drum

Height: 43"
Floor Space: 32" x 32"
Weight: 75 lbs. Without Drum
116 lbs. With Drum
Burn Rate: 50 LBS./HR.

NuERA Corporation
P.O. Box 5357
KENT, WASHINGTON 98064-5357
(206) 639-3630
800-347-9575

Product #100

SMART ASH MODEL 100A

This innovative combustion system meets EPA & DEC requirements for burning non-hazardous oily waste and other combustible refuse. The Smart Ash uses no fuel. Simply load a 55 gal. open-head steel drum; light it and clamp on the lid. Two 120V electric high velocity blowers create a cyclone of intense heat. Combustion is so complete, the volume of materials is reduced to an average of 3% ash. Portable and convenient, the Smart Ash rolls out of sight when the job is done.

SMART Ash®

POWER TO BURN!

OVER 100 UNITS IN USE STATE WIDE

Attn: Tom. 5 of 5

List of burnable's for Smart Ash

1.) Absorbent types
- a.) Cellulose base types
- b.) Cotton
- c.) Polypropylene & Cotton mix
- d.) Corn cob
- e.) Saw dust
- f.) Peat moss

2.) Hydrocarbons
- a.) All types of crude's
- b.) Waste oils
- c.) Used motor oils
- d.) Transmission oils all types and weights
- e.) Lubricating greases
- f.) Hydraulic oils
- g.) Diesel fuels #1 and #2
- h.) Kerosene's
- I.) Jet fuels (flash point above 100 degrees Fahrenheit.)

All **liquids must** be absorbed in a burnable absorbent, to be incinerated.

3.) Filters
- a.) Spin on and cartridge oil filters from cars and trucks, heavy equipment
- b.) Air filters of all types, car, truck, industrial types
- c.) Poly & Fiberglass filters
- d.) Natural Gas pipeline filters (glycol filters)

4.) Paper Products
- a.) Newspapers
- b.) Office wastes
- c.) Cardboards
- d.) Fast food paper wastes
- e.) Computer papers
- f.) Sensitive documents

5.) Wood products
- a.) Saw dust
- b.) Scrap at construction sites
- c.) Tree limbs & leaves
- d.) Shipping Pallets
- e.) Any type of wood products will fit this category

6.) Plastic's

This unit will incinerate a wide variety of plastic's. The volatile emission's emitted by these types of material are not acceptable in the permitting requirements.

7.) Miscellaneous
- a.) Clothing
- b.) Gloves
- c.) Oily rags
- d.) Packaging material

DANGER
HAZARDOUS WASTE STORAGE AREA
UNAUTHORIZED PERSONS KEEP OUT

FG	10 x 14	70375
AL	7 x 10	40665
AL	10 x 14	40666
PL	7 x 10	22101
PL	10 x 14	22102
SS	7 x 10	84080
SS	10 x 14	84081

DANGER
KEEP OUT

FG	10 x 14	47008
FG	14 x 20	75478
AL	7 x 10	40675
AL	10 x 14	40676
PL	7 x 10	22111
PL	10 x 14	22112
SS	7 x 10	84095
SS	10 x 14	84096

DANGER
PESTICIDE STORAGE
AUTHORIZED PERSONNEL ONLY

FG	10 x 14	70479
AL	7 x 10	40685
AL	10 x 14	40686
PL	7 x 10	22121
PL	10 x 14	22122
SS	7 x 10	84107
SS	10 x 14	84108

NOTICE
ALL EMPLOYEES WHOSE WORK DOES NOT REQUIRE THEM TO ENTER THIS AREA MUST KEEP OUT

FG	10 x 14	69380
AL	7 x 10	40695
AL	10 x 14	40696
PL	7 x 10	22131
PL	10 x 14	22132
SS	7 x 10	84119
SS	10 x 14	84120

NOTICE
AUTHORIZED PERSONNEL ONLY

FG	7 x 10	70604
FG	10 x 14	70602
AL	7 x 10	40705
AL	10 x 14	40706
PL	7 x 10	22141
PL	10 x 14	22142
SS	7 x 10	84129
SS	10 x 14	84130

NOTICE
NO ADMITTANCE EMPLOYEES ONLY

FG	10 x 14	69362
AL	7 x 10	40715
AL	10 x 14	40716
PL	7 x 10	22151
PL	10 x 14	22152
SS	7 x 10	84141
SS	10 x 14	84142

DANGER
HIGH VOLTAGE KEEP OUT

FG	7 x 10	45470
FG	10 x 14	45471
FG	14 x 20	45472
AL	7 x 10	40667
AL	10 x 14	40668
PL	7 x 10	22103
PL	10 x 14	22104
SS	2¼ x 4½	89174
SS	3½ x 5	84082
SS	7 x 10	84083
SS	10 x 14	84084

DANGER
KEEP OUT
HAZARD AREA

FG	14 x 20	71091
AL	7 x 10	40677
AL	10 x 14	40678
PL	7 x 10	22113
PL	10 x 14	22114
SS	7 x 10	84097
SS	10 x 14	84098

DANGER
RESTRICTED AREA

FG	10 x 14	69473
AL	7 x 10	40687
AL	10 x 14	40688
PL	7 x 10	22123
PL	10 x 14	22124
SS	7 x 10	84109
SS	10 x 14	84110

NOTICE
ALL LUNCH BOXES, PACKAGES, BAGS, PURSES, ETC. ARE SUBJECT TO INSPECTION

FG	10 x 14	69382
AL	7 x 10	40697
AL	10 x 14	40698
PL	7 x 10	22133
PL	10 x 14	22134
SS	7 x 10	84121
SS	10 x 14	84122

NOTICE
EMPLOYEES ONLY

FG	7 x 10	47301
FG	10 x 14	47327
AL	7 x 10	40707
AL	10 x 14	40708
PL	7 x 10	22143
PL	10 x 14	22144
SS	7 x 10	84131
SS	10 x 14	84132

NOTICE
NO ADMITTANCE WITHOUT A PERMIT

FG	10 x 14	71157
AL	7 x 10	40717
AL	10 x 14	40718
PL	7 x 10	22153
PL	10 x 14	22154
SS	7 x 10	84143
SS	10 x 14	84144

DANGER
HIGH VOLTAGE
UNAUTHORIZED PERSONNEL KEEP OUT

FG	14 x 20	71580
AL	7 x 10	40669
AL	10 x 14	40670
PL	7 x 10	22105
PL	10 x 14	22106
SS	7 x 10	84085
SS	10 x 14	84086

DANGER
NO ADMITTANCE

FG	7 x 10	47154
AL	7 x 10	40679
AL	10 x 14	40680
PL	7 x 10	22115
PL	10 x 14	22116
SS	7 x 10	84101
SS	10 x 14	84102

DANGER
ROBOTIC AREA
AUTHORIZED PERSONNEL ONLY

FG	10 x 14	69461
AL	7 x 10	40689
AL	10 x 14	40690
PL	7 x 10	22125
PL	10 x 14	22126
SS	7 x 10	84111
SS	10 x 14	84112

NOTICE
ALL TRUCK DRIVERS MUST SIGN IN BEFORE PROCEEDING PAST THIS POINT

FG	10 x 14	69386
AL	7 x 10	40699
AL	10 x 14	40700
PL	7 x 10	22135
PL	10 x 14	22136
SS	7 x 10	84123
SS	10 x 14	84124

NOTICE
ENTRANCE FOR EMPLOYEES ONLY

FG	10 x 14	69210
AL	7 x 10	40709
AL	10 x 14	40710
PL	7 x 10	22145
PL	10 x 14	22146
SS	7 x 10	84133
SS	10 x 14	84134

NOTICE
NO ADMITTANCE WITHOUT PASS FROM OFFICE

FG	10 x 14	69392
AL	7 x 10	40718
AL	10 x 14	40720
PL	7 x 10	22155
PL	10 x 14	22156
SS	7 x 10	84145
SS	10 x 14	84146

DANGER
KEEP AWAY

FG	10 x 14	47006
FG	14 x 20	69310
AL	7 x 10	40671
AL	10 x 14	40672
PL	7 x 10	22107
PL	10 x 14	22108
SS	7 x 10	84089
SS	10 x 14	84090

DANGER
NOT A PEDESTRIAN WALKWAY
FORK TRUCKS ONLY

FG	10 x 14	69410
AL	7 x 10	40681
AL	10 x 14	40682
PL	7 x 10	22117
PL	10 x 14	22118
SS	7 x 10	84103
SS	10 x 14	84104

DANGER
THIS ENCLOSURE CONTAINS HIGH VOLTAGE ELECTRICAL EQUIPMENT AND MUST NOT BE ENTERED EXCEPT BY PERMISSION

FG	14 x 20	69523
AL	7 x 10	40691
AL	10 x 14	40692
PL	7 x 10	22127
PL	10 x 14	22128
SS	7 x 10	84113
SS	10 x 14	84114

NOTICE
ALL VEHICLES ENTERING OR LEAVING THE PREMISES ARE SUBJECT TO INSPECTION

FG	10 x 14	69387
AL	7 x 10	40701
AL	10 x 14	40702
PL	7 x 10	22137
PL	10 x 14	22138
SS	7 x 10	84125
SS	10 x 14	84126

NOTICE
NO ADMITTANCE

FG	10 x 14	70699
AL	7 x 10	40711
AL	10 x 14	40712
PL	7 x 10	22147
PL	10 x 14	22148
SS	7 x 10	84137
SS	10 x 14	84138

NOTICE
NO ENTRY UNLESS AUTHORIZED

FG	7 x 10	70715
FG	10 x 14	70719
AL	7 x 10	40721
AL	10 x 14	40722
PL	7 x 10	22157
PL	10 x 14	22158
SS	7 x 10	84149
SS	10 x 14	84150

DANGER
KEEP OFF

FG	7 x 10	47152
FG	10 x 14	47007
AL	7 x 10	40673
AL	10 x 14	40674
PL	7 x 10	22109
PL	10 x 14	22110
SS	7 x 10	84091
SS	10 x 14	84092

DANGER
PESTICIDE STORAGE AREA ALL UNAUTHORIZED PERSONS KEEP OUT
FUME MAY CAUSE TOXIC FUMES

FG	10 x 14	70480
AL	7 x 10	40683
AL	10 x 14	40684
PL	7 x 10	22119
PL	10 x 14	22120
SS	7 x 10	84105
SS	10 x 14	84106

DANGER
UNSAFE ROOF
KEEP OFF

FG	10 x 14	74391
AL	7 x 10	40693
AL	10 x 14	40694
PL	7 x 10	22129
PL	10 x 14	22130
SS	7 x 10	84115
SS	10 x 14	84116

NOTICE
ALL VISITORS AND JOB APPLICANTS MUST STOP AND SIGN IN AT GATE HOUSE

FG	10 x 14	69388
AL	7 x 10	40703
AL	10 x 14	40704
PL	7 x 10	22139
PL	10 x 14	22140
SS	7 x 10	84127
SS	10 x 14	84128

NOTICE
NO ADMITTANCE APPLY AT OFFICE

FG	10 x 14	47328
AL	7 x 10	40713
AL	10 x 14	40714
PL	7 x 10	22149
PL	10 x 14	22150
SS	7 x 10	84139
SS	10 x 14	84140

NOTICE
NO SOLICITATION OR DISTRIBUTION OF MATERIALS ALLOWED ON COMPANY PROPERTY AT ANY TIME

FG	10 x 14	69402
AL	7 x 10	40723
AL	10 x 14	40724
PL	7 x 10	22159
PL	10 x 14	22160
SS	7 x 10	84151
SS	10 x 14	84152

SIGNS

SATISFACTION GUARANTEED

Hazard Communication 1910.12004

Every workplace exposure that an employee experiences is the responsibility of the employer. The worker has the right to know what he is being exposed to. You must placard to make the employee aware of this exposure. Under Hazard Communication, the employer must ensure that every container of hazardous chemicals in the workplace, where there is the potential of exposure, is labeled, tagged, or marked.

Liquefied Hydrogen, Flammable Gas 1910.103(c)(2)(i)

Hydrogen storage sites must be placarded as follows: LIQUEFIED HYDROGEN – FLAMMABLE GAS – NO SMOKING – NO OPEN FLAMES.

No Unauthorized Personnel 1910.103(c)(2)(i)

Hydrogen storage sites have to be fenced and posted to prevent entrance by unauthorized personnel.

Hydrogen Gas Storage Areas 1910.103(b)(1)(v)

Hydrogen gas storage locations must be permanently placarded as follows: HYDROGEN – FLAMMABLE GAS – NO SMOKING – NO OPEN FLAMES, or the equivalent.

Non-potable Water 1926.51(b)

Outlets for non-potable water must be identified with signs meeting the requirements of Subpart G of Part 1926 (Signs, Signals and Barricades) to clearly indicate that the water should not be used for drinking, washing, or cooking purposes.

CAUTION

ACID

FG	10 x 14	69371
AL	7 x 10	40826
AL	10 x 14	40827
PL	7 x 10	22262
PL	10 x 14	22263
SS	7 x 10	84285
SS	10 x 14	84286

CAUTION

CARBON MONOXIDE MAY BE PRESENT

AL	10 x 14	43496

CAUTION

CHEMICAL LINES OVERHEAD

FG	10 x 14	76073
AL	7 x 10	40828
AL	10 x 14	40829
PL	7 x 10	22264
PL	10 x 14	22265
SS	7 x 10	84289
SS	10 x 14	84290

CAUTION

CHLORINE AREA

FG	10 x 14	69042
AL	7 x 10	40830
AL	10 x 14	40831
PL	7 x 10	22266
PL	10 x 14	22267
SS	7 x 10	84291
SS	10 x 14	84292

CAUTION

EYE AND GLOVE PROTECTION MUST BE WORN WHEN HANDLING CHEMICALS

FG	10 x 14	69228
AL	7 x 10	40840
AL	10 x 14	40841
PL	7 x 10	22276
PL	10 x 14	22277
SS	7 x 10	84301
SS	10 x 14	84302

CAUTION

POSSIBLE HYDROGEN SULFIDE GAS PRESENT

FG	10 x 14	72573
AL	7 x 10	40850
AL	10 x 14	40851
PL	7 x 10	22286
PL	10 x 14	22287
SS	7 x 10	84317
SS	10 x 14	84318

CAUTION

COMPRESSED AIR

FG	10 x 14	69051
AL	7 x 10	40832
AL	10 x 14	40833
PL	7 x 10	22268
PL	10 x 14	22269
SS	7 x 10	84293
SS	10 x 14	84294

CAUTION

HAZARDOUS WASTE STORAGE AREA UNAUTHORIZED PERSONS KEEP OUT

FG	10 x 14	70374
AL	7 x 10	41273
AL	10 x 14	41274
PL	7 x 10	22709
PL	10 x 14	22710
SS	7 x 10	85409
SS	10 x 14	85410

CAUTION

PREVENT STATIC SPARK DISCHARGE USE GROUNDING DEVICES

FG	10 x 14	70488
AL	7 x 10	40852
AL	10 x 14	40853
PL	7 x 10	22288
PL	10 x 14	22289
SS	7 x 10	84319
SS	10 x 14	84320

CAUTION

CONTAINS HAZARDOUS MATERIAL SEE MSDS FILE

FG	10 x 14	70256
AL	7 x 10	40834
AL	10 x 14	40835
PL	7 x 10	22270
PL	10 x 14	22271
SS	7 x 10	84295
SS	10 x 14	84296

CAUTION

HIGH PRESSURE PIPELINE

FG	10 x 14	72495
AL	7 x 10	41275
AL	10 x 14	41276
PL	7 x 10	22711
PL	10 x 14	22712
SS	7 x 10	85411
SS	10 x 14	85412

CAUTION

TOXIC/HAZARDOUS CHEMICALS ARE USED IN THIS WORKPLACE SAFETY DATA SHEETS ARE AVAILABLE IN THE SUPERVISOR'S OFFICE

FG	10 x 14	70559
AL	7 x 10	40854
AL	10 x 14	40855
PL	7 x 10	22290
PL	10 x 14	22291
SS	7 x 10	84321
SS	10 x 14	84322

CAUTION

CORROSIVE MATERIALS WEAR REQUIRED PROTECTION

FG	7 x 10	47079
FG	10 x 14	47117
AL	7 x 10	40836
AL	10 x 14	40837
PL	7 x 10	22272
PL	10 x 14	22273
SS	7 x 10	84297
SS	10 x 14	84298

CAUTION

NON-POTABLE WATER DO NOT DRINK

FG	10 x 14	69408
AL	7 x 10	40846
AL	10 x 14	40847
PL	7 x 10	22282
PL	10 x 14	22283
SS	7 x 10	84313
SS	10 x 14	84314

CAUTION

WELDING FUMES MAY BE PRESENT

AL	10 x 14	43499

CAUTION

ENTRY PROHIBITED WITHOUT PERMIT TEST FOR O2 DEFICIENCY, H2S AND COMBUSTIBLE VAPORS

FG	14 x 20	69216
AL	7 x 10	40631
AL	10 x 14	40632
PL	7 x 10	22067
PL	10 x 14	22068
SS	7 x 10	84018
SS	10 x 14	84019

CAUTION

PERSONAL PROTECTIVE CLOTHING IS TO BE WORN AT ALL TIMES WHEN HANDLING CHEMICALS

FG	10 x 14	70474
AL	7 x 10	40848
AL	10 x 14	40849
PL	7 x 10	22284
PL	10 x 14	22285
SS	7 x 10	84315
SS	10 x 14	84316

DANGER

ACETYLENE

FG	7 x 10	70206
FG	10 x 14	70207
AL	7 x 10	40856
AL	10 x 14	40857
PL	7 x 10	22292
PL	10 x 14	22293
SS	7 x 10	84323
SS	10 x 14	84324

DANGER

ACID

FG	7 x 10	47150
FG	10 x 14	47206
AL	7 x 10	40858
AL	10 x 14	40859
PL	7 x 10	22294
PL	10 x 14	22295
SS	3½ x 5	84325
SS	7 x 10	84326
SS	10 x 14	84327

DANGER

BENZENE
CANCER HAZARD

FG	10 x 14	69765
AL	7 x 10	41289
AL	10 x 14	41290
PL	7 x 10	22725
PL	10 x 14	22726
SS	7 x 10	85441
SS	10 x 14	85442

DANGER

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST-CANCER
AND LUNG DISEASE HAZARD

SS	3½ x 5	85451
SS	7 x 10	85452
SS	10 x 14	85453

DANGER

ETHYLENE OXIDE
CANCER HAZARD AND
REPRODUCTIVE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING MAY BE REQUIRED
TO BE WORN IN THIS AREA

AL	10 x 14	43507

DANGER

EXPLOSIVES
KEEP OUT

FG	10 x 14	70330
AL	7 x 10	43235
AL	10 x 14	43236
PL	7 x 10	25658
PL	10 x 14	25659
SS	7 x 10	85173
SS	10 x 14	85174

DANGER

FLAMMABLE
MATERIALS

FG	10 x 14	72246
FG	14 x 20	72249
AL	7 x 10	43243
AL	10 x 14	43244
PL	7 x 10	25666
PL	10 x 14	25667
SS	7 x 10	85183
SS	10 x 14	85184

DANGER

ACID

WEAR PROPER PROTECTION

FG	10 x 14	72384
AL	7 x 10	40860
AL	10 x 14	40861
PL	7 x 10	22296
PL	10 x 14	22297
SS	7 x 10	84332
SS	10 x 14	84333

DANGER

BENZENE
CANCER HAZARD
FLAMMABLE-NO SMOKING
AUTHORIZED PERSONNEL ONLY
RESPIRATOR REQUIRED

FG	10 x 14	70853
AL	7 x 10	43353
AL	10 x 14	43354
PL	7 x 10	25776
PL	10 x 14	25777
SS	7 x 10	85443
SS	10 x 14	85444

DANGER

CYANIDE

FG	10 x 14	72428
AL	7 x 10	41291
AL	10 x 14	41292
PL	7 x 10	22727
PL	10 x 14	22728
SS	7 x 10	85456
SS	10 x 14	85457

DANGER

EXPLOSIVE GAS
NO SMOKING

FG	10 x 14	70327
FG	14 x 20	72207
AL	7 x 10	43227
AL	10 x 14	43228
PL	7 x 10	25650
PL	10 x 14	25651
SS	7 x 10	85161
SS	10 x 14	85162

DANGER

FLAMMABLE
GAS

FG	10 x 14	72230
AL	7 x 10	43237
AL	10 x 14	43238
PL	7 x 10	25660
PL	10 x 14	25661
SS	7 x 10	85175
SS	10 x 14	85176

DANGER

FLAMMABLE
NO MATCHES OR OPEN LIGHTS

FG	10 x 14	71945
AL	7 x 10	43247
AL	10 x 14	43248
PL	7 x 10	25670
PL	10 x 14	25671
SS	7 x 10	85187
SS	10 x 14	85188

DANGER

ACIDS

AL	7 x 10	40862
AL	10 x 14	43455
PL	7 x 10	22298
PL	10 x 14	25878
SS	7 x 10	84334
SS	10 x 14	84335

DANGER

CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
NO SMOKING OR EATING

FG	10 x 14	72410
AL	7 x 10	41990
AL	10 x 14	41991
PL	7 x 10	23090
PL	10 x 14	23091
SS	7 x 10	86031
SS	10 x 14	86032

DANGER

DIESEL

FG	10 x 14	69089
AL	7 x 10	41293
AL	10 x 14	41294
PL	7 x 10	22729
PL	10 x 14	22730
SS	7 x 10	85458
SS	10 x 14	85459

DANGER

EXPLOSIVE VAPOR
NO SMOKING
NO OPEN FLAMES
NO SPARKS

FG	14 x 20	71901
AL	7 x 10	43229
AL	10 x 14	43230
PL	7 x 10	25652
PL	10 x 14	25653
SS	7 x 10	85165
SS	10 x 14	85166

DANGER

FLAMMABLE
KEEP FLAMES AND HEAT AWAY

FG	10 x 14	71932
AL	7 x 10	43239
AL	10 x 14	43240
PL	7 x 10	25662
PL	10 x 14	25663
SS	7 x 10	85179
SS	10 x 14	85180

DANGER

FUEL
OIL

FG	10 x 14	76092
AL	7 x 10	41305
AL	10 x 14	41306
PL	7 x 10	22741
PL	10 x 14	22742
SS	7 x 10	85485
SS	10 x 14	85486

DANGER

ASBESTOS
CANCER AND LUNG
DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING ARE REQUIRED
IN THIS AREA

FG	20 x 14	74520
AL	10 x 7	41285
AL	14 x 10	41286
PL	10 x 7	22721
PL	14 x 10	22722
B-836	18 x 12	78058
SS	10 x 7	85437
SS	14 x 10	85438

DANGER

CAUSTIC

FG	7 x 10	72392
FG	10 x 14	72394
AL	7 x 10	40869
AL	10 x 14	40870
PL	7 x 10	22305
PL	10 x 14	22306
SS	3½ x 5	84344
SS	7 x 10	84345
SS	10 x 14	84346

DANGER

DIESEL
FUEL

FG	7 x 10	70265
FG	10 x 14	70266
FG	14 x 20	70267
AL	7 x 10	43005
AL	10 x 14	43006
PL	7 x 10	25428
PL	10 x 14	25429
SS	7 x 10	84375
SS	10 x 14	84376

DANGER

EXPLOSIVES

FG	10 x 14	75638
AL	7 x 10	43231
AL	10 x 14	43232
PL	7 x 10	25654
PL	10 x 14	25655
SS	7 x 10	85167
SS	10 x 14	85168

DANGER

FLAMMABLE
LIQUIDS

FG	10 x 14	72238
AL	7 x 10	43241
AL	10 x 14	43242
PL	7 x 10	25664
PL	10 x 14	25665
SS	7 x 10	85181
SS	10 x 14	85182

DANGER

FUEL STORAGE
NO SMOKING

FG	10 x 14	71951
AL	7 x 10	43249
AL	10 x 14	43250
PL	7 x 10	25672
PL	10 x 14	25673
SS	7 x 10	85189
SS	10 x 14	85190

DANGER

BENZENE

FG	7 x 10	75974
FG	10 x 14	75975
AL	7 x 10	41287
AL	10 x 14	41288
PL	7 x 10	22723
PL	10 x 14	22724
SS	3½ x 5	89175
SS	7 x 10	85439
SS	10 x 14	85440

DANGER

CHLORINE

FG	10 x 14	72408
AL	7 x 10	40877
AL	10 x 14	40878
PL	7 x 10	22313
PL	10 x 14	22314
SS	7 x 10	84355
SS	10 x 14	84356

DANGER

DO NOT BURN
OR WELD
ON THIS VESSEL

SS	7 x 10	85157

DANGER

ETHYLENE
OXIDE

AL	10 x 14	43506

DANGER

EXPLOSIVES
KEEP AWAY

FG	14 x 20	71895
AL	7 x 10	43233
AL	10 x 14	43234
PL	7 x 10	25656
PL	10 x 14	25657
SS	7 x 10	85169
SS	10 x 14	85170

DANGER

FLAMMABLE MATERIAL
NO SMOKING

FG	7 x 10	47148
FG	10 x 14	47024
FG	14 x 20	75662
AL	7 x 10	43245
AL	10 x 14	43246
PL	7 x 10	25668
PL	10 x 14	25669
SS	7 x 10	85185
SS	10 x 14	85186

DANGER

GASOLINE
AND
OIL

FG	10 x 14	692651
AL	7 x 10	41309
AL	10 x 14	41310
PL	7 x 10	22745
PL	10 x 14	22746
SS	7 x 10	85489
SS	10 x 14	85490

CHEMICAL HAZARD

NOTICE
DO NOT DUMP CHEMICALS DOWN THIS DRAIN

FG	10 x 14	70270
AL	7 x 10	40919
AL	10 x 14	40920
PL	7 x 10	22355
PL	10 x 14	22356
SS	7 x 10	84463
SS	10 x 14	84464

NOTICE
NON-POTABLE WATER
NOT TO BE USED FOR DRINKING, WASHING OR COOKING PURPOSES

FG	10 x 14	69394
AL	7 x 10	40925
AL	10 x 14	40926
PL	7 x 10	22361
PL	10 x 14	22362
SS	7 x 10	84469
SS	10 x 14	84470

AL	10 x 14	43503

FG	10 x 14	69615
AL	7 x 10	40941
AL	10 x 14	40942
PL	7 x 10	22377
PL	10 x 14	22378
SS	7 x 10	84491
SS	10 x 14	84492

CORROSIVE LIQUIDS
USE PERSONAL PROTECTIVE EQUIP.

AL	7 x 10	40946
PL	7 x 10	22382
SS	3½ x 10	84499
SS	7 x 10	84500

HYDROGEN

SS	2¼ x 4½	43989

OXYGEN

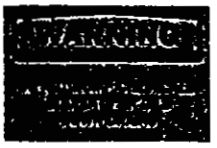
SS	2¼ x 4½	43987

NOTICE
MSDS AND THE WRITTEN HAZARDOUS COMMUNICATION PROGRAM FOR THIS WORK PLACE IS LOCATED IN FOREMAN'S OFFICE

FG	10 x 14	70430
AL	7 x 10	40921
AL	10 x 14	40922
PL	7 x 10	22357
PL	10 x 14	22358
SS	7 x 10	84465
SS	10 x 14	84466

NOTICE
"RIGHT TO KNOW" INFORMATION AVAILABLE IN THIS OFFICE

FG	10 x 14	70513
AL	7 x 10	40929
AL	10 x 14	40930
PL	7 x 10	22365
PL	10 x 14	22366
SS	7 x 10	84473
SS	10 x 14	84474



FG	10 x 14	69573
AL	7 x 10	40935
AL	10 x 14	40936
PL	7 x 10	22371
PL	10 x 14	22372
SS	7 x 10	84483
SS	10 x 14	84484

ACETYLENE

SS	2¼ x 4½	43988

DANGER—ACIDS
WEAR GOGGLES
AVOID FUMES
AND SKIN CONTACT
WASH WITH WATER
IMMEDIATELY

FG	7 x 10	72434
AL	7 x 10	43321
PL	7 x 10	25744
SS	7 x 10	85562
SS	10 x 14	85563

OXYGEN
NO SMOKING
NO OPEN FLAMES

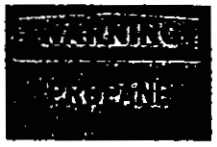
FG	10 x 14	70471
AL	7 x 10	42715
PL	7 x 10	25138
SS	7 x 10	88455
SS	10 x 14	88456

NOTICE
NON-POTABLE WATER

FG	10 x 14	69407
AL	7 x 10	40923
AL	10 x 14	40924
PL	7 x 10	22359
PL	10 x 14	22360
SS	7 x 10	84467
SS	10 x 14	84468

SAFETY FIRST
IF YOU GET CHEMICALS ON YOUR BODY OR EYES WASH THOROUGHLY WITH PLENTY OF WATER

FG	14 x 20	74616
AL	7 x 10	40931
AL	10 x 14	40932
PL	7 x 10	22367
PL	10 x 14	22368
SS	7 x 10	84475
SS	10 x 14	84476



FG	10 x 14	69604
AL	7 x 10	40937
AL	10 x 14	40938
PL	7 x 10	22373
PL	10 x 14	22374
SS	7 x 10	84487
SS	10 x 14	84488

ACETYLENE
NO SMOKING
NO OPEN FLAMES

FG	10 x 14	69370
AL	7 x 10	40943
PL	7 x 10	22379
SS	7 x 10	84493
SS	10 x 14	84494

DIRTY REFRIGERANT
DO NOT USE
WITHOUT RECYCLING

SS	7 x 10	43984

SPRAY PAINT BOOTH
PAINT FUMES MAY BE PRESENT

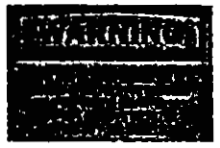
AL	10 x 14	43502

NOTICE
NON-POTABLE WATER
NOT FOR DRINKING OR COOKING USE

FG	7 x 10	72546
AL	7 x 10	40927
AL	10 x 14	40928
PL	7 x 10	22363
PL	10 x 14	22364
SS	7 x 10	84471
SS	10 x 14	84472

SAFETY FIRST
WEAR FACESHIELDS, RUBBER GLOVES AND APRONS WHEN WORKING WITH ACIDS

FG	14 x 20	74464
AL	7 x 10	40933
AL	10 x 14	40934
PL	7 x 10	22369
PL	10 x 14	22370
SS	7 x 10	84477
SS	10 x 14	84478



FG	14 x 20	69610
AL	7 x 10	40939
AL	10 x 14	40940
PL	7 x 10	22375
PL	10 x 14	22376
SS	7 x 10	84489
SS	10 x 14	84490

CHEMICAL
GOGGLES REQUIRED

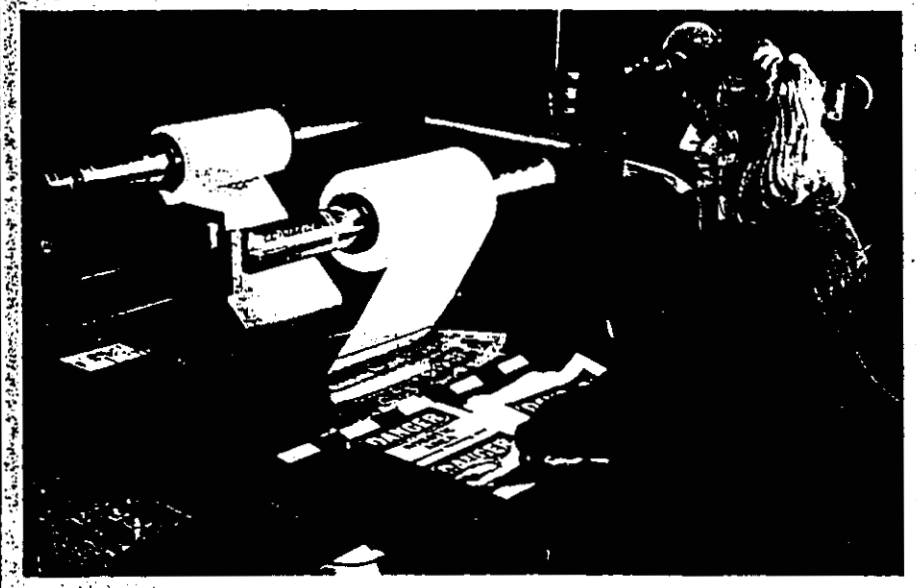
FG	10 x 14	73033
AL	7 x 10	40944
AL	10 x 14	40945
PL	7 x 10	22380
PL	10 x 14	22381
SS	7 x 10	84497
SS	10 x 14	84498

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CALL DAY OR NIGHT

FG	14 x 20	69256
AL	7 x 10	40947
AL	10 x 14	40948
PL	7 x 10	22383
PL	10 x 14	22384
SS	7 x 10	84505
SS	10 x 14	84506

USED OIL

SS	7 x 10	43983



GAS
NO SMOKING, MATCHES OR LIGHTS

FG	10 x 14	69261
AL	7 x 10	40949
PL	7 x 10	22385
SS	7 x 10	84507
SS	10 x 14	84508

WARNING
IF YOU COME IN CONTACT WITH CORROSIVE CHEMICALS GET UNDER A SHOWER IMMEDIATELY —SECONDS COUNT— LARGE VOLUMES OF WATER ARE NECESSARY

FG	14 x 20	72982
AL	7 x 10	40950
PL	7 x 10	22386
SS	7 x 10	84511
SS	10 x 14	84512

SATISFACTION GUARANTEED

A special overlaminating process applied here by Katy Krostag, Graphic Artist, makes every Brady self-sticking sign even more durable.

Find it fast! See the Safety Sign Locator, pages 6-13.

HAZARDOUS MATERIALS

DANGER

H_2S

POISONOUS GAS

FG	10 x 14	72473
AL	7 x 10	41311
AL	10 x 14	41312
PL	7 x 10	22747
PL	10 x 14	22748
SS	7 x 10	85491
SS	10 x 14	85492

DANGER

HIGHLY COMBUSTIBLE AREA NO WELDING, BURNING OR OPEN FLAMES PERMITTED

FG	14 x 20	71954
AL	7 x 10	40251
AL	10 x 14	43252
PL	7 x 10	25674
PL	10 x 14	25675
SS	7 x 10	85191
SS	10 x 14	85192

DANGER

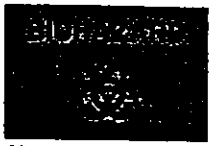
SULFURIC ACID

FG	14 x 20	72537
AL	7 x 10	41328
AL	10 x 14	41329
PL	7 x 10	22764
PL	10 x 14	22765
SS	7 x 10	85521
SS	10 x 14	85522

NOTICE

NON-POTABLE WATER NOT TO BE USED FOR DRINKING, WASHING OR COOKING PURPOSES

AL	7 x 10	40925
AL	10 x 14	40926
PL	7 x 10	22361
PL	10 x 14	22362
SS	7 x 10	84469
SS	10 x 14	84470



FG	10 x 14	69768
AL	7 x 10	43319
AL	10 x 14	43320
PL	7 x 10	25742
PL	10 x 14	25743
SS	3½ x 5	89170
SS	7 x 10	85553
SS	10 x 14	85554

EMPTY CYLINDERS

FG	10 x 14	70317
AL	7 x 10	43322
PL	7 x 10	25745
SS	7 x 10	85564
SS	10 x 14	85565

DANGER

HAZARDOUS AREA

FG	10 x 14	69000
AL	7 x 10	41313
AL	10 x 14	41314
PL	7 x 10	22749
PL	10 x 14	22750
SS	7 x 10	85493
SS	10 x 14	85494

DANGER

HYDROCHLORIC ACID

FG	7 x 10	72503
AL	7 x 10	43025
AL	10 x 14	43026
PL	7 x 10	25448
PL	10 x 14	25449
SS	7 x 10	84407
SS	10 x 14	84408

DANGER

TOXIC MATERIALS

FG	14 x 20	72593
AL	7 x 10	41330
AL	10 x 14	41331
PL	7 x 10	22766
PL	10 x 14	22767
SS	7 x 10	85525
SS	10 x 14	85526

SAFETY FIRST

IF YOU GET CHEMICALS ON YOUR BODY OR EYES WASH THOROUGHLY WITH PLENTY OF WATER

FG	14 x 20	74618
AL	7 x 10	43313
AL	10 x 14	43314
PL	7 x 10	25736
PL	10 x 14	25737
SS	7 x 10	85543
SS	10 x 14	85544

FG	10 x 14	69767
AL	7 x 10	40775
AL	10 x 14	40776
PL	7 x 10	22211
PL	10 x 14	22212
SS	7 x 10	84216
SS	10 x 14	84217

FULL CYLINDERS

FG	10 x 14	70356
AL	7 x 10	43323
PL	7 x 10	25746
SS	7 x 10	85566
SS	10 x 14	85567

DANGER

HAZARDOUS MATERIALS

FG	10 x 14	69002
AL	7 x 10	41315
AL	10 x 14	41316
PL	7 x 10	22751
PL	10 x 14	22752
SS	7 x 10	85497
SS	10 x 14	85498

DANGER

INORGANIC ARSENIC CANCER HAZARD AUTHORIZED PERSONNEL ONLY NO SMOKING OR EATING RESPIRATOR REQUIRED

AL	10 x 14	43505

NOTICE

CHAIN ALL CYLINDERS SECURELY

FG	10 x 14	70239
AL	7 x 10	41332
AL	10 x 14	41333
PL	7 x 10	22768
PL	10 x 14	22769
SS	7 x 10	85531
SS	10 x 14	85532

FG	10 x 14	69585
AL	7 x 10	43315
AL	10 x 14	43316
PL	7 x 10	25738
PL	10 x 14	25739
SS	7 x 10	85547
SS	10 x 14	85548

CANCER SUSPECT AGENT AREA PROTECTIVE EQUIPMENT REQUIRED AUTHORIZED PERSONNEL ONLY

FG	10 x 14	69781
AL	7 x 10	43459
AL	10 x 14	43460
PL	7 x 10	25882
PL	10 x 14	25883
SS	7 x 10	85557
SS	10 x 14	85558

SPILL CONTROL STATION

SS	7 x 10	43979

DANGER

HAZARDOUS WASTE

FG	10 x 14	69003
AL	7 x 10	41317
AL	10 x 14	41318
PL	7 x 10	22753
PL	10 x 14	22754
SS	7 x 10	85499
SS	10 x 14	85500

DANGER

LIVE STEAM

FG	10 x 14	69337
AL	7 x 10	41324
AL	10 x 14	41325
PL	7 x 10	22760
PL	10 x 14	22761
SS	7 x 10	85512
SS	10 x 14	85513

NOTICE

CYLINDERS NOT CONNECTED MUST BE CAPPED

FG	10 x 14	70281
AL	7 x 10	41334
AL	10 x 14	41335
PL	7 x 10	22770
PL	10 x 14	22771
SS	7 x 10	85533
SS	10 x 14	85534

FG	10 x 14	76085
AL	7 x 10	43317
AL	10 x 14	43318
PL	7 x 10	25740
PL	10 x 14	25741
SS	7 x 10	85549
SS	10 x 14	85550

CANCER SUSPECT AGENT EXPOSED IN THIS AREA IMPERVIOUS SUIT INCLUDING GLOVES, BOOTS AND AIR SUPPLIED HOOD REQUIRED AT ALL TIMES. AUTHORIZED PERSONNEL ONLY

FG	20 x 28	69782
AL	7 x 10	43456
AL	10 x 14	43457
PL	7 x 10	25879
PL	10 x 14	25880
SS	7 x 10	85559
SS	10 x 14	85560

WARNING

IF YOU COME IN CONTACT WITH CORROSIVE CHEMICALS GET UNDER A SHOWER IMMEDIATELY -SECONDS COUNT- LARGE VOLUMES OF WATER ARE NECESSARY

FG	14 x 20	72982
AL	7 x 10	40950
PL	7 x 10	22386
SS	7 x 10	84511
SS	10 x 14	84512

DANGER

HIGH PRESSURE GAS LINE

FG	10 x 14	72489
AL	7 x 10	41319
AL	10 x 14	41320
PL	7 x 10	22755
PL	10 x 14	22756
SS	7 x 10	85501
SS	10 x 14	85502

DANGER

PCB REPORT LEAKS OR SPILLS IMMEDIATELY TO MAINTENANCE SUPERINTENDENT

FG	14 x 20	70473
AL	7 x 10	41326
AL	10 x 14	41327
PL	7 x 10	22762
PL	10 x 14	22763
SS	7 x 10	85516
SS	10 x 14	85517

NOTICE

DRUMS MUST BE LABELED

FG	10 x 14	69178
AL	7 x 10	43311
AL	10 x 14	43312
PL	7 x 10	25734
PL	10 x 14	25735
SS	7 x 10	85535
SS	10 x 14	85536

WARNING NATURAL GAS PIPELINE

HIGH PRESSURE BEFORE DIGGING CALL COLLECT

SS	14 x 3	85551

CORROSIVE LIQUIDS USE PERSONAL PROTECTIVE EQUIP.

SS	3½ x 10	84499
SS	7 x 10	84500

DANGER - ACIDS WEAR GOGGLES AVOID FUMES AND SKIN CONTACT WASH WITH WATER IMMEDIATELY

FG	10 x 14	72434
AL	7 x 10	43321
PL	7 x 10	25744
SS	7 x 10	85562
SS	10 x 14	85563

DANGER

HIGH PRESSURE OIL LINE

FG	10 x 14	69018
AL	7 x 10	41321
AL	10 x 14	41322
PL	7 x 10	22757
PL	10 x 14	22758
SS	7 x 10	85503
SS	10 x 14	85504

DANGER

POISON

FG	10 x 14	69441
AL	7 x 10	40901
AL	10 x 14	40902
PL	7 x 10	22337
PL	10 x 14	22338
SS	3½ x 5	84434
SS	7 x 10	84435
SS	10 x 14	84436

NOTICE

NON-POTABLE WATER NOT FOR DRINKING OR COOKING USE

FG	7 x 10	72546
AL	7 x 10	40927
AL	10 x 14	40928
PL	7 x 10	22363
PL	10 x 14	22364
SS	7 x 10	84471
SS	10 x 14	84472

WARNING PETROLEUM PIPELINE

BEFORE EXCAVATING OR IN EMERGENCY CALL COLLECT

SS	14 x 3	85552

SATISFACTION GUARANTEED

Make it yourself! See p.156 for Safety Sign Software and Sign Blanks.

NOTICE
PLEASE TURN OUT LIGHTS WHEN NOT IN USE

FG	10 x 14	69437
AL	7 x 10	41007
AL	10 x 14	41008
PL	7 x 10	22443
PL	10 x 14	22444
SS	7 x 10	84583
SS	10 x 14	84584

NOTICE
SAVE ENERGY
CLOSE DOORS WHEN NOT IN USE

FG	10 x 14	69483
AL	7 x 10	41009
AL	10 x 14	41010
PL	7 x 10	22445
PL	10 x 14	22446
SS	7 x 10	84585
SS	10 x 14	84586

THINK
CONSERVE ENERGY

FG	10 x 14	69058
AL	7 x 10	41011
AL	10 x 14	41012
PL	7 x 10	22447
PL	10 x 14	22448
SS	7 x 10	84587
SS	10 x 14	84588

THINK
CONSERVE WATER

FG	10 x 14	69060
AL	7 x 10	41013
AL	10 x 14	41014
PL	7 x 10	22449
PL	10 x 14	22450
SS	7 x 10	84589
SS	10 x 14	84590

FG	7 x 10	70623
FG	10 x 14	70624
AL	7 x 10	41968
AL	10 x 14	41969
PL	7 x 10	25943
PL	10 x 14	25944
SS	7 x 10	86023
SS	10 x 14	86024

ALUMINUM CANS ONLY

FG	7 x 10	70627
FG	10 x 14	70628
AL	7 x 10	41972
AL	10 x 14	41973
PL	7 x 10	25947
PL	10 x 14	25948
SS	7 x 10	86027
SS	10 x 14	86028

4 per card

B-500 - 2¼ x 2¼ - 76289

4 per card

B-500 - 2¼ x 2¼ - 76288

4 per card

B-500 - 2¼ x 2¼ - 76287

4 per card

B-500 - 2¼ x 2¼ - 76285

FG	12 x 12	76879
AL	7 x 10	41015
PL	7 x 10	22451
SS	10 x 14	84596

GLASS ONLY

FG	7 x 10	70625
FG	10 x 14	70626
AL	7 x 10	41970
AL	10 x 14	41971
PL	7 x 10	25945
PL	10 x 14	25946
SS	7 x 10	86025
SS	10 x 14	86026

HELP SAVE OUR ENVIRONMENT
RECYCLE

FG	10 x 14	69014
AL	7 x 10	41016
PL	7 x 10	22452
SS	7 x 10	84598
SS	10 x 14	84599

4 per card

B-500 - 2¼ x 2¼ - 76875

NON RECYCLABLE WASTE

FG	7 x 10	70621
FG	10 x 14	70622
AL	7 x 10	41966
AL	10 x 14	41967
PL	7 x 10	25941
PL	10 x 14	25942
SS	7 x 10	86021
SS	10 x 14	86022

PAPER ONLY

FG	7 x 10	70629
FG	10 x 14	70630
AL	7 x 10	41974
AL	10 x 14	41975
PL	7 x 10	25949
PL	10 x 14	25950
SS	7 x 10	86029
SS	10 x 14	86030

RECYCLABLE
ALUMINUM CANS ONLY

FG	7 x 10	70613
FG	10 x 14	70614
AL	7 x 10	41958
AL	10 x 14	41959
PL	7 x 10	25933
PL	10 x 14	25934
SS	7 x 10	86013
SS	10 x 14	86014

RECYCLABLE
BOTTLES ONLY

FG	7 x 10	70605
FG	10 x 14	70606
AL	7 x 10	41950
AL	10 x 14	41951
PL	7 x 10	25925
PL	10 x 14	25926
SS	7 x 10	86005
SS	10 x 14	86006

RECYCLABLE
CANS ONLY

FG	7 x 10	70611
FG	10 x 14	70612
AL	7 x 10	41956
AL	10 x 14	41957
PL	7 x 10	25931
PL	10 x 14	25932
SS	7 x 10	86011
SS	10 x 14	86012

RECYCLABLE
METALS ONLY

FG	7 x 10	70617
FG	10 x 14	70618
AL	7 x 10	41962
AL	10 x 14	41963
PL	7 x 10	25937
PL	10 x 14	25938
SS	7 x 10	86017
SS	10 x 14	86018

RECYCLABLE
NEWSPRINT ONLY

FG	7 x 10	70619
FG	10 x 14	70620
AL	7 x 10	41964
AL	10 x 14	41965
PL	7 x 10	25939
PL	10 x 14	25940
SS	7 x 10	86019
SS	10 x 14	86020

RECYCLABLE
PAPER ONLY

FG	7 x 10	70609
FG	10 x 14	70610
AL	7 x 10	41954
AL	10 x 14	41955
PL	7 x 10	25929
PL	10 x 14	25930
SS	7 x 10	86009
SS	10 x 14	86010

RECYCLABLE
PLASTIC ONLY

FG	7 x 10	70607
FG	10 x 14	70608
AL	7 x 10	41952
AL	10 x 14	41953
PL	7 x 10	25927
PL	10 x 14	25928
SS	7 x 10	86007
SS	10 x 14	86008

RECYCLABLE
WASTE ONLY

FG	7 x 10	70615
FG	10 x 14	70616
AL	7 x 10	41960
AL	10 x 14	41961
PL	7 x 10	25935
PL	10 x 14	25936
SS	7 x 10	86015
SS	10 x 14	86016

RECYCLABLE
SAVE OUR RESOURCES
ALUMINUM

SS	10 x 14	84601

RECYCLABLE
SAVE OUR RESOURCES
CARDBOARD

SS	10 x 14	84602

RECYCLABLE
SAVE OUR RESOURCES
GLASS

SS	10 x 14	84603

RECYCLABLE
SAVE OUR RESOURCES
PAPER

SS	10 x 14	84604

RECYCLABLE
SAVE OUR RESOURCES
PLASTIC

SS	10 x 14	84605

SAVE ENERGY
B-500 - 1 x 2¼ - 76290

SAVE WATER
B-500 - 1 x 2¼ - 76291

Turn it down when you're not around!
B-500 - 1 x 2¼ - 76292

TURN ME
OFF
B-500 - 3 x 2¼ - 76870

Turn off Equipment When Not In Use
SAVE ENERGY
B-500 - 2¼ x 2¼ - 76880

TURN OFF LIGHTS CONSERVE ENERGY
B-500 - 1 x 2¼ - 76293

TURN OFF WHEN NOT IN USE
B-500 - 1 x 2¼ - 76294

WHEN IN DOUBT
TURN ME OUT
FG - 12 x 12 - 76882
B-500 - 2¼ x 2¼ - 76286

OVERHEAD

Sectional Doors

Selection Guide

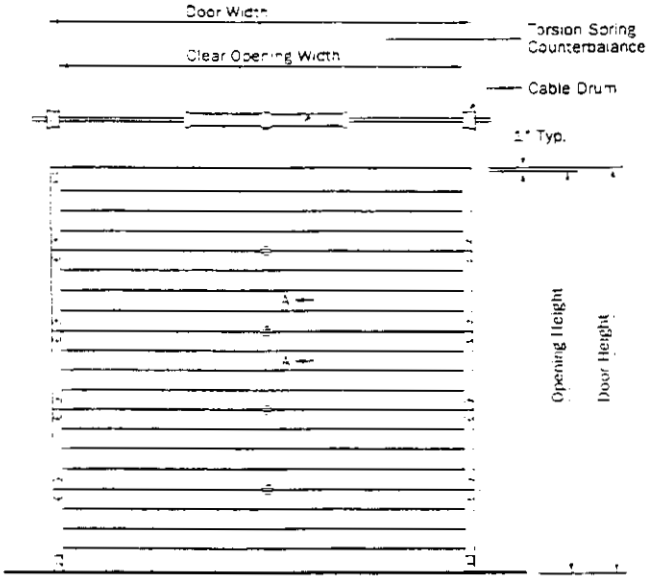
		Visual Access	Glazing	Ventilation	Thermal Insulation	Sound Insulation	Air Infiltration Resistance	Windload Resistance	Security	Fire Rated	Pedestrian Pass Door	Oversized Openings	High Usage
Insulated Steel Doors	Thermacore® 592 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 591 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 595 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 593 Series	◐	●	○	●	●	●	●	●	○	○	○	●
	418 Series	◐	●	○	◐	◐	◐	●	●	○	○	●	◐
	422 Series	◐	●	○	◐	◐	◐	●	●	○	◐	●	◐
	426 Series	◐	●	○	◐	◐	◐	●	●	○	◐	●	◐
	432 Series	◐	●	○	◐	◐	◐	●	●	○	○	◐	◐
	445 Series	◐	◐	○	◐	◐	◐	◐	●	○	○	○	◐
Steel Doors	416 Series	◐	●	○	○	○	◐	●	●	○	○	●	◐
	420 Series	◐	●	○	○	○	◐	●	●	○	◐	●	◐
	424 Series	◐	●	○	○	○	◐	●	●	○	◐	●	◐
	430 Series	◐	●	○	○	○	◐	●	●	○	○	◐	◐
	444 Series	◐	◐	○	○	○	◐	◐	●	○	○	○	◐
Aluminum Doors	520 Series	●	●	◐	○	○	◐	◐	◐	○	○	◐	○
	511 Series	●	●	◐	○	○	◐	◐	◐	○	○	○	○
Special Application Doors		◐	●	◐	◐	◐	◐	●	●	○	◐	●	●

○ Not Applicable
◐ Applicable in Certain Conditions
● Applicable

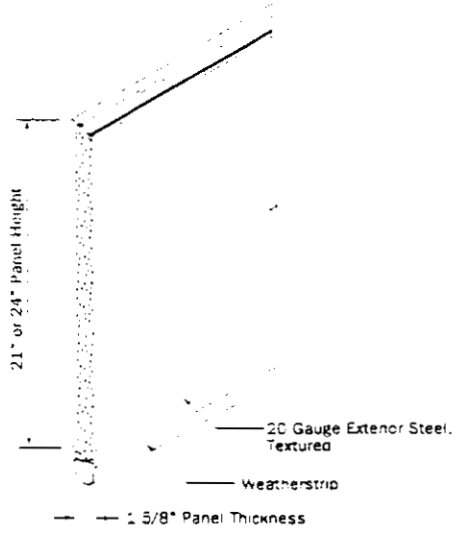
595 Series
Thermacore® Insulated Steel Doors

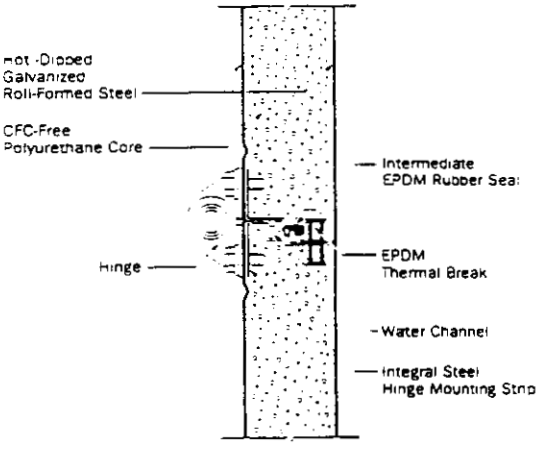
Interior Elevation

For clearance details on electrically operated doors, see Motor Operator details pages at back of this section.



Panel Detail



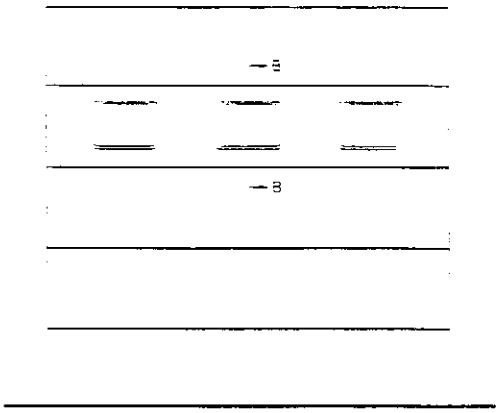


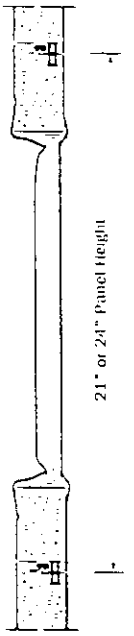
Section A-A

595 Series
Glazing Options

Insulated Thermal Acrylic Window Lite
24" x 11"

Exterior Elevation

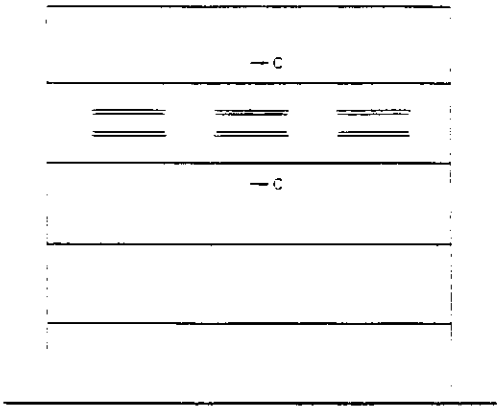




Section B-B

Insulated 1/8" DSB Window Lite
24" x 7"

Exterior Elevation

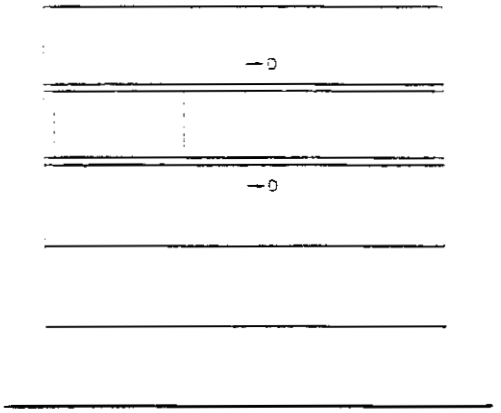


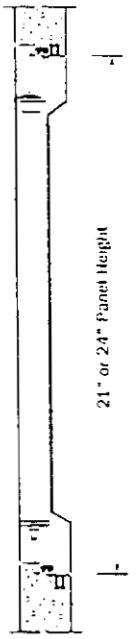
Section C-C

595 Series
Glazing Options

Aluminum Full View Glazing Section

Exterior Elevation





Section D-D

The Frame of the Future is Made in Alaska

ALASKA WINDOW COMPANY is pleased to announce that we are now manufacturing the exciting PRIMO PVC window and patio door systems that have become the *preferred* window products throughout Europe.

Check out these *important* features:

1. The PVC framing sytem is over 1300 times more energy efficient than aluminum systems.

2. This system allows the use of a variety of insulated glass units from 3/4" to 1 3/8" with dead air spaces that range from 3/8" to 3/4" used in conjunction with double and triple pane units.

3. The availability of *Double Sided HEAT MIRROR 88 and KRYPTON Gas* can produce overall "R" values to 5.56.

4. Double weather seal on all units.

5. Unique Tilt and Turn hardware.

6. Clean and re-glaze from inside the building.

7. Custom sizes and styles at *stock prices.*

8. Thoroughly tested and proven under the harshest climatic conditions.

You now have all the advantages of a system that is secure, tested and proven to be energy efficient, with maintenance a breeze. All of our production equipment is of the latest technology so design requirements can be accurately met.

Whether your project is new construction, or remodeling an existing structure, we can produce the units that meet your needs and specifications.

(AW#1)

4141 INGRA, #A ☐ ANCHORAGE, ALASKA 99503 ☐ (907) 563-4141 ☐ FAX: (907) 563-0941 ☐ 1-800-478-4141

ALASKA WINDOW manufactures a Scandinavian designed PVC window system which has excellent cold weather characteristics. These units are extremely well suited for cold and rough use applications. The window has a 1 3/8 inch glazing pocket which allows the use of triple pane glass with 1/2 inch air spaces between the panes or "HEAT MIRROR" with two 9/16 air spaces. They will not freeze shut under any condition, which makes them the most desirable **EGRESS** window available.

Two separate **EPDM** weatherstrips are used in the operating windows which significantly reduces air infiltration. This weatherstripping will not become brittle at temperatures of -70 degrees F.

Maintenance is very low for the following reasons:

1. The sash is fully adjustable. It can be adjusted vertically as well as horizontally at the top and the bottom. The sash also is adjustable for vertical movement. The compression on the weather seals can be increased or decreased.

2. New weather seals can be installed by the homeowner, inexpensively and without the use of tools.

3. In the event of broken glass, a new insulated unit can be installed by the homeowner without the use of special tools or special skills. (The type of glass and the size can be found under the left glazing bead.)

4. Retrofitting and new construction are made easier because windows are available in any size and *almost* any shape. Complete and simple installation instructions accompany each window.

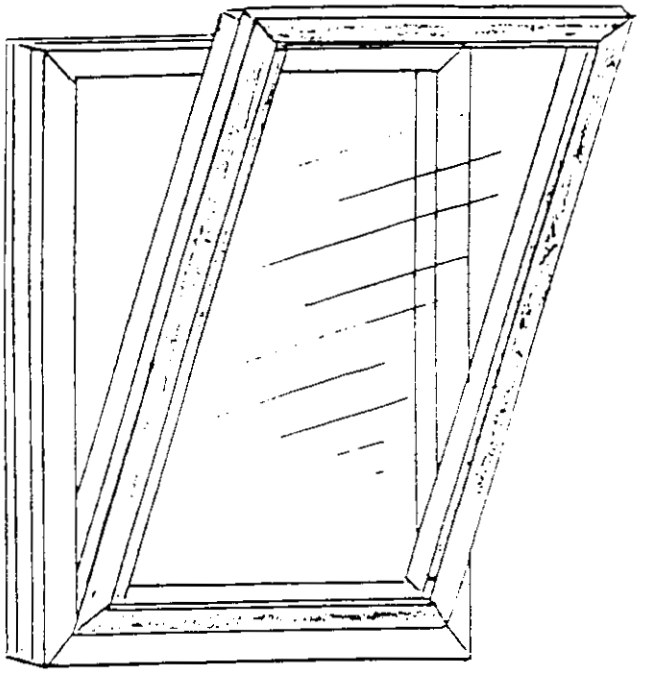
5. The windows will last as long as the building they are installed in and there is no painting or preservation of any kind required.

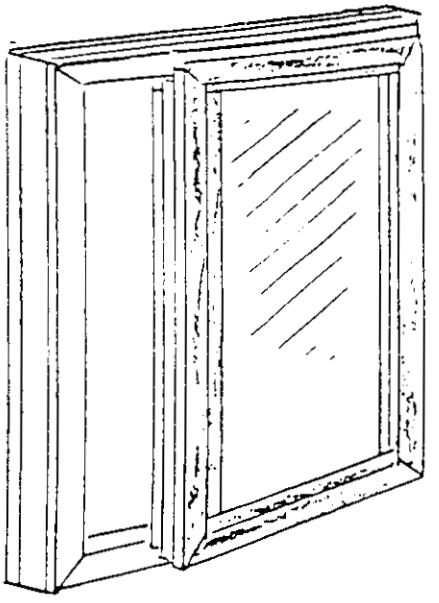
The **ALASKA WINDOW COMPANY** is located at Mile 353.6 on the George Parks Highway, between Fairbanks and Ester. To arrange a tour of the factory please call Monday through Friday, 8:00 AM to 5:00 PM

ALASKA WINDOW Co. is a privately financed Alaskan owned and operated business.

(AW#2)

PRIMO SERIES 400





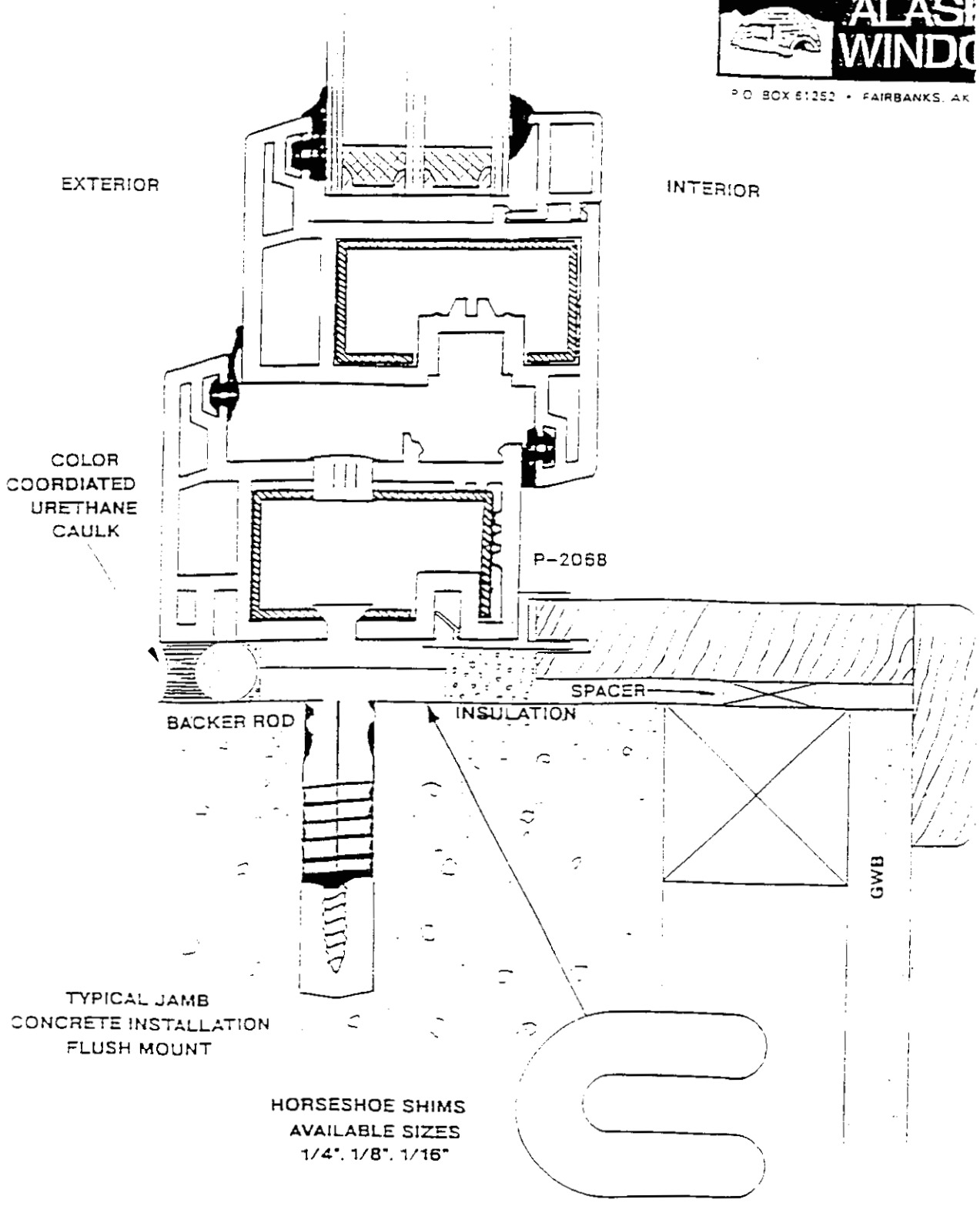
TILT and TURN (T / T)

Minimum Size: 20" x 20"

Maximum Size: 48" wide

This unit should not be
manufactured more than
1.25 times wider than it is tall

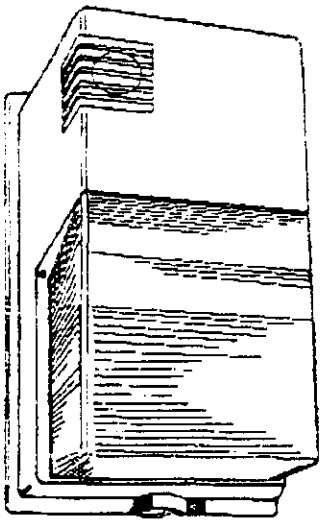
P.O. BOX 61252 • FAIRBANKS, AK



WALLIGHTER 70 LUMINAIRE

APPLICATIONS

Office and shopping complexes, schools, malls, parking garages, motels, condominiums and residences. Small, aesthetically attractive luminaire with the power saving advantage of high pressure sodium (HPS) lighting



SPECIFICATION FEATURES

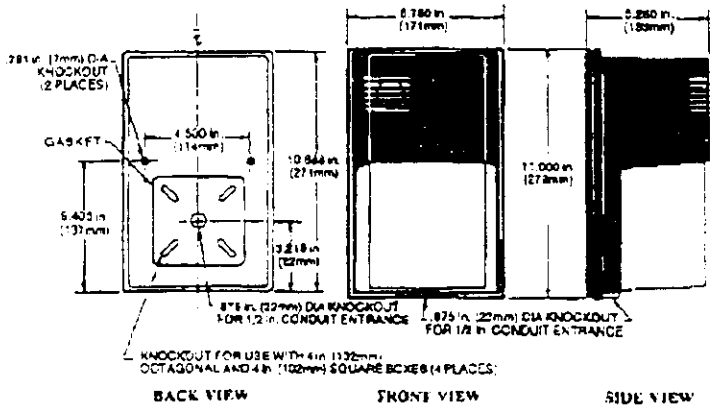
- UL1572 Listed SUITABLE FOR WET LOCATIONS
- CSA Certified
- Standard construction is IP55
- Die-cast aluminum mounting base with dark bronze paint finish
- Compact one-piece polycarbonate front housing
- Versatile mounting provisions allow for mounting to standard 3-in. or 4-in. (76mm or 102mm) outlet boxes, 1/2-in. (13mm) conduit, or directly onto any flat surface
- Easy access to optical and electrical compartments affords quick installation and maintenance
- Knockout for field installation of PE control
- Standard and tamper resistant hardware included
- Medium base socket with coated lamp
- NPF reactor ballast

ORDERING NUMBER LOGIC

(SA) (UL) LISTED

WL	03	S	1	PE
PRODUCT ID. XX	WATTAGE XX	LIGHT SOURCE X	VOLTAGE X	BALLAST TYPE XX
WL = Wallighter 70 Luminaire	03 = 35 05 = 50 07 = 70	S = HPS Standard: Lamp included	1 = 120	PE = PE if required

DIMENSIONS



BALLAST AND PHOTOMETRIC SELECTION TABLE

Voltage	Light Source	Ballast Type 120 Volt	IES Distribution Type	Photometric Curve Number 35-17 - - - -
35, 50, 70	HPS (Coated)	NPF Reactor	Long Non-Cutoff Type IV	7604

(SA) (UL) The catalog numbers, options and modifications on this page are UL Listed unless otherwise noted.

Data subject to change without notice

DATA

Approximate Net Weight	6 lbs (3 kgs)
Suggested Mounting Height	5-12 ft (2-4M)

REFERENCES

See Page 5980 for Explanation of Options and Other Terms Used

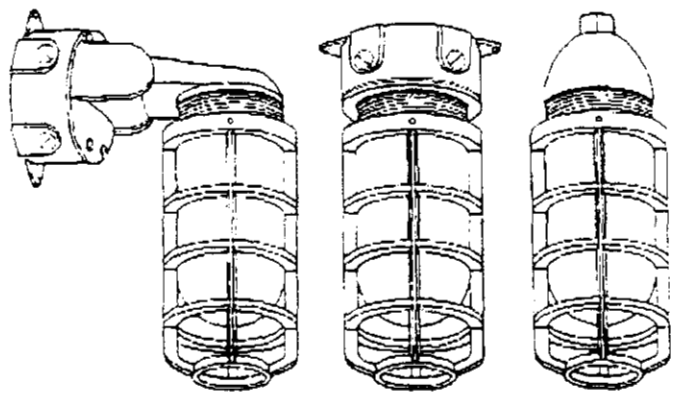
H7 ENCLOSED AND GASKETED LUMINAIRE

APPLICATIONS

Indoor or outdoor non-hazardous locations where lamp protection from rain and the elements is needed

SPECIFICATION FEATURES

- UL Listed SUITABLE FOR WET LOCATIONS
- Standard construction is IP55
- Low copper aluminum alloy housing with gray paint finish
- Incandescent model up to 150 watts (A-21)
- Fluorescent model uses 13 watt biaxial lamp
- Luminaires are single packed and shipped in one carton



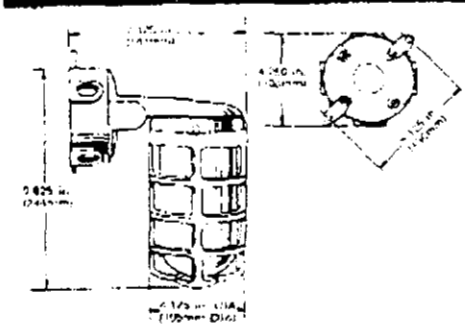
Wall Bracket Mounted | Ceiling Mounted | Pendant Mounted

ORDERING NUMBER LOGIC

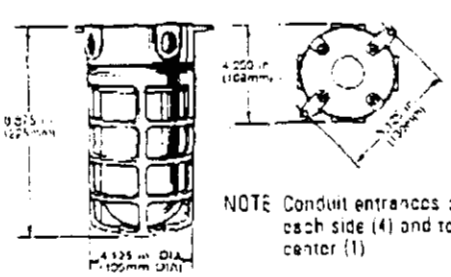
UL LISTED

H7	1	13B	3C	DD
PRODUCT ID XX	VOLTAGE X	LAMP TYPE XXX	MOUNTING XX	OPTIONS XX
H7 = An Enclosed and Gasketed Luminaire	1 = 120 X = 250 volt maximum	13B = 13 watt Biaxial Fluorescent 120 volt (Standard: Lamp included) 15F = 150 watt Medium Base Incandescent A-21 Bulb 250 volt max (Standard: Lamp not included)	3C = 3/4-in. Ceiling 3P = 3/4-in. Pendant 3W = 3/4-in. Wall	DD = Clear Globe with Guard

DIMENSIONS

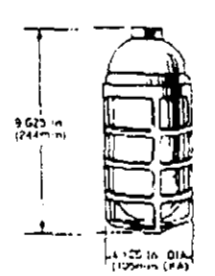


WALL MOUNTED



NOTE: Conduit entrances on each side (4) and top center (1)

CEILING MOUNTED



PENDANT MOUNTED

DATA

NOTE: Operating amperes is 0.3 for 13 watt fluorescent

Approximate Net Weight:		
Pendant with Guard	2.75 lbs	(1.25 kgs)
Ceiling with Guard	2.75 lbs	(1.25 kgs)
Wall Bracket with Guard	3.30 lbs	(1.50 kgs)

REFERENCES

See Page 2900 for start of Accessories

APPENDIX F

Whittier EVOS Station Preliminary Design
March 7, 1998

Whittier EVOS Station
Preliminary Design

Prepared for
Prince William Sound Economic Development Council

March 7, 1997

Stephl Engineers
2525 Blueberry, Suite 203
Anchorage, Alaska 99503
(907) 274-7170

In association with
USKH

CONTENTS

Section 1
Purpose of Preliminary Design Memorandum

The purpose of this submittal is to present the proposed preliminary design of the Environmental Operation Stations (EVOS Stations) project. This memorandum will be reviewed and evaluated by members of the Sound Waste Management Plan (SWMP) Committee.

A SWMP Committee meeting was held on January 28, 1997, in Anchorage, to discuss the conceptual design, make changes and answer questions about the proposed projects.

A second SWMP Committee meeting will be held during. The purpose of this meeting is to receive input from the stakeholders before proceeding with the final design and construction of the facilities.

This project is being designed by Stephl Engineers in association with USKH. Stephl Engineers is under contract to the Prince William Sound Economic Development Council, Inc. (PWSEDC), the organization managing the project. The Alaska Department of Environmental Conservation (ADEC) is the lead state agency administering the project.

Section 2
Project Description

The EVOS Station design has been modified, based on what we learned during the conceptual design, and from input received during the first Sound Waste Management Plan (SWMP) meeting held in January. The purpose of the modifications is to better meet the goals of the community as well as maintaining the project within the available funding limit.

The project will still accomplish the overall goal of preventing marine pollution that is generated from the five Prince William Sound communities.

The purpose of the EVOS Station in Whittier was to handle used oil and provide storage for recycled materials. The City has chosen to focus on handling and disposing of used oil only at this time. Recycling bins will not be purchased as part of this project. The funding set aside for recycling bins will be utilized to purchase the higher priority used oil equipment.

Whittier's first priority is to have the new EVOS Station building constructed. A 480 square foot building will be designed to contain used oil processing equipment. The building will have one room and will be enclosed and heated with a used oil furnace. A mechanical ventilation system and electrical system will be provided. The furnace will include an oil filtration system and a ducting system that can be adjusted to temper incoming air as well as discharging extra heated air.

The EVOS Station in Whittier will be constructed with a steel foundation set on grade to allow it to be moved as the City's harbor changes shape. A continuous water supply will not be provided in the building. The station will be connected to the City's water system with a garden hose when water is needed. Hose bibs will be provided inside the building for washing. Waste water will be collected in an 100 gallon tank in the building and will be discharged into an adjacent City sewer manhole through a temporary hose. City electricity will power the building systems and equipment placed in the building. Three prefabricated plastic mobile oil collection structures will be provided with the building. The mobile structures will be held in place by anchored guy wires on concrete bases. The City proposes to set these small structures at convenient locations in the harbor and collect oil in drums placed inside the mobile structures.

The building will be bid as a stand-alone project. A contractor will be selected based on low price.

The City's second priority is to pump and handle oily bilge water. This equipment includes an oily water separator, 500 gallon buffer tank, two bilge pump systems (one portable and one permanent), tanks, miscellaneous containers and equipment, and miscellaneous piping and controls. In addition, an operation and maintenance manual and staff training will be provided. This equipment will be purchased directly from equipment suppliers by the PWSEDC. It will be installed by City crews or the building contractor.

The City's third highest priority is to install oil collection and oil processing equipment in the new building. To meet their needs, a 1000 gallon oil storage tank and mobile oil pump would be purchased. This equipment will be purchased directly from equipment suppliers by PWSEDC. If there are sufficient funds remaining, an oil filter crusher and oily material burner may be purchased.

Section 3
Equipment

Equipment will be purchased by PWSEDC after contractor bids are received for the EVOS Station building and the amount of remaining funds are better known. The equipment requested by Whittier is listed below in order of priority.

Priority	Item
1	oily water separator
2	500 gallon oily water buffer tank
3	skid mounted bilge water pump and tank
4	portable bilge water pump and tank
5	miscellaneous equipment
6	O&M manual and training
7	1000 gallon oil storage tank
8	mobile pump and hoses
9	oil filter crusher
10	oily material burner

A brief description of the equipment is provided below. Manufacturer's cut sheets are provided at the end of this memorandum.

The oily water separator will be a Highland or similar type coalescing plate unit capable of treating liquid at a 10 gpm flow rate. The separator will be designed to discharge water treated to less than 10 ppm free oil and grease. It will be mounted on a stand and will be covered. A sample port will be installed in the discharge line. Clean liquid from the separator will be discharged directly into a sewer line stub located in the floor of the new building.

A 500 gallon oily water buffer tank will be installed upstream of the oily water separator. The purpose of the tank is to provide storage for oily water received from the bilge water collection system and to provide detention of the oily water to allow better separation of the oil in the water. The 500 gallon tank will be a single wall steel tank mounted on an elevated stand to allow gravity flow of water into the oil water separator. The 500 gallon tank will include a manhole, sight gauges and fittings and valves. A flexible hose will be installed between the tank and the separator to convey the contaminated water.

The skid mounted bilge water pump and tank will be a unit containing a 400 gallon steel tank and electric pump with a suction hose. This piece of equipment will be fabricated specifically for this purpose. Operation of the unit be accomplished by placing the suction line into the bilge and manually turning on the suction pump. The user or operator will watch the level of liquid in the adjacent steel tank and turn off the pump when pumping is complete or when the skid mounted tank is full. The tank will have a level gauge or sight glasses installed to determine the liquid level. Permanent piping and valves installed between the tank and pump will allow the user to both fill and empty the tank with the pump as needed. The pump will be provided with an explosion proof electric motor to reduce the chance of fire if flammable or explosive products are pumped by accident. A diaphragm type pump is recommended. A typical 2-inch diameter pump is capable of pumping up to a 25 foot suction lift at 20 gpm or 33 gpm at a 15 foot lift.

The portable bilge water pump and tank will be a unit containing a 75 gallon single wall steel tank and electric pump with a suction hose. This piece of equipment will be fabricated specifically for this purpose. It will be mounted on wheels and weigh less than 1000 pounds when loaded. The unit will be designed to be pulled behind an ATV. Operation of the unit be accomplished by placing the suction line into the bilge and manually turning on the suction pump. The user or operator will watch the level of liquid in the adjacent steel tank and turn off the pump when pumping is complete or when the skid mounted tank is full. The tank will have a level gauge or sight glasses installed to determine the liquid level. Permanent piping and valves installed between the tank and pump will allow the user to both fill and empty the tank with the pump as needed. The pump will be provided with an explosion proof electric motor to reduce the chance of fire if flammable or explosive products are pumped by accident. A diaphragm type pump is recommended. A typical 2-inch diameter pump is capable of pumping up to a 25 foot suction lift at 20 gpm or 33 gpm at a 15 foot lift.

Miscellaneous equipment will include hoses and fittings to transfer and dispose of bilge water.

O&M manual and training will include development of an O&M manual for equipment in the building and recommendations for handling and disposal of collected materials. Manufacturers equipment operation manuals will be included in the O&M manual. The extent of training has not been determined. One recommendation was to gather all the operators together and have a materials disposal specialist provide a training seminar.

The 1000 gallon oil storage tank will be a single containment circular steel tank mounted on skids. It will include a manhole and appropriate fittings and valves.

The mobile pump and hoses are be needed to transfer oil products from the daily collection tanks, transfer clean oil to the heater tank in the building, transfer clean oil for shipment to other oil heating units in town, transfer liquid from the City's tanker truck, transfer water from the 1000 gallon tank to the 500 gallon tank, etc. This will be a gear pump that is driven by an explosion proof electric motor.

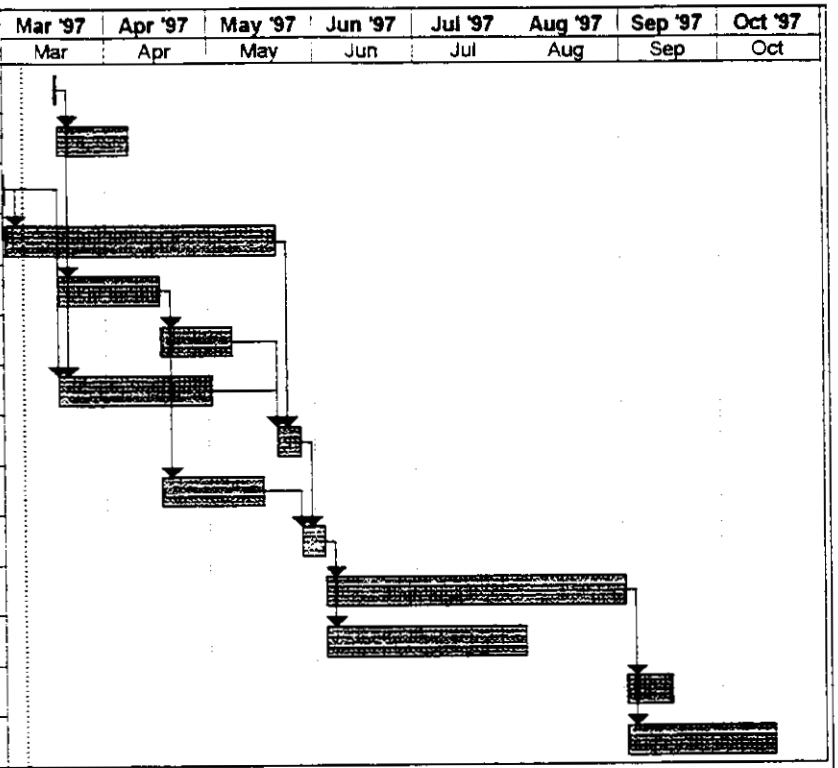
The oil filter crusher will be a Oberg model P300 electric/hydraulic unit capable of crushing up to 20 inch tall filters.

The oily material burner will be a SmartAsh model that is power by two 120V blowers. This unit fits on a 55 gallon drum.

Section 4
Project Schedule

The proposed schedule for this project is shown on the following bar chart.

ID	Task Name	Duration
1	Second SWMP Meeting	1d
2	ADEC Preliminary Review	21d
3	Site selection	1d
4	NEPA Environmental Assessmnt	80d
5	Final design	30d
6	ADEC, Fire Marshal Review	21d
7	Community Approval/Agreement	45d
8	ADEC Approval of Phase II	7d
9	Bid Advertise	30d
10	Bid Award	7d
11	Building Const.	90d
12	Equipment Purchase	60d
13	Equipment Install	14d
14	O&M Manuals and Training	45d



Project: Whittier EVOS Station
Date: Fri 3/7/97

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

Section 5
Project Costs

There is $188,500 in funding available from the project to construct the building, purchase equipment and complete the O&M manual and training. A more detailed cost estimate of the EVOS Station building will be completed during the week of March 10.

Whittier EVOS Station Cost Estimate				
3/8/97 15:56				
				Extended
Description	Unit	Quantity	Unit Price	Total
Base Bid				
Mobilization/demobilization	LS	1	$14,000	$14,000
Site work	LS	1	$2,000	$2,000
Water/sewer utilities	LS	1	$1,500	$1,500
Building	SF	480	$190	$91,200
Electrical service	LS	1	$1,000	$1,000
175,000 BTU heater	EA	1	$7,000	$7,000
Oil filtration system	EA	1	$500	$500
Mobile oil collection buildings	EA	3	$1,500	$4,500
Contingency (20%)				$21,940
Subtotal				$143,640
Option 1 Bilge Water Equipment				
Oily water separator, 10 gpm flow	EA	1	$8,000	$8,000
500 gallon oily water buffer tank	EA	1	$1,000	$1,000
400 gallon bilge water pump and tank	EA	1	$10,000	$10,000
75 gallon portable bilge pump system	EA	1	$8,000	$8,000
Bilge pumping piping	EA	1	$2,000	$2,000
Misc. equipment	EA	1	$1,000	$1,000
O&M manual and training	EA	1	$5,000	$5,000
Contingency (20%)				$7,000
Subtotal				$42,000
Option 2 Oil Handling Equipment				
1000 gallon storage tank	EA	1	$1,500	$1,500
Oil transfer pump, Dismas GP8-152	EA	1	$4,000	$4,000
Contingency (20%)				$1,100
Subtotal				$6,600
Option 3 Equipment				
Oil filter crusher	EA	1	$6,500	$6,500
Oily material burner	EA	1	$4,000	$4,000
Subtotal				$10,500

Section 6
Building Code Review and Issues

A building code review has been completed to determine the EVOS Stations building classification, safety requirements, ventilation requirements, fire detection and prevention requirements, access requirements, interior finish requirements, separation to adjacent structures, electrical equipment requirements, fire suppression needs, and any other special needs. This code review is based on the 1994 Uniform Building Code (UBC). The results of the review are presented in this section.

THERE ARE RESTRICTIONS ON CERTAIN TYPES OF WASTE HANDLING ACTIVITIES THAT CAN OCCUR IN THIS BUILDING.

The building has been designed to meet an F and S occupancy. The building has not been designed to meet the more costly Class I Division II requirements. To conform to the F and S occupancy, the user must be aware of the following limitations:

- Explosive materials [I A(gas) III.B(oil)] such as gasoline and paint thinners will be limited to a combined volume of 30 gallons to be approved for storage in the building.
- Quantities of materials shall not be in excess of those listed in U.B.C. Table 3-D and Table 3-E (see attached tables).
- Storage and use of flammable ad combustible liquids shall be in accordance with the 1994 Uniform Fire Code.

The following paragraphs contain a description of the various codes and rules that apply to the construction and operation of the EVOS Stations.

Occupancy classification: Table 3-A

F1 Refuse incineration Sec. 306
Quantity of used oil (III-B) is less than quantity allowed in Table 3-D (13,200 Gallons), therefore occupancy is not a H2 (hazardous) occupancy.

S1 Storage - combustible materials

Table 3-B Required Separation in Buildings of Mixed Occupancy (Hours)

F1 to S1 = N (no requirements for fire resistance)

Type of Construction: II-N Metal

Location on property: Table 5-A
F1 and S1; II N

Exterior walls, bearing = 1 hr < 20 ft.

TABLE 3-D—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS PRESENTING A PHYSICAL HAZARD
MAXIMUM QUANTITIES PER CONTROL AREA[1]
When two units are given, values within parentheses are in cubic feet (cu. ft.) or pounds (lbs.)

CONDITION		STORAGE[2]			USE[2]—CLOSED SYSTEMS			USE[2]—OPEN SYSTEMS	
Material	Class	Solid Lbs.[3] (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons[3] (Lbs.) × 3.785 for L × 0.4536 for kg	Gas Cu. Ft. × 0.0283 for m³	Solid Lbs. (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons (Lbs.) × 3.785 for L × 0.4536 for kg	Gas Cu. Ft. × 0.0283 for m³	Solid Lbs. (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons (Lbs.) × 3.785 for L × 0.4536 for kg
1.1 Combustible liquid[4,5,6,7,8,9]	II	N.A.	120[10]	N.A.	N.A.	120	N.A.	N.A.	30
	III-A	N.A.	330[10]	N.A.	N.A.	330	N.A.	N.A.	80
	III-B	N.A.	13,200[10,11]	N.A.	N.A.	13,200[11]	N.A.	N.A.	3,300[11]
1.2 Combustible fiber (loose) (baled)		(100) (1,000)	N.A. N.A.	N.A. N.A.	(100) (1,000)	N.A. N.A.	N.A. N.A.	(20) (200)	N.A. N.A.
1.3 Cryogenic, flammable or oxidizing		N.A.	45	N.A.	N.A.	45	N.A.	N.A.	10
2.1 Explosives[12]		1[10,13]	(1)[10,13]	N.A.	1/4	(1/4)	N.A.	1/4	(1/4)
3.1 Flammable solid		125[6,10]	N.A.	N.A.	[14]	N.A.	N.A.	[14]	N.A.
3.2 Flammable gas (gaseous) (liquefied)		N.A. N.A.	N.A. 15[6,10]	750[6,10] N.A.	N.A. N.A.	N.A. 15[6,10]	750[6,10] N.A.	N.A. N.A.	N.A. N.A.
3.3 Flammable liquid[4,5,6,7,8,9]	I-A	N.A.	30[10]	N.A.	N.A.	30	N.A.	N.A.	10
	I-B	N.A.	60[10]	N.A.	N.A.	60	N.A.	N.A.	15
	I-C	N.A.	90[10]	N.A.	N.A.	90	N.A.	N.A.	20
Combination I-A, I-B, I-C[15]		N.A.	120[10]	N.A.	N.A.	120	N.A.	N.A.	30
4.1 Organic peroxide, unclassified detonatable		1[10,12]	(1)[10,12]	N.A.	1/4[12]	(1/4)[12]	N.A.	1/4[12]	(1/4)[12]
4.2 Organic peroxide	I	5[6,10]	(5)[6,10]	N.A.	1[6]	(1)[6]	N.A.	1[6]	(1)[6]
	II	50[6,10]	(50)[6,10]	N.A.	50[6]	(50)[6]	N.A.	10[6]	(10)[6]
	III	125[6,10]	(125)[6,10]	N.A.	125[6]	(125)[6]	N.A.	25[6]	(25)[6]
	IV	500[6,10]	(500)[6,10]	N.A.	500[6]	(500)[6]	N..A.	100[6]	(100)[6]
	V	N.L.	N.L.	N.A.	N.L.	N.L.	N.A.	N.L.	N.L.
4.3 Oxidizer	4	1[10,12]	(1)[10,12]	N.A.	1/4[12]	(1/4)[12]	N.A.	1/4[12]	(1/4)[12]
	3[16]	10[6,10]	(10)[6,10]	N.A.	2[6]	(2)[6]	N.A.	2[6]	(2)[6]
	2	250[6,10]	(250)[6,10]	N.A.	250[6]	(250)[6]	N.A.	50[6]	(50)[6]
	1	4,000[6,10]	(4,000)[6,10]	N.A.	4,000[6]	(4,000)[6]	N.A.	1,000[6]	(1,000)[6]
4.4 Oxidizer—gas (gaseous)[6,10] (liquefied)[6,10]		N.A. N.A.	N.A. 15	1,500 N.A.	N.A. N.A.	N.A. 15	1,500 N.A.	N.A. N.A.	N.A. N.A.
5.1 Pyrophoric		1[10,12]	(1)[10,12]	50[10,12]	1[12]	(1)[12]	10[10,12]	0	0
6.1 Unstable (reactive)	4	1[10,12]	(1)[10,12]	10[10,12]	1/4[12]	(1/4)[12]	2[10,12]	1/4[12]	(1/4)[12]
	3	5[6,10]	(5)[6,10]	50[6,10]	1[6]	(1)[6]	10[6,10]	1[6]	(1)[6]
	2	50[6,10]	(50)[6,10]	250[6,10]	50[6]	(50)[6]	250[6,10]	10[6]	(10)[6]
	1	N.L.	N.L.	750[6,10]	N.L.	N.L.	N.L.	N.L.	N.L.
7.1 Water reactive	3	5[6,10]	(5)[6,10]	N.A.	5[6]	(5)[6]	N.A.	1[6]	(1)[6]
	2	50[6,10]	(50)[6,10]	N.A.	50[6]	(50)[6]	N.A.	10[6]	(10)[6]
	1	125[10,11]	(125)[10,11]	N.A.	125[11]	(125)[11]	N.A.	25[11]	(25)[11]

N.A.—Not applicable. N.L.—Not limited.

[1]Control areas shall be separated from each other by not less than a one-hour fire-resistive occupancy separation. The number of control areas within a building used for retail or wholesale sales shall not exceed two. The number of control areas in buildings with other uses shall not exceed four. See Section 204.

[2]The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

[3]The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials within a single control area of Group M Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

[4]The quantities of alcoholic beverages in retail sales uses are unlimited provided the liquids are packaged in individual containers not exceeding four liters.

The quantities of medicines, foodstuffs and cosmetics containing not more than 50 percent of volume of water-miscible liquids and with the remainder of the solutions not being flammable in retail sales or storage occupancies are unlimited when packaged in individual containers not exceeding four liters.

[5]For aerosols, see the Fire Code.

[6]Quantities may be increased 100 percent in sprinklered buildings. When Footnote 10 also applies, the increase for both footnotes may be applied.

[7]For storage and use of flammable and combustible liquids in Groups A, B, E, F, H, I, M, R, S and U Occupancies, see Sections 303.8, 304.8, 305.8, 306.8, 307.1.3 through 307.1.5, 308.8, 309.8, 310.12, 311.8 and 312.4.

[8]For wholesale and retail sales use, also see the Fire Code.

[9]Spray application of any quantity of flammable or combustible liquids shall be conducted as set forth in the Fire Code.

[10]Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the Fire Code. When Footnote 6 also applies, the increase for both footnotes may be applied.

[11]The quantities permitted in a sprinklered building are not limited.

[12]Permitted in sprinklered buildings only. None is allowed in unsprinklered buildings.

[13]One pound of black sporting powder and 20 pounds (9 kg) of smokeless powder are permitted in sprinklered or unsprinklered buildings.

[14]See definitions of Divisions 2 and 3 in Section 307.1.

[15]Containing not more than the exempt amounts of Class I-A, Class I-B or Class I-C flammable liquids.

[16]A maximum quantity of 200 pounds (90.7 kg) of solid or 20 gallons (75.7 L) of liquid Class 3 oxidizers may be permitted in Groups I, R and U Occupancies when such materials are necessary for maintenance purposes or operation of equipment as set forth in the Fire Code.

TABLE 3-E—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS PRESENTING A HEALTH HAZARD
MAXIMUM QUANTITIES PER CONTROL AREA[1,2]
When two units are given, values within parentheses are in pounds (lbs.)

MATERIAL	STORAGE[3]			USE[3]—CLOSED SYSTEMS			USE[3]—OPEN SYSTEMS	
	Solid Lbs.[4,5,6] × 0.4536 for kg	Liquid Gallons[4,5,6] (Lbs.) × 3.785 for L × 0.4536 for kg	Gas Cu. Ft.[5] × 0.028 for m^3	Solid Lbs.[4,5] × 0.4536 for kg	Liquid Gallons[4,5] (Lbs.) × 3.785 for L × 0.4536 for kg	Gas Cu. Ft.[5] × 0.028 for m^3	*Solid* Lbs.[4,5] × 0.4536 for kg	Liquid *Gallons*[4,5] (Lbs.) × 3.785 for L × 0.4536 for kg
1. Corrosives	5,000	500	810^6	5,000	500	810^6	1,000	100
2. Highly toxics[7]	1	(1)	20^8	1	(1)	20^8	1/4	(1/4)
3. Irritants[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
4. *Sensitizers*[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
5. Other health hazards[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
6. Toxics[7]	500	(500)	810^6	500	(500)	810^8	125	(125)

[1]Control areas shall be separated from each other by not less than a one-hour fire-resistive occupancy separation. The number of control areas within a building used for retail or wholesale sales shall not exceed two. The number of control areas in buildings with other uses shall not exceed four. See Section 204.

[2]The quantities of medicines, foodstuffs and cosmetics, containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, in retail sales uses are unlimited when packaged in individual containers not exceeding 4 liters.

[3]The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

[4]The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid health hazard materials within a single control area of Group M Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

[5]Quantities may be increased 100 percent in sprinklered buildings. When Footnote 6 also applies, the increase for both footnotes may be applied.

[6]Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the Fire Code. When Footnote 5 also applies, the increase for both footnotes may be applied.

[7]For special provisions, see the Fire Code.

[8]Permitted only when stored in approved exhausted gas cabinets, exhausted enclosures or fume hoods.

[9]Irritants, sensitizers and other health hazards do not include commonly used building materials and consumer products which are not otherwise regulated by this code.

Exterior walls, nonbearing = 1 hr < 20 ft.

Openings: Not permitted < 5 ft.
Protected < 10 ft.

Allowable Floor Areas: Table 5-B

F-1, S-1, II-N = 12,000 square feet.

Actual Floor Area: 480 square feet.

The actual area is less than the allowable area and therefore the building complies.
Area increases are not required and neither are area separation walls.

Allowable Height and number of stories: Table 5-B

F-1, S-1 II N Max height = 2 stories 55 ft.

The building complies.

Review the building for conformity with the occupancy requirements.

302.5 Heating Equipment Room Occupancy Separation. In Groups A; B; E; F; I; M; R, Division 1; and S Occupancies, rooms containing a boiler, central heating plant or hot-water supply boiler shall be separated from the rest of the building by not less than a one-hour occupancy separation.

EXCEPTIONS: *In Groups A, B, F, I, M and S Occupancies,* boilers, central heating plants or hot water supply boilers where the largest piece of fuel equipment does not exceed 400,000 Btu per hour (117.2kW) input.

NOTE: Heating equipment is less than 400,000 BTU per hour, therefore separation is not required.

Section 306, F occupancies (F1). #35 Refuse Incineration

306.5 Light, Ventilation and Sanitation. In Group F Occupancies, light, ventilation and sanitation shall be as specified in Chapter 12 and 29. At least 6 continuous air changes per hour will be required.

306.8 Special Hazards. For special hazards of Group F Occupancies, see Section 304.8

304.8 Special Hazards. Chimneys and heating apparatus shall conform to the requirements of Chapter 31 of this code and the Mechanical Code.

Storage and use of flammable and combustible liquids shall be in accordance with the Fire Code.

Devices generating aglow, spark or flame capable of igniting flammable vapors shall be installed such that sources of ignition are at least 18 inches (457 mm) above the floor of any room in which Class I flammable liquids or flammable gases are used or stored.

Section 311 - *Group S Occupancies (S1)*

311.5 Light, Ventilation and Sanitation. In Group S Occupancies, light, ventilation and sanitation shall be as contained in Chapters 12 and 29.

311.8 *Special Hazards.* For special hazards of Group S Occupancies, see Section 304.8 Storage and use of flammable and combustible liquids shall be in accordance with the Fire Code.

Section 7
Permits Required Prior to Beginning Construction

Approval is needed from a number of different local, state and federal agencies before construction can begin on the new building.

Local Permits

A City of Valdez building permit will be required. Final plans of the Valdez EVOS building will be submitted to the City's building department for review. It is assumed that the City will not charge a review fee for this project.

State Permits

A Coastal Questionnaire will be filled out and submitted to the Department of Governmental Coordination (DGC).

An approval of the plans will be required from the ADEC. The preliminary design will be submitted to the Valdez office of ADEC for review and a follow up meeting will be held with the Department representative to discuss any critical issues identified in the preliminary design. After the plans are revised, the final design will be submitted to the agency along with a request for an "approval to construct" the facilities. At completion of the construction, asbuilts and other necessary forms will be submitted to ADEC and a request for an "approval to operate" the facilities will be requested.

Final plans and specifications of the EVOS Station will be submitted to the State of Alaska Fire Marshall's office for review and approval.

Federal Permits

To meet the requirements for EVOS funded projects, a document will be prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project.

An Environmental Assessment (EA) will be completed and published for comment by the public for 30 days. Comments received will be incorporated into the final EA. Assuming there are no significant impacts identified, it is anticipated the USFS will approve the EA.

Section 8
Community Authorization and Acceptance of Project

Before construction of the EVOS Stations can proceed, Valdez will be required to authorize and accept responsibility for operation of the proposed facilities. Phase II construction will be approved by EVOS and ADEC, after the appropriate legally binding notarized Letter of Agreement with Valdez is received. This agreement must be signed by an executive officer of the community who is legally entitled to obligate the community and the Executive Director of the PWSEDC. The letter of agreement must contain, but is not limited to, agreement that:

A.) The community will obtain all titles, easements, and permits necessary to provide clear title and authority to construct and maintain the proposed project.
B.) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management, and maintenance of the EVOS facility after construction has been completed. Accidental discharge of waste products from the facilities, after final transfer to the community had been affected, is the sole responsibility of the community where the accident occurs. In the event of an accident, PWSEDC, its agents, subcontractors, and consultants will be held harmless for resultant damages.
C.) The PWSEDC and its subcontractors may enter upon the community's property and construct the project.
D.) The location, construction, and management of these buildings will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream, or body of water.
E.) The PWSEDC and the community will hold harmless, the ADEC and the EVOS Trustee Council, its officers, agents, and employees from liability of any kind, including costs and expenses, for or on account of any and all suits or damages of any nature, sustained by any person, persons or property, by virtue of performance of the PWSEDC or community acting in place of or for PWSEDC for this project.

Section 9
Questions

Your community's assistance with the following questions is requested.

1. Is the proposed site paved or is it covered with a gravel surface?

Section 10
Equipment Cut Sheets

The following pages contain manufacturer's catalog cuts of equipment for the EVOS Station.

Dismas Pumps

Monday, February 03, 1997

GEAR PUMP
OIL
TRANSFER

Matt Stephl
Stephl Engineering
2525 Blueberry, Ste #203
Anchorage, AK 99503

Dear Matt Stephl

Reference: **Dismas Pumps** - High-Volume Pump Systems

Thank you for your interest in Dismas Pumps extensive line of positive displacement, gear driven transfer pumps. Requested information is enclosed.

DISMAS PUMPS PROVIDES:

* Explosion Proof Pumping System for operating in hazardous environments.
* *All Dismas pumps can be operated dry with no damage and are self-priming.*
* 12 and 24 volt DC pumps that will pump 40 WT oil at 40 F up to 40 GPM & diesel up to 70 GPM.
* Lightweight 110/220 volt AC pumps that will transfer heavy viscous materials such as motor oils & gear lubes. UL & CSA listed motors.

These innovative pumps are currently transferring fluids for hundreds of satisfied customers from commercial and industrial to bulk oil distributors for Pennzoil, Exxon, Chevron, Unocal and Texaco.

To place your order, Fax your credit application along with your confirming Purchase Order to Fax # 406-245-5606 or call (800) 874-8976.

Sincerely,

CAROL STIGEN
Dismas Pumps

P.O. Box 80308, Billings, MT 59108-0308 • 1140 Monad Lane, Billings, MT 59101 • 406-259-2287 • 800-874-8976 • Fax 406-245-5606

Dismas Pumps

EFFECTIVE
MAR.1,1996

PRICE LIST

DISMAS PRODUCT NO.	DESCRIPTION	LIST PRICE
#1001	GP8-HP-100: HAND OPERATED PUMP, BI-DIRECTIONAL	$225.00
#4001	GP8-DC-050-EP: 12 VOLT, 60 AMPS, 1/2 HP	$1,345.00
#4021	GP8-DC-050-EP: 24 VOLT, 30 AMPS, 1/2 HP	
#4002	GP8-DC-050-EP-BP: 12 VOLT, 60 AMPS, 1/2 HP	$1,645.00
#4022	GP8-DC-050-EP-BP: 24 VOLT, 30 AMPS, 1/2 HP	
#4501	GP8-DC-100: 12 VOLT, 100 AMPS, 1 HP	$1,540.00
#4521	GP8-DC-100: 24 VOLT, 50 AMPS, 1 HP	
#4502	GP8-DC-100-EP: 12 VOLT, 100 AMPS, 1HP	$1,840.00
#4522	GP8-DC-100-BP: 24 VOLT, 50 AMPS, 1HP	
#4601	GP8-DC-100-EP: 12 VOLT, 100 AMPS, 1HP	$1,680.00
#4621	GP8-DC-100-EP: 24 VOLT, 50 AMPS, 1HP	
#4602	GP8-DC-100-EP-BP: 12 VOLT, 100 AMPS, 1HP	$1,975.00
#4622	GP8-DC-100-EP-BP: 24 VOLT, 50 AMPS, 1HP	
#2001	GP8-AC-100: 110/230 VOLT AC, 1 1/2 HP, 2.5:1 RATIO	$1,515.00
#2002	GP8-AC-102: 110/230 VOLT AC, 1 1/2 HP, 2:1 RATIO	
#2003	GP8-AC-103: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	
#2101	GP8-AC-100-BP: w/BY-PASS	$1,815.00
#2102	GP8-AC-102-BP: w/BY-PASS	
#2103	GP8-AC-103-BP: w/BY-PASS	
#2501	GP8-AC-150: 110/230 VOLT AC, 1 1/2 HP, 2.5:1 RATIO	$2,190.00
#2502	GP8-AC-152: 110/230 VOLT AC, 1 1/2 HP, 2:1 RATIO	
#2503	GP8-AC-153: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	
#2521	GP8-AC-150: w/DRIP CONTAINMENT TANK	$2,270.00
#2522	GP8-AC-152: w/DRIP CONTAINMENT TANK	
#2523	GP8-AC-153: w/DRIP CONTAINMENT TANK	
#2601	GP8-AC-150-BP: w/SWIVEL 90 ELBOWS	$2,575.00
#2602	GP8-AC-152-BP: w/SWIVEL 90 ELBOWS	
#2603	GP8-AC-153-BP: w/SWIVEL 90 ELBOWS	
#2621	GP8-AC-150-BP: w/SWIVEL ELBOWS, TANK	$2,660.00
#2622	GP8-AC-152-BP: w/SWIVEL ELBOWS, TANK	
#2623	GP8-AC-153-BP: w/SWIVEL ELBOWS, TANK	
#2641	GP8-AC-150-BP: w/SWIVEL ELBOWS, TANK, NOZZLE	$3,040.00
#2642	GP8-AC-152-BP: w/SWIVEL ELBOWS, TANK, NOZZLE	
#2643	GP8-AC-153-BP: w/SWIVEL ELBOWS, TANK, NOZZLE	

PO Box 80005, Billings, MT 59108-0005 1110 Maggie Lane, Billings, MT 59101 406-259-8282 800-874-8976 Fax 406-245-3606

DISMAS PRODUCT NO.	DESCRIPTION	LIST-96
#3001	GP8-AC-100-EP:EXPLOSION-PROOF AC,1.5 HP,2.5:1 RATIO	$1,810.00
#3002	GP8-AC-102-EP:EXPLOSION-PROOF AC,1.5 HP,2:1 RATIO	
#3003	GP8-AC-103-EP:EXPLOSION-PROOF AC,1.5 HP,3:1 RATIO	
#3101	GP8-AC-100-EP-BP: w/BY-PASS	$2,110.00
#3102	GP8-AC-102-EP-BP: w/BY-PASS	
#3103	GP8-AC-103-EP-BP: w/BY-PAS	
#3501	GP8-AC-150-EP:EXPLOSION-PROOF AC,1.5HP,2.5:1 RATIO	$2,995.00
#3502	GP8-AC-152-EP:EXPLOSION-PROOF AC,1.5HP,2:1 RATIO	
#3503	GP8-AC-153-EP:EXPLOSION-PROOF AC,1.5HP,3:1 RATIO	
#3521	GP8-AC-150-EP: w/DRIP CONTAINMENT TANK	$3,190.00
#3522	GP8-AC-152-EP: w/DRIP CONTAINMENT TANK	
#3523	GP8-AC-153-EP: w/DRIP CONTAINMENT TANK	
#3601	GP8-AC-150-EP-BP: w/SWIVEL 90 ELBOWS	$3,325.00
#3602	GP8-AC-152-EP-BP: w/SWIVEL 90 ELBOWS	
#3603	GP8-AC-153-EP-BP: w/SWIVEL 90 ELBOWS	
#3621	GP8-AC-150-EP-BP: w/SWIVEL ELBOWS, TANK	$3,410.00
#3622	GP8-AC-152-EP-BP: w/SWIVEL ELBOWS, TANK	
#3623	GP8-AC-153-EP-BP: w/SWIVEL ELBOWS, TANK	
#3641	GP8-AC-150-EP-BP: w/SWIVEL ELBOWS,TANK, NOZZLE	$3,830.00
#3642	GP8-AC-152-EP-BP: w/SWIVEL ELBOWS,TANK, NOZZLE	
#3643	GP8-AC-153-EP-BP: w/SWIVEL ELBOWS,TANK, NOZZLE	
#2901	GP8-AC-200: 110/230 VOLT AC, 1 1/2 HP, 2.5:1 RATIO	$2,220.00
#2902	GP8-AC-202: 110/230 VOLT AC, 1 1/2 HP, 2:1 RATIO	
#2903	GP8-AC-203: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	
#2921	SAME AS #2901 w/DRIP CONTAINMENT TANK	$2,310.00
#2922	SAME AS #2902 w/DRIP CONTAINMENT TANK	
#2923	SAME AS #2903 w/DRIP CONTAINMENT TANK	
#2951	GP8-AC-200-BP: w/BY-PASS	$2,520.00
#2952	GP8-AC-202-BP: w/BY-PASS	
#2953	GP8-AC-203-BP: w/BY-PASS	
#2971	SAMES AS #2951 w/DRIP CONTAINMENT TANK	$2,610.00
#2972	SAMES AS #2952 w/DRIP CONTAINMENT TANK	
#2973	SAMES AS #2953 w/DRIP CONTAINMENT TANK	

NOTE: ALL DC & AC MOTORS ARE UL & CSA LISTED

TERMS & CONDITIONS:
TERMS ARE 2%-10/NET 30 DAYS, WITH APPROVED CREDIT
ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE
ALL PRICES ARE F.O.B. OUR WAREHOUSE - BILLINGS, MT
MINIMUM ORDER - $35.00

Dismas Pumps

ADVANCED TRANSFERRING TECHNOLOGY

NOTHING ELSE IN SHORT DISTANCE

FP-RP

Dismas Pumps

GP8 Mobile Pump Series

This series of general purpose AC-operated pumps can transfer high volumes of light to heavy viscous products with low energy requirements. These versatile pumps are cart-mounted for mobility and are designed to transfer light viscous products such as diesel fuel as well as heavier viscous products such as 250 wt. gear lube.

TYPICAL APPLICATIONS

The AC-150-BP typical applications include direct transfer from 55 gallon drums of light to heavy viscous products and from stationary containers such as totes, and above ground and below ground tanks. These products include diesel fuel, gear lubes, hydraulic oil, motor oil, lubrication oil, antifreeze and industrial products. The AC-150-EP-BP explosion-proof models transfer multi-viscosity liquids such as aviation fuel, paints, gasoline, home heating fuel, waste oil, lacquers and thinners and are operational in explosive atmospheres.

SPECIAL APPLICATIONS

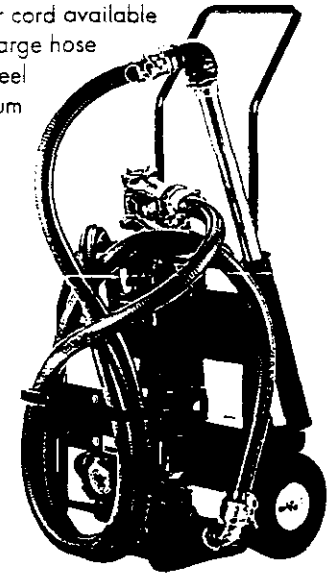
Special applications include auxiliary fire pump, emergency standby pump, factory processing tanks and fire retardant foam.

AC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Custom manufactured needle bearings with inner rings*
- *Viton seals (Optional Buna/nitrile available)*
- *Self priming*
- *Can be operated dry*
- *115/230 volts AC capabilities*
- *By pass*
- *Operational with manual and automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *Complete mobile pumping unit*
- *Designed for mobile transferring of your products*
- *UL and CSA listed motors*
- *Long life durability*
- *One year warranty*

Model AC-150-BP features:

- Pumps in either direction with optional forward/reverse switch
- On/off switch with 12" pigtail
- Can be operated with 100' of 12 gauge 3 conductor portable power cord
- Optional portable power cord available
- 10' of suction and discharge hose
- Complete with carbon steel suction tube and aluminum bung adapter
- Open flow down spout
- Model GP8-AC-150 for multipurpose transferal
- Model GP8-AC-152 for light viscous products, such as diesel fuels and antifreeze transferal
- Model GP8-AC-153 for heavy oils and gear lube transferal
- Optional discharge hose up to 40'



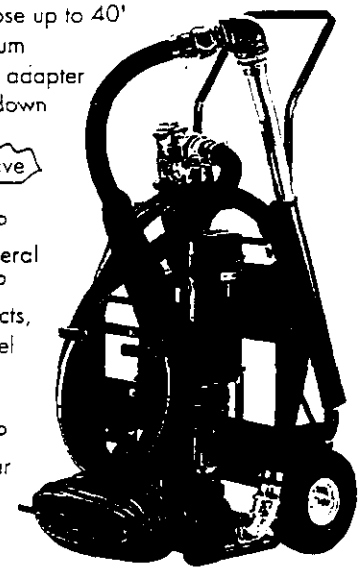
Dimensions

HEIGHT - 52" (Handle) WIDTH - 26" DEPTH - 24"

Model shown with by pass, 90° swivel elbows, manual shut off nozzle and containment tank.

Model AC-150-EP-BP features:

- Built in on/off switch
- Comes standard with 100' of 12 gauge 3 conductor portable power cord
- 10' of suction and discharge gasoline/oil hose
- Optional discharge hose up to 40'
- Complete with aluminum suction tube and bung adapter
- Aluminum open flow down spout
- Operational in explosive atmospheres
- Model GP8-AC-150-EP for multipurpose transferal
- Model GP8-AC-152-EP for light viscous products, such as gasoline, diesel fuels and antifreeze transferal
- Model GP8-AC-153-EP for heavy oils and gear lubes transferal



Dimensions HEIGHT - 52" (Handle) WIDTH - 26" DEPTH - 27"

Model shown with by pass, 90° swivel elbows, manual shut off nozzle and containment tank.

GP8 AC Stationary Pump Series

This series of AC-operated stationary general purpose pumps transfer high volumes of light to heavy viscous products with low energy requirements.

TYPICAL APPLICATIONS

Typical applications for this stationary mounted series include direct transfer of light to heavy viscous products from stationary containers, totes and tanks. These products include diesel fuel, gear lubes, hydraulic oil, motor oil, lubrication oil, antifreeze and industrial products. The AC-100-EP-BP explosion-proof model also transfers aviation fuel, paints, inks, gasoline, home heating fuel, waste oils, lacquers and thinners and operates in hazardous environments.

SPECIAL APPLICATIONS

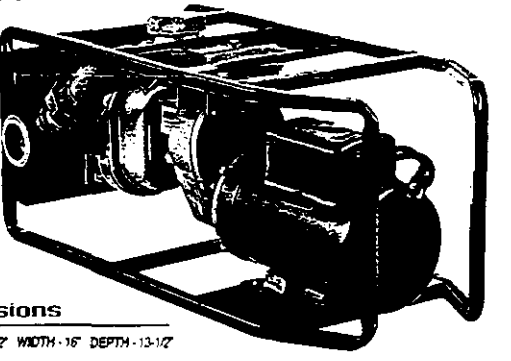
Special applications include auxiliary fire pump, emergency standby pump, factory processing tanks and fire retardant foam

AC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Custom manufactured needle bearings with inner rings*
- *Viton seals*
- *Self priming*
- *Can be operated dry*
- *115/230 volts AC capabilities*
- *Can be operated with 100' of 12 gauge 3 conductor power cord*
- *Optional power cord available*
- *Designed for stationary transferal*
- *By pass*
- *Operational with manual or automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *UL and CSA listed motors*
- *Long life durability*
- *One year warranty*

Model AC-100-BP features:

- Pumps in either direction with optional forward/reverse switch
- *On/off switch with 12" pigtail*
- Buna/nitrile seals available
- Model GP8-AC-100 for multipurpose transferal
- Model GP8-AC-102 for light viscous products, such as diesel fuels and antifreeze transferal
- Model GP8-AC-103 for heavy oils and gear lube transferal

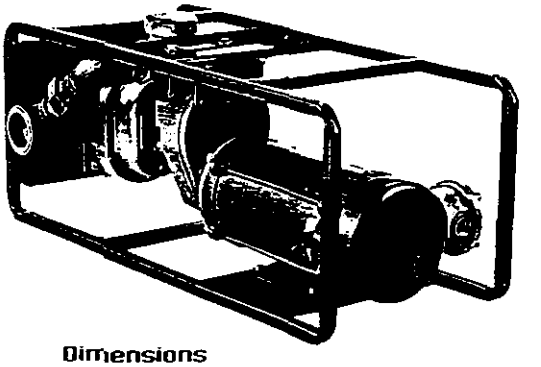


Dimensions

LENGTH - 29-1/2" WIDTH - 15" DEPTH - 13-1/2"
(Shown with By pass)

Model AC-100-EP-BP features:

- On/off switch
- Explosion proof junction box
- Operational in explosive atmospheres
- All purpose transferring of your products
- Buna/nitrile seals available
- Model GP8-AC-100-EP for multipurpose transferal
- Model GP8-AC-102-EP for light viscous products, such as gasoline, diesel fuels and antifreeze transferal
- Model GP8-AC-103-EP for heavy oils and gear lubes transferal



Dimensions

LENGTH - 32" WIDTH - 15" DEPTH - 13-1/2"
(Shown with By pass)

GP8 DC Stationary Pump Series

Dismas Pumps
P.O. Box 80008
Billings, MT 591080008
(406) 259-8282
1110 Maggie Lane
Billings, MT 59101
TOLL FREE (800) 874-8976
FAX (406) 245-5606

This series of stationary mounted DC- operated pumps offers high volume transfer of liquids with low energy requirements. Designed as a refueling pump, the explosion-proof model DC-050-EP-BP pumps diesel fuel, gasoline and other explosive products up to 60 gallons per minute. Model DC-100-EP-BP pumps gasoline, diesel fuel, motor oil and gear lubes up to 70 gallons per minute. (Also available in the non-explosion proof model DC-100-BP.) *All models available in both 12 and 24 volt DC.

TYPICAL APPLICATIONS

Typical applications for this series include transferring products from stationary containers or delivery vehicles. DC-050-EP-BP transfers light viscous explosive products including water, aviation fuel, home heating fuel, solvents, diesel fuel, gasoline, antifreeze and thinners. In addition to the products above, the DC-100-EP-BP transfers light to heavy viscous products such as diesel fuel, motor oil, antifreeze, hydraulic oil, lubrication oil, gear lubes, waste oil, paints, lacquer and gasoline.

SPECIAL APPLICATIONS

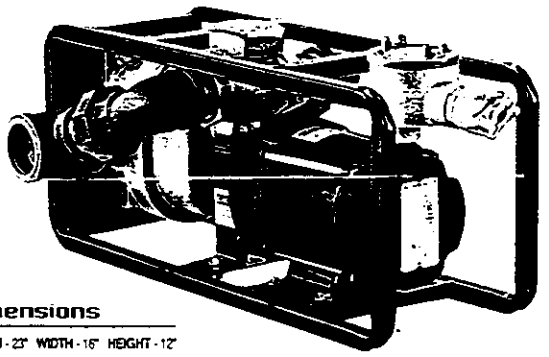
Special applications for this series include auxiliary fire pump, irrigation pump, shallow well pump and aircraft refueling.

DC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Oillite brass bushings (DC-050-EP-BP only)*
- *Viton seals*
- *Self priming*
- *Can be operated dry*
- *Pumps in either direction*
- *By pass*
- *Operational with manual or automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *Long life durability*
- *One year warranty*
- *Custom manufactured needle bearings with inner rings (DC-100-BP and EP only)*

Model DC-050-EP-BP features:

- 12 volt 60 amps and 24 volt 30 amps DC operated
- UL and CSA approved class 1, division 1, group D motors
- Commercial/Industrial applications
- Buna/nitrile seals available
- Optional 6/2 power cord

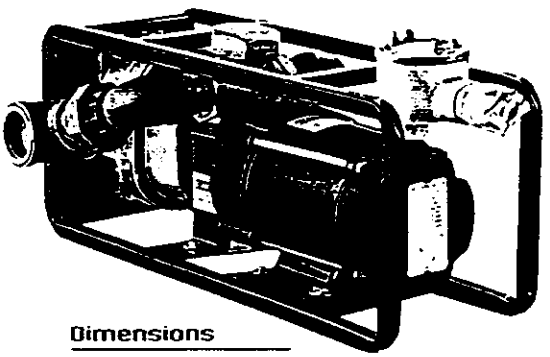


Dimensions

LENGTH - 23" WIDTH - 16" HEIGHT - 12"
(Shown with By pass)

Model DC-100-EP-BP features:

- 12 volt 100 amps and 24 volt 50 amps DC operated
- Operational in explosive environments
- Designed for refueling up to 70 gallons per minute of gasoline, diesel fuel or other explosive products
- Antifreeze transferal
- Hydraulic oils transferal
- Motor oils and gear lubes transferal
- Transferal of 40 wt. motor oil at 40°F up to 40 gallons per minute
- Industrial fluids such as paint and ink transferal
- UL and CSA approved class 1, division 1, group D motors
- Buna/nitrile seals available
- Optional 4/2 power cord
- Non-explosion proof model available



Dimensions

LENGTH - 25" WIDTH - 16" HEIGHT - 12"
(Shown with By pass)

NOTHING ELSE IN SHORT DISTANCE

Oil/Water Separators and Interceptors

Working Together for a Cleaner Environment.

Highland Tank

The Highland Advantage

Highland's Oil/Water Separators provide unparalleled performance, greater structural strength, superior product compatibility, and unsurpassed corrosion resistance. Highland patented oil/water separators have a proven record of reliability with thousands of high-performance separators in commercial operation around the world.

Highland engineers have designed a functional means of primary oil/water separation that not only assists in meeting federal, state and local oil and grease discharge limitation requirements, but surpasses them. And unlike other oil/water separators, Highland Separators are easy to operate and maintain!

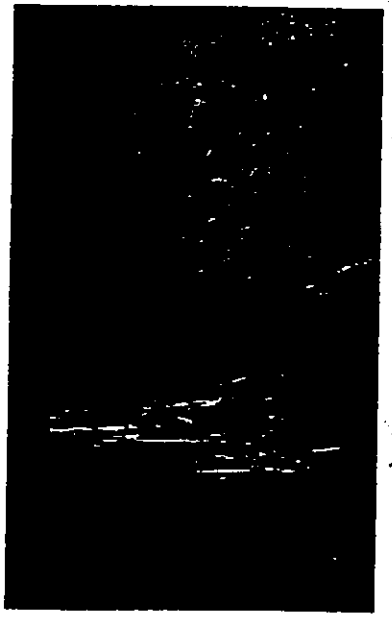
Highland Oil/Water Separators can be sized to accommodate a wide range of oily pollutant discharges from petroleum and non-petroleum based industries. Highland's Oil/Water Separators come in a variety of industry-proven designs, available in either a cylindrical or rectangular vessel. Single and double-wall construction is available for both underground and aboveground applications.

Each oil/water separator is backed by Highland Tank's professional design, engineering, fabrication, delivery and service. Highland never subcontracts — you receive your separator directly from one of Highland's six strategically located manufacturing facilities. This practice ensures complete quality control, from expert design to timely delivery by our professional drivers experienced with tank handling. The safety and security of a Highland protected steel oil/water separator is guaranteed by Highland and by the Steel Tank Institute's 30-year limited warranty against corrosion and structural failure.

When you invest in a Highland product, you benefit from a heritage that spans five decades. From the solid heavyweight construction to the patented design and operating simplicity, a Highland Oil/Water Separator is a product of experience, backed by a debt-free company with almost 50 years of private ownership and continuous management.

Highland Oil/Water Separators are competitively priced and are readily available from numerous regional representatives and distributors. You can depend on Highland Tank to provide you with environmentally safe and structurally sound oil/water separator solutions well into the 21st century and beyond.

C O N T E N T S

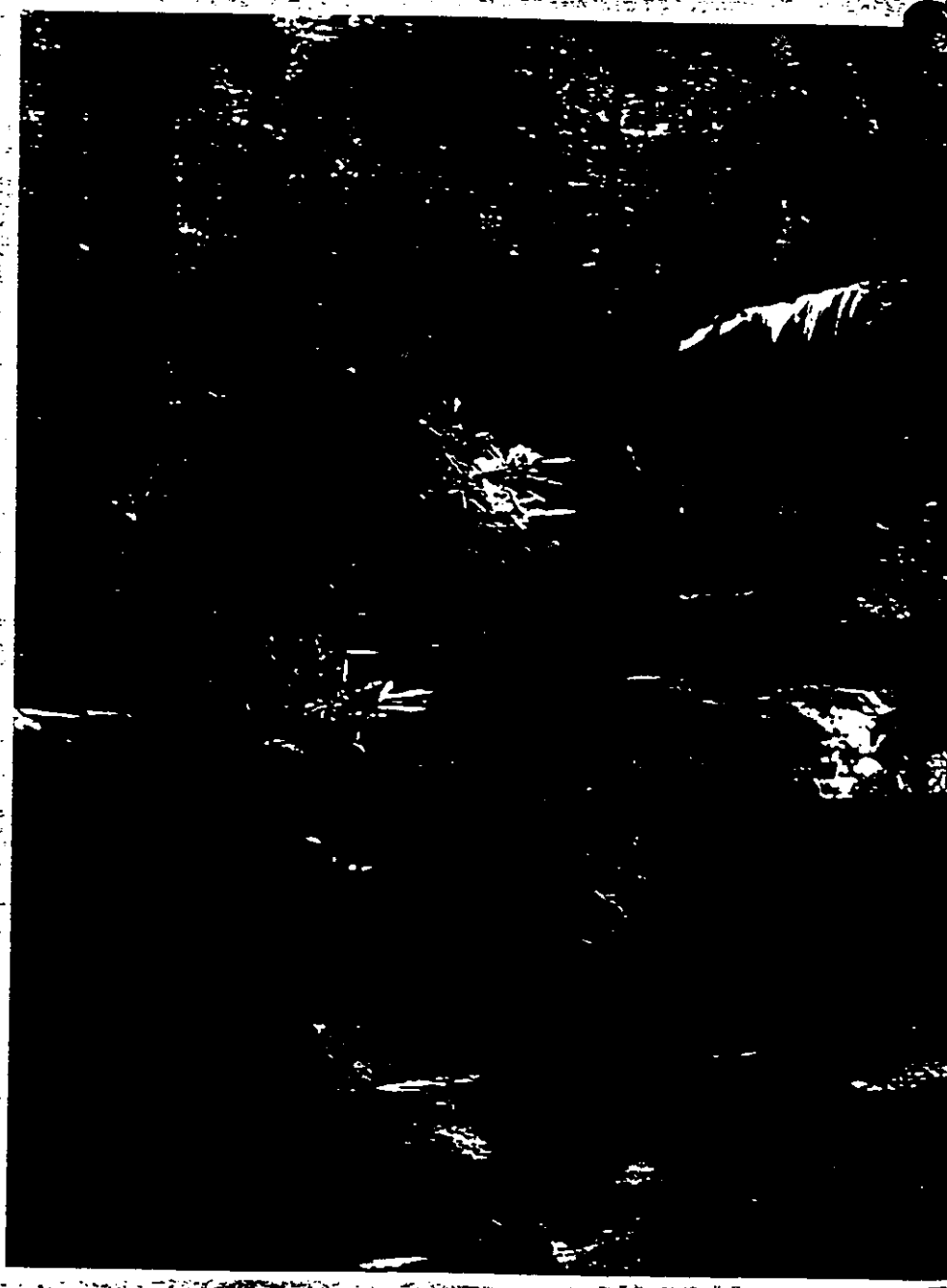


Environmental Regulations

Increasing public interest in the conservation of our nation's water resources has directly affected industries worldwide. Pressure to control harmful oil discharges and spills from industrial facilities has resulted in increasingly more stringent regulations and high penalties for noncompliance.

Oil bearing waste water discharges occur in many types of facilities, in many locations, and for many reasons. Relatively small but chronic oil discharges result from routine operations — engine and parts steam cleaning; regular vehicle maintenance and wash down; storage tank dike draining; and intermittent hose-downs of loading racks, fueling islands, and vehicle parking areas.

Large, catastrophic spills usually result from human error and equipment failure associated with loading and dispensing operations. Fire and environmental codes require that the surface on which spills may



1972
Federal Water Pollution Control Act

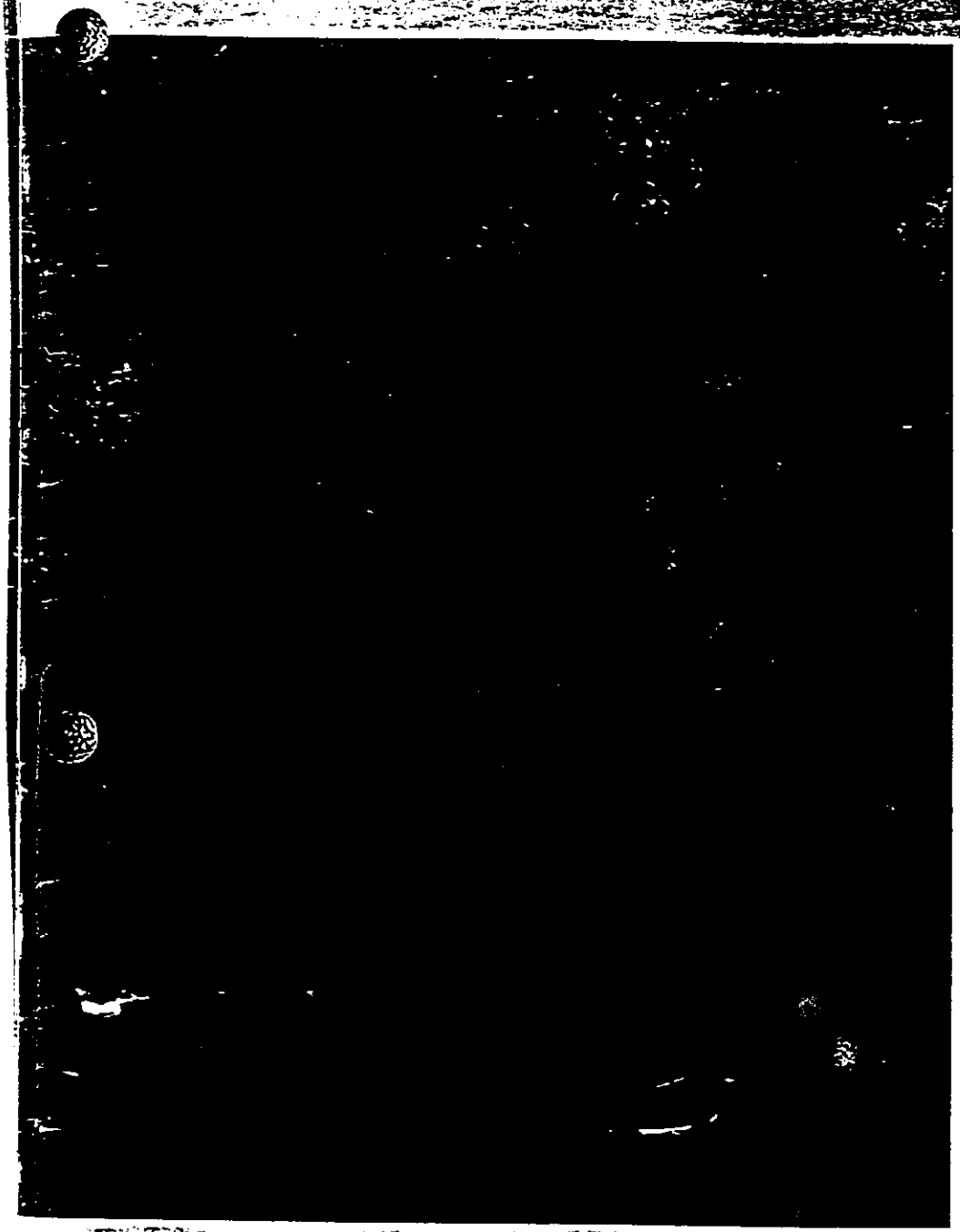
1974
Spill Prevention, Control and Countermeasures (SPCC) Plan Regulations

1976
Resource Conservation and Recovery Act (RCRA)

1977
Clean Water Act (CWA)

1980
"Superfund" Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

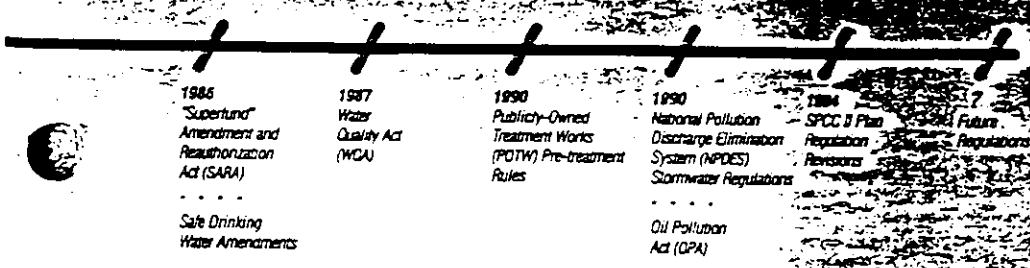
1984
Hazardous and Solid Waste Amendments (HSWA) to RCRA



occur be fully paved, curbed, and drained so that all spills flow to an adequately sized drain and oil/water separator. In most cases, oil and grease discharge regulations state that "any facility which discharges a harmful quantity of oil, or any petroleum product, and the oil enters a navigable body of water of the United States, by whatever means, is liable for significant penalties for clean-up costs and ecological damage."

Highland Tank offers many innovative solutions for industrial waste-water problems. Highland's Oil/Water Separator meets or exceeds current federal, state and local oil and grease limitations under the new Sewer Pretreatment Rules and Pollutant Discharge Elimination Systems Regulations for storm water discharge.

Highland Tank — helping you plan now for the future.



Vessel Construction

Highland Tank's Steel Oil/Water Separators and Interceptors are second to none in design, quality and workmanship. The following information describes Highland's standard vessel construction and fabrication options for steel separators and interceptors.

Single-wall

Standard single-wall vessels are constructed of mild carbon or stainless steel meeting ASTM specifications. Material thicknesses from 7 gauge to ¼" can be specified. Superior "ribbed" strength is achieved with continuous exterior full-fillet lap welds, employing a minimum 1" overlap on both head and shell joints. All separators and interceptors are factory air tested for leaks at 5 psi.

Double-wall Type I

Double-wall Type I vessels are constructed by wrapping a secondary steel wall completely around the primary vessel. Each double-wall vessel is constructed employing the same basic fabrication techniques as are used on single-wall vessels. The area between the vessel walls, known as the interstice, can be monitored with a leak detection system installed in the monitor tube, located on the vessel head.

Double-wall Type II

Double-wall Type II vessels consist of a primary vessel that is completely contained by the secondary exterior steel wall. The two walls are physically separated by standoffs that measure 1.5" on the shell and 3" between the heads. This heavy-duty construction is based on the same fabrication techniques used on the single-wall and double-wall Type I vessels. A fitting located between the inner and outer heads of the vessel permits monitoring of the interstice with a leak detection system.

Standard 24", 30" and 36" diameter manways permit easy access to the inside of the vessel for maintenance from above. Double bolting manways for secondary containment sumps and custom size rectangular manways are also available.

Rolling Steel
Steel plates from 7 ga. to ¼" are rolled to form the rigid shell of the vessel.

Forming Heads
Sheet steel is cut with a rotary shear and flanged to form tank head.

Welding
All separators are sealed with a continuous exterior full-fillet lap weld. Interior welding is required with interior coatings.

Rectangular Construction

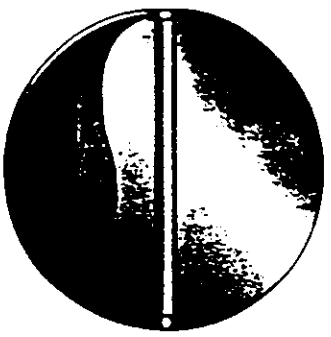
Rectangular separators are fabricated with flanged top surfaces and removable lids for easy access. All separators are constructed of a minimum 7 gauge mild carbon or stainless steel, meeting ASTM specifications. Steel plates are formed, fitted, and welded creating a separator of superior strength.

Highland Tank Oil/Water Separators carry the following patents and approvals

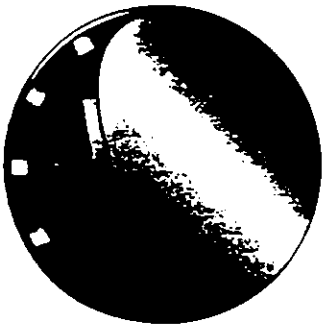
U.S. Patent # 4,722,800
Canadian Patent # 1,294,293

Approved by:
State of New York Board of Standards and Appeals
under Calendar Number 1215 ISA
Metropolitan Dade County, FL Code #93-0012.01
Massachusetts Board of State Examiners of Plumber
and Gas Fitters Approval Code P1-0594-95

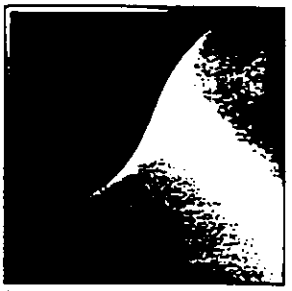
Single-wall



Double-wall Type I

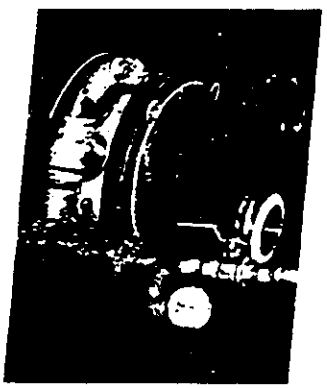


Double-wall Type II



Rectangular

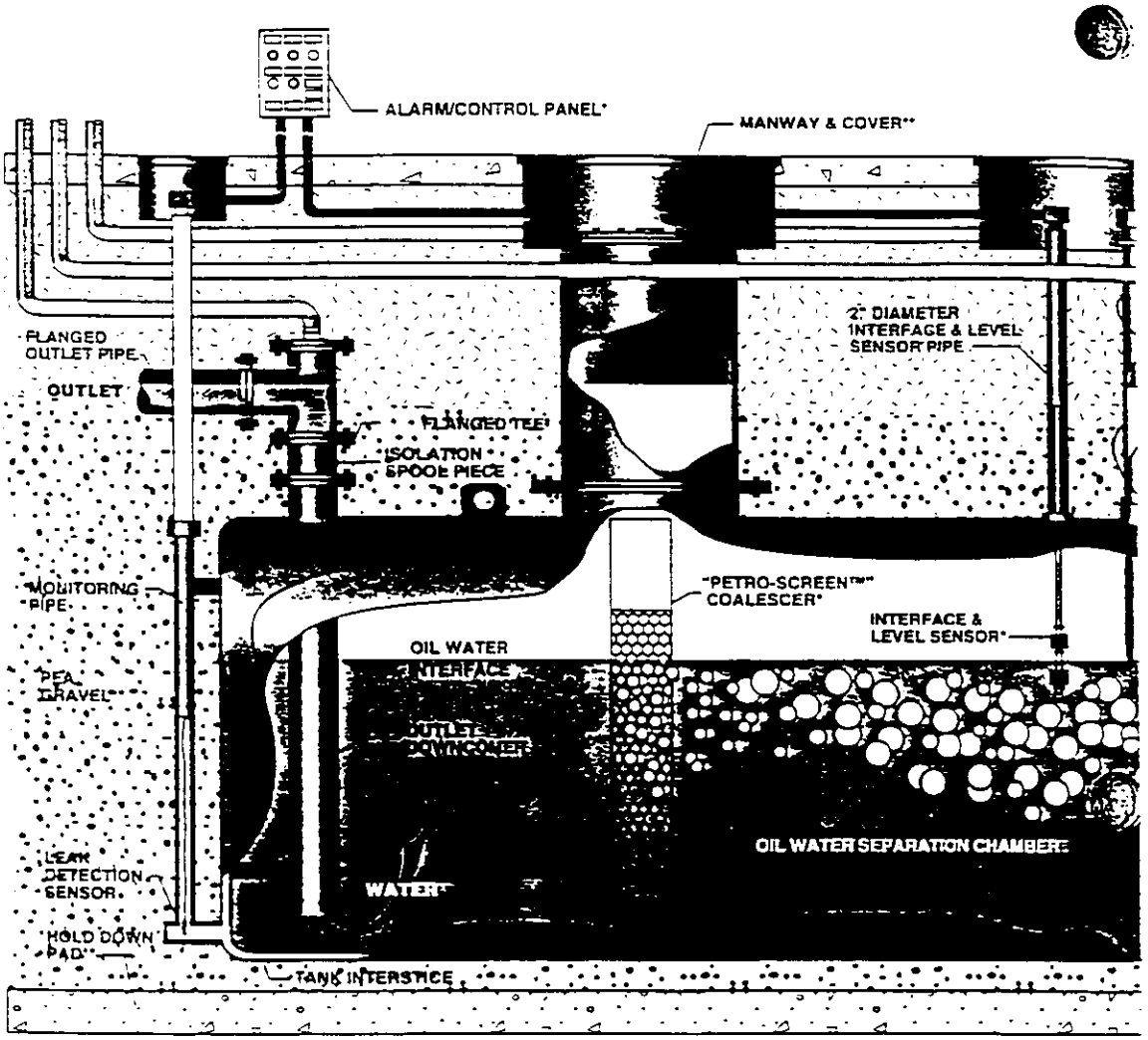
Fitting Components
Manways, flanged and threaded fittings, and other special components are fitted to the vessel, then welded in place.



Testing
All separators are air tested for leaks at 5 psi. All seams are inspected to ensure weld integrity

Coating
Polyurethane, fiberglass reinforced polyester or other high-grade coatings are applied based on the separator's end use.

How It Works . . .



* Optional equipment available from Highland Tank ** Installer supplied equipment

Highland's Patented Design

Highland Tank's patented design combines state-of-the-art technology with time-tested materials, making Highland separators the strongest and most reliable high-performance separators in the industry.

The oil/water separator is a stationary underground, wastewater treatment vessel, filled with water. Internal baffles and coalescers accelerate the oil/water separation process. Waste accumulates within the separator while effluent is discharged by gravity.

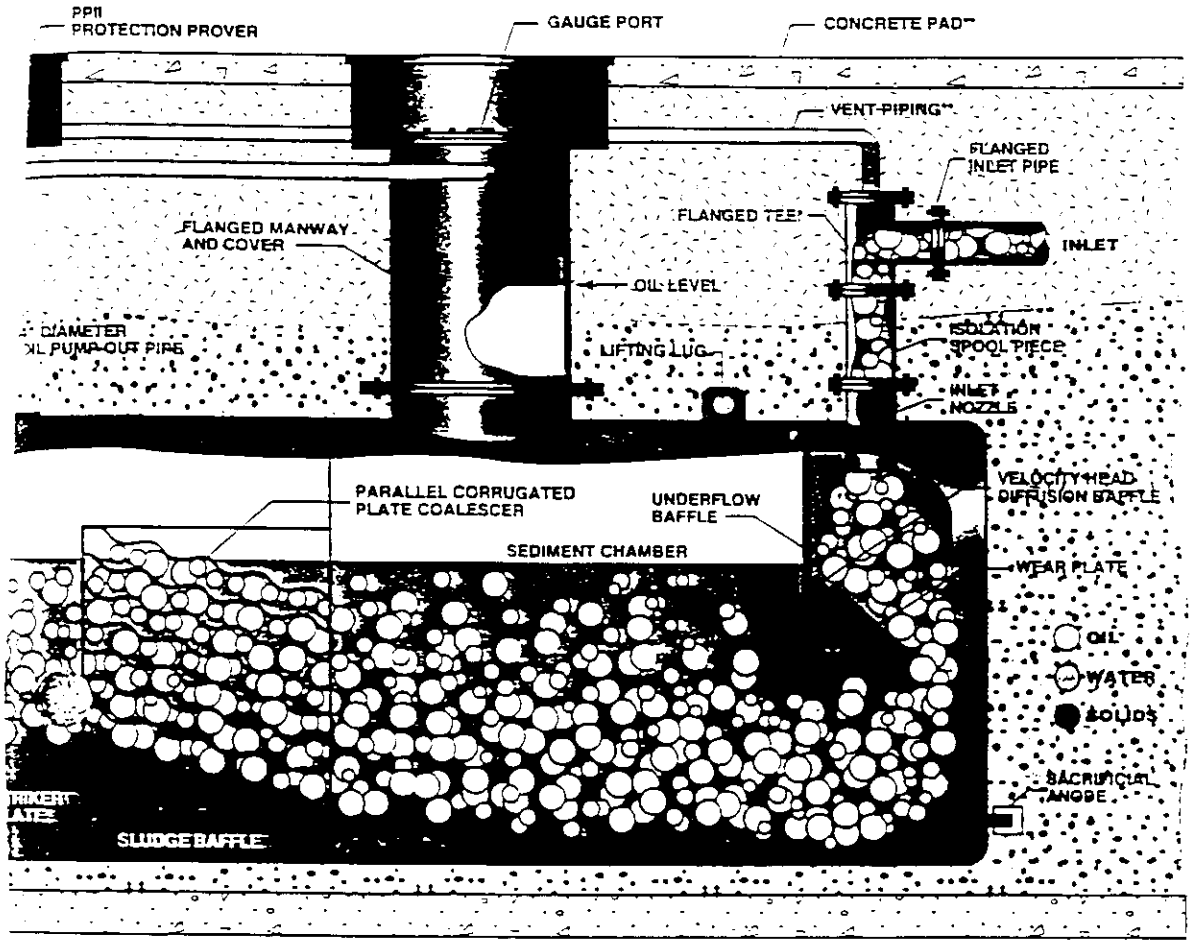
Diffusion Baffle

The velocity head diffusion baffle, located near the inlet of the separator, is designed to serve four basic functions:

1. *To dissipate the velocity head, thereby improving the overall hydraulic characteristics of the separator.*
2. *To direct incoming flow downward and outward maximizing the use of the separator volume.*
3. *To reduce flow turbulence and to distribute the flow evenly over the separator's cross-sectional area.*
4. *To isolate inlet turbulence from the rest of the separator.*

Internal Chambers

In the sediment chamber, heavy solids settle out, and concentrated oil slugs rise to the surface. As the oily water passes through the parallel corrugated plate coalescer (an inclined arrangement of parallel corrugated plates) the oil rises and coalesces into sheets on the underside of each plate. The oil then creeps up the plate surface, and breaks loose at the top in the form of large



globules. These globules then rise rapidly to the surface of the separation chamber where the separated oil accumulates.

The effluent flows downward to the outlet downcomer, where it is discharged by gravity displacement from the lower regions of the separator.

Petro-Screen™

For enhanced oil removal efficiency, a "Petro-Screen™" polypropylene coalescer (a bundle of oleophilic (oil attracting) fibers, layered from coarse to fine and encased within a solid framework) is used to intercept droplets of oil too minute to be removed by the parallel corrugated plate coalescer.

Monitoring Systems

For easy and efficient operation and maintenance, an oil level sensor can sound an alarm at high oil levels so waste oil can be removed from the separator. Double-wall separators can be furnished with a leak detection system for the interstitial space.

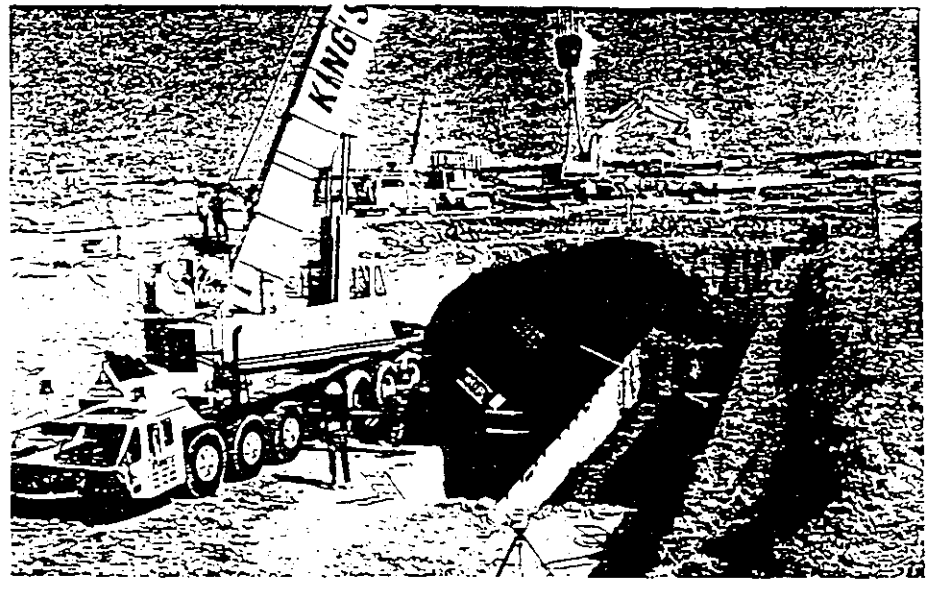
Additional monitoring equipment is available for oil or water level sensing, alarm and pumpout control.

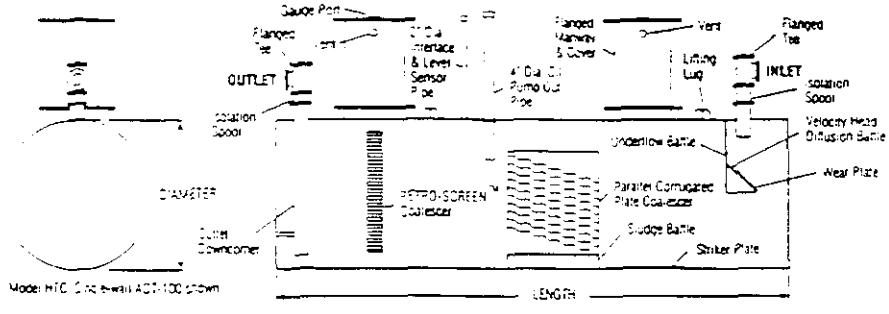
Cylindrical Design

Highland Oil Water Separators help industries comply with oil and grease discharge regulations.

Highland Oil Water Separators are used ideally for the removal of free floating oil, grease and settleable oil coated solids from oily water discharges associated with many types of industrial activities. Designed to remove oils with a specific gravity less than .95, high performance separators from 15 ppm oil/grease discharge. Model HTC down to 10 ppm discharge. Model HTCI are available.

Highland Separators are highly efficient — treating wastewater under a wide range of conditions. All separators are of the highest quality — constructed to American Petroleum Institute API, Underwriters Laboratories (UL), and Steel Tank Institute STI ACT-100 or STI-P3 specifications.





Model HTC Single-wall ADT-100 shown

Model (HTC or HTCI)	Total Volume (Gallons)	Total Spill Capacity (Gallons)	Inlet/ Outlet	Flow Rate (gpm)	Dimensions Diameter	Length	Approx. Wt.* (lbs.)
550	550	275	4"	55	3'6"	7'9"	2,024
1,000	1,000	500	6"	100	4'0"	10'9"	3,001
2,000	2,000	1,000	6"	200	5'4"	12'0"	4,122
3,000	3,000	1,500	6"	300	5'4"	18'0"	5,001
4,000	4,000	2,000	6"	400	5'4"	24'0"	5,760
5,000	5,000	2,500	6"	500	6'0"	23'10"	8,082
6,000	6,000	3,000	10"	600	6'0"	28'8"	9,484
7,000	7,000	3,500	10"	700	7'0"	24'4"	11,124
8,000	8,000	4,000	10"	800	7'0"	28'0"	11,959
9,000	9,000	4,500	10"	900	8'0"	24'0"	11,983
10,000	10,000	5,000	10"	1,000	8'0"	26'6"	12,696
12,000	12,000	6,000	12"	1,200	10'0"	20'6"	14,131
15,000	15,000	7,500	14"	1,500	10'0"	25'6"	19,[illegible]
20,000	20,000	10,000	16"	2,000	10'6"	31'0"	23,316
25,000	25,000	12,500	18"	2,500	10'6"	38'9"	30,456
30,000	30,000	15,000	20"	3,000	10'6"	46'6"	35,586
40,000	40,000	20,000	24"	4,000	12'0"	47'0"	42,[illegible]39
50,000	50,000	25,000	24"	5,000	12'0"	59'0"	51,511

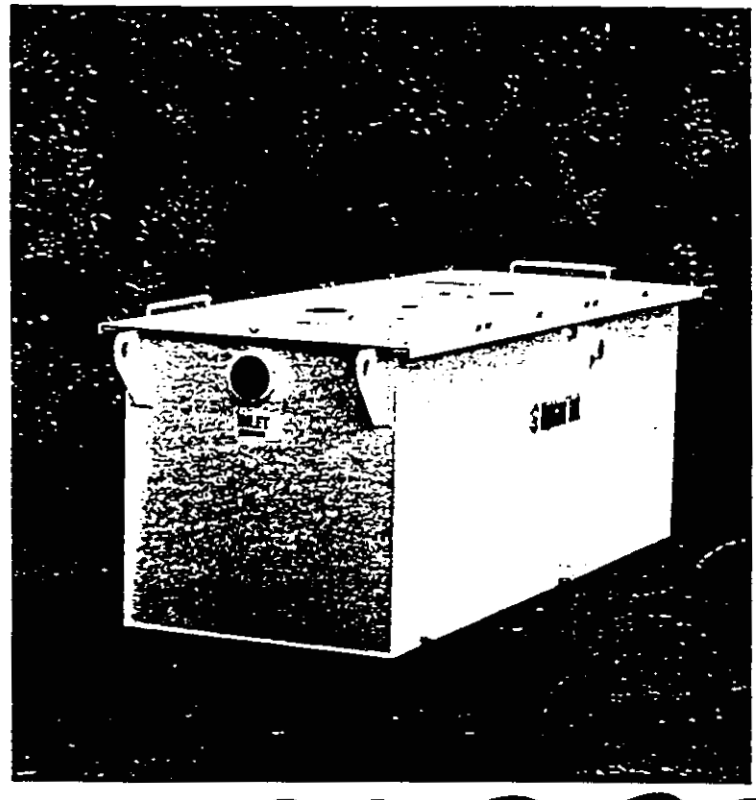
*Weights shown are for Model HTC Single-wall Separators. Contact Highland for all other weights. Plate spacing and orientation may vary depending on site conditions.

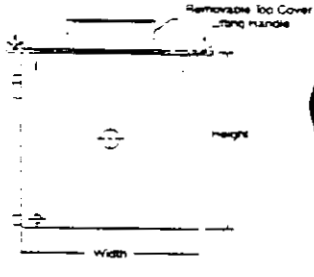
Rectangular Design

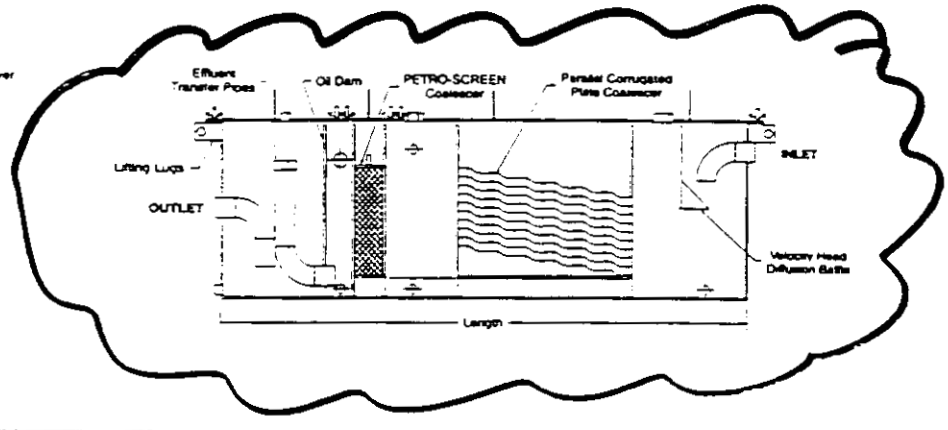
Highland's Rectangular Separators are designed for aboveground or belowground installation. These small, low flow rate models are ideal for vehicle maintenance facility wash and repair bays. All rectangular separators incorporate Highland's patented internal design and are available in both 10 ppm HTC and 15 ppm HT models.

All rectangular models have removable top panels for easy access and maintenance.

Oil or water level sensing, alarm and automatic pumpout controls, special coatings and other options are available to customize a separator to your specific needs.





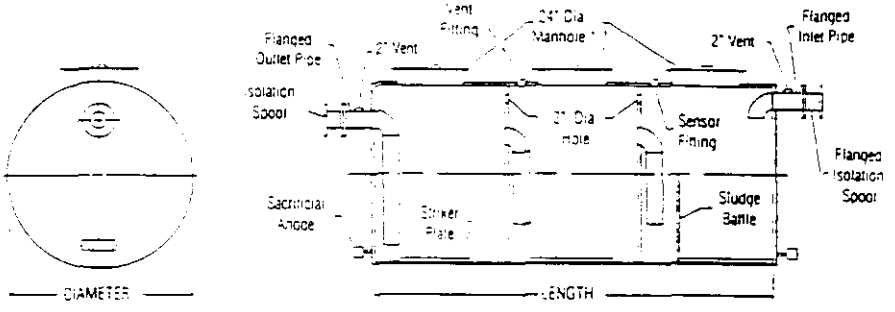


Model R-HT or R-HTC	Nominal Capacity (Gallons)	Spill Capacity (Gallons)	Flow Rate (gpm)	Dimensions L x W x H	Inlet/Outlet Diameter	Approx. Wt.* (lbs.)
200	200	80	10	5'0" x 2'0" x 3'0"	2"	975
300	300	100	25	7'0" x 2'0" x 3'0"	3"	1,150
600	600	200	50	9'0" x 3'0" x 3'0"	4"	1,850
900	900	300	75	10'0" x 3'0" x 4'0"	5"	2,145
1,000	1,000	400	100	11'0" x 4'0" x 4'0"	6"	4,380
2,000	2,000	750	200	12'0" x 5'0" x 5'0"	8"	7,150

Cylindrical Design

Highland Single, Double and Triple Basin interceptors are engineered to collect sand, oil, grease and free oil hydrocarbons and other petroleum products from storm water runoff flows and vehicle maintenance operations. Highland interceptors can be used in conjunction with high performance oil/water separators. An optional overflow chassis is available on double basin interceptors to divert flow and prevent separator overflow. Double or triple basin interceptors may be connected directly to a sanitary sewer system or be used in conjunction with a remote wash water system.

Highland interceptors are highly dependable — loading under a wide range of conditions. Highland interceptors are constructed of the highest quality materials — to UL 58 and ASTM specifications. Single or double-wall construction and options and accessories similar to those for separators are available.



Triple basin interceptor shown; double and single basin also available. * Manway extensions are available as an option.

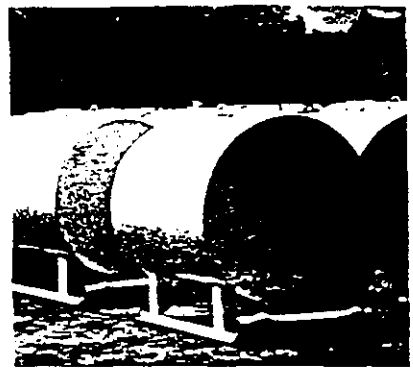
Nominal Capacity (Gallons)	SB	Sludge Capacity OB (Cubic Ft.)	TB	Flow Rate (gpm)	Inlet/ Outlet Diameter	Dimensions Diameter	Dimensions Length	Approx. Wt.* (lbs.)
550	30	20	10	55	6"	3'6"	7'9"	1,253
1,000	60	40	18	100	6"	4'0"	10'9"	1,734
2,000	120	80	36	200	8"	5'4"	12'0"	2,519
3,000	180	120	55	300	8"	5'4"	18'0"	3,323
4,000	250	160	71	400	8"	5'4"	24'0"	4,339
5,000	310	200	89	500	10"	6'0"	23'10"	6,646
6,000	375	275	107	600	10"	6'0"	28'8"	8,547
7,000	425	315	125	700	10"	7'0"	24'4"	8,361
8,000	500	355	143	800	10"	7'0"	28'0"	8,912
9,000	540	400	160	900	12"	8'0"	24'0"	9,632
10,000	600	465	178	1,000	12"	8'0"	25'8"	10,853
12,000	750	600	214	1,200	12"	10'0"	30'6"	12,279
15,000	900	685	267	1,500	14"	10'0"	25'6"	16,958
20,000	1,200	1,000	356	2,000	16"	10'6"	31'0"	20,299
25,000	1,525	1,350	445	2,500	16"	10'6"	38'9"	27,942
30,000	1,850	1,580	535	3,000	20"	10'6"	46'6"	33,089
40,000	2,400	2,600	713	4,000	24"	12'0"	47'3"	40,121
50,000	3,060	2,650	891	5,000	24"	12'0"	59'6"	47,187

Weights given are for Triple Basin Interceptors. Other weights available upon request.

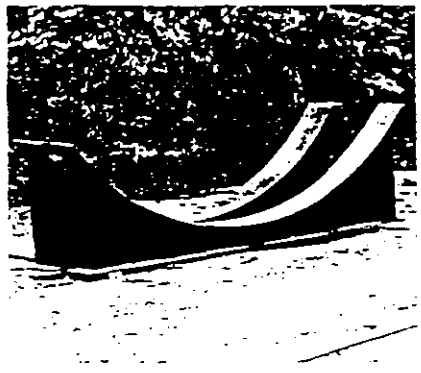
Design Options

Highland Tank custom fabricates oil/water separators and interceptors to satisfy your specific need. Separator and interceptor installations vary greatly with each location. Highland offers a wide range of design options to handle these situations. The following information illustrates some of the support options available for aboveground units, three effluent/product handling options and other operating accessories available from Highland Tank.

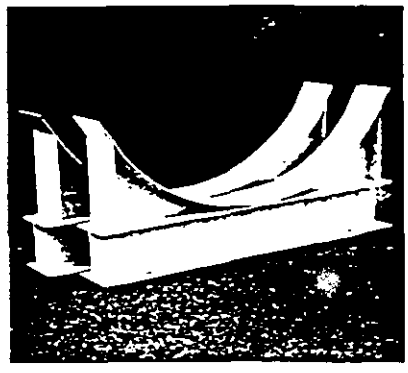
***Heavy duty skids** for 48" – 96" diameter vessels.*



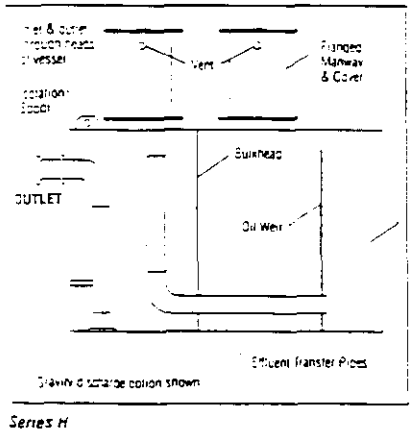
***Light duty skids** for 38" – 48" diameter vessels.*



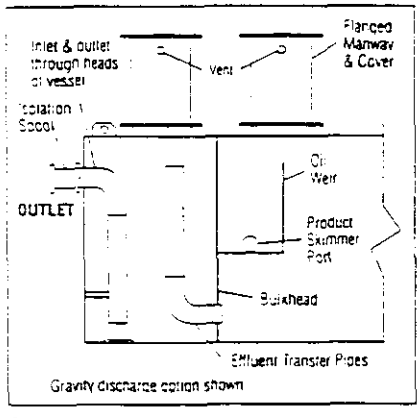
***Heavy duty saddles** for 84" – 144" diameter vessels.*



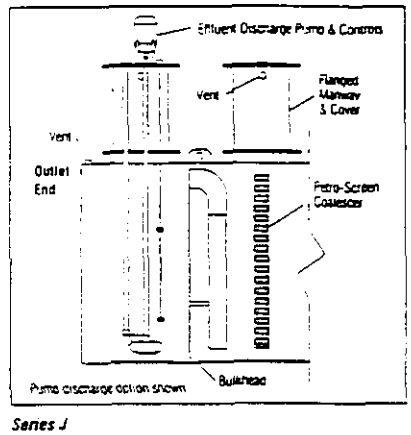
***Light duty saddles** for 38" – 72" vessels.*



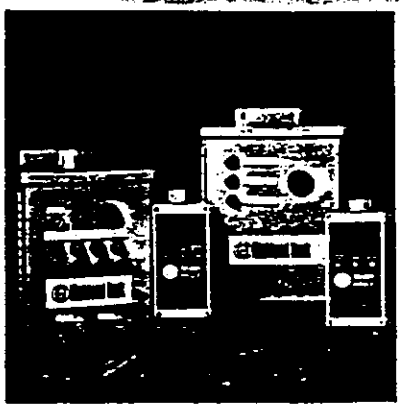
Series H
Series H Oil/Water Separators feature an integral product sump for holding separated oil. A special product well permits the removal of only the skimmed oil by pump-out. The effluent is discharged by either pump or gravity flow.



Series I
Series I Oil/Water Separators feature an integral product reservoir for receiving skimmed oil. The oil is removed by pump or gravity through a side port to a remote oil storage tank. The effluent is discharged by either pump or gravity flow.

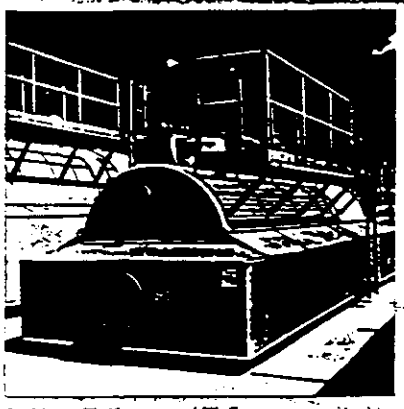


Series J
Series J Oil/Water Separators feature an integral effluent pump-out chamber with level controls to operate a pump at prescribed levels. The pumped effluent can then be routed through Highland's Activated Carbon Filtration unit.



Alarm Control Panels

Activated Carbon Filtration



Ladders, Platforms and Walkways

STI P3®
UNDERGROUND STORAGE TANKS

STI-P3 Protection System

Protective Coating
A tough, heavy duty dielectric coating of either polyurethane or fiberglass reinforced polyester covers the separator and seals it from the surrounding soil providing the first line of defense against stray current and galvanic corrosion.

Electrical Isolation
UL-Listed dielectric nylon bushings or flange isolation kits are used in each opening to electrically isolate the separator from piping, preventing the entry of stray currents or galvanic action through piping connections.

Cathodic Protection
Galvanic anodes provide protective current flow to any scratches in the coating that may occur during shipping/handling. The anodes are self-regulating, supplying current only as needed, for extra long life. Every STI-P3 separator is shipped with factory installed PP2 Protection prover cathodic protection monitoring system.

ACT-100®

ACT-100 Protection System

Protective Coating
A tough, heavy duty dielectric coating of 100 mil fiberglass reinforced polyester covers the separator and seals it from the surrounding soil providing the first line of defense against stray current and galvanic corrosion.

Electrical Isolation
UL-Listed dielectric nylon bushings or flange isolation kits are used in each opening to electrically isolate the separator from piping, preventing the entry of stray currents or galvanic action through piping connections.

Highland Tank

Wastewater Treatment Applications

Ever increasing oil and grease discharge regulations at industrial facilities necessitate the development of spill and wastewater treatment plans and installation of equipment to implement those plans.

Typically Regulated Facilities

- Aircraft Services
- Airports
- Ambulance Services
- Automobile Dealers
- Automobile Rental Services
- Bus Companies
- Construction Companies
- Garbage Carriers
- Gasoline Service Stations
- Industrial Facilities
- Military Installations
- Municipalities
- Railroads
- Taxi Cab Companies
- Trucking Companies
- Utilities

Vehicle services associated with each of these facilities might include:

  - Fueling Facilities
  - Repair and Maintenance Shops
  - Wash Areas

- Bulk Storage Tank Farms
- Hazardous Waste Sites
- Leaking Petroleum Storage Tank and Piping Remediation
- Petroleum Marketing Facilities
- Parking Lots
- Refineries
- Utility Switch Yards

Highland Design Assistance

Developing a spill control or wastewater treatment system and then selecting the proper equipment is no ordinary task!

Highland has a network of knowledgeable factory representatives located worldwide to assist you in this process. In addition, Highland offers a wide array of information that includes an engineering manual with detailed information on selecting and specifying products and accessories. Specifications and engineering drawings for standard models of separators are also available on 3.5" floppy disk.

For assistance in selecting and specifying a Highland high performance oil/water separator and/or interceptor, and for the nearest Highland Oil/Water Separator representative, call or write:

Highland Tank
One Highland Rd.
Stoystown, PA 15563
814-893-5701
FAX 814-893-6126

Highland Tank

Highland Manufacturing Locations

One Highland Road
Stoystown, PA 15563-0338
Phone (814) 893-5701
Fax (814) 893-6126

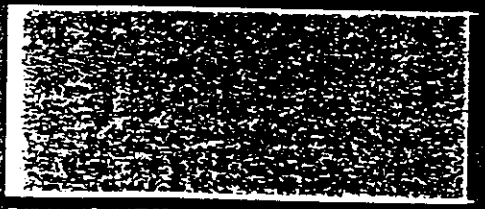
99 West Elizabethtown Road
Manheim, PA 17545-9410
Phone (717) 664-0600
Fax (717) 664-0617

958 19th Street
Watervliet, NY 12189
Phone (518) 273-0801
Fax (518) 273-1365

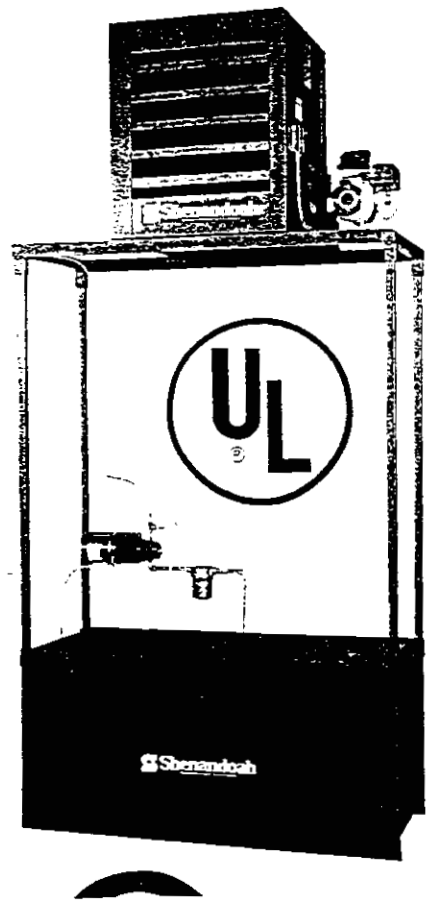
2225 Chestnut Street
Lebanon, PA 17042
Phone (717) 664-0602
Fax (717) 664-0631

2001 East Pontiac Street
Fort Wayne, IN 46803
Phone (219) 422-6191

2700 Patterson Street
Greensboro, NC 27407
Phone (910) 218-0801
Fax (910) 218-1292



Shenandoah



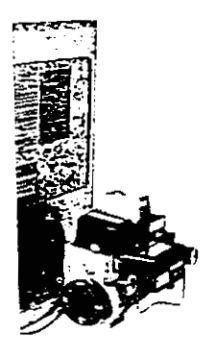
Select the heat

Right fo

Offering you the bene

- **Patented burner design**
- **User-friendly maintenance**
  Slide out gun assembly.
  Clean-out panels on both ends of heat exchanger.
- **Safe, dependable ease of operation**
  Thermostatically controlled, 24V wall thermostat
  Flame sensor with cutoff controls.

OF-1
CORDOVA
VALDEZ
WHITTER



125

	125,000 *31,500 KCAL*
Output (approx. BTU/hr.)	100,000 *25,200 KCAL*
Stack size / ship wt. with burner	6"/ 337 lbs. *15.2 cm / 153 k*
Heater dimensions (L x W x H) *Includes outside measurements of fan and burner*	30" x 43" x 33" *76 cm x 109 x 84*
Electrical requirements *Maximum circuit protection*	115/60 20 AMPS
Approx. oil consumption	.90 GPH *3.4 LPH*
Air Flow through fan	1800 CFM *50.4 m³/min.*
Agency listing	UL, CSA, C-UL, [illegible] M

Compressed air for all models 2 CFM @ 40 PSI *(.057 m³/min. @ 28 MP*
Fuels Used crankcase oil, transmission and hydraulic fluids, as well as other petroleur based lubricants (any weight combination up to SAE 50 as well as #1 and #2 fuel oil

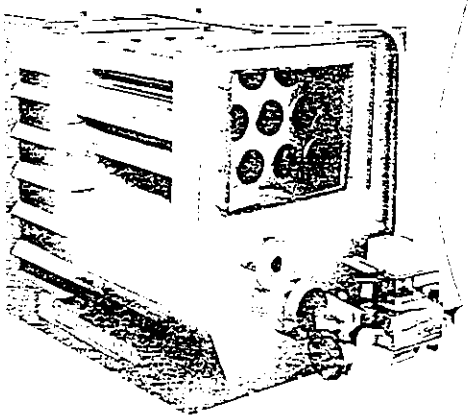
MADE in the USA

...that's ...your shop

...of...

Ten year warranty
Limited warranty on aluminized steel fire chamber and heat exchanger.

Efficient, clean combustion
Air atomizing nozzle.
Fuel and compressed air are preheated.
Stop-air nozzle prevents carbonizing.

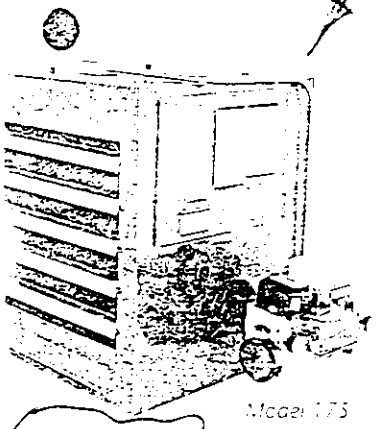


Today's ideal heating system...

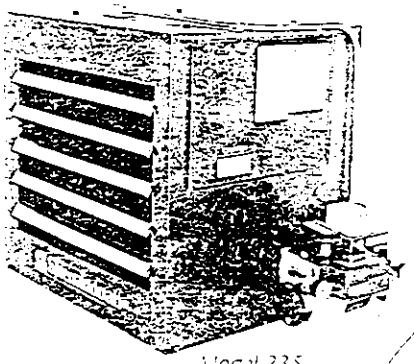
- **Auto service centers**
- **Construction & heavy equipment garages**
- **Quick lube shops**
- **Auto dealerships**
- **Fleet garages**
- **Any location that generates used oil**

Aluminized steel fire chamber and heat exchanger

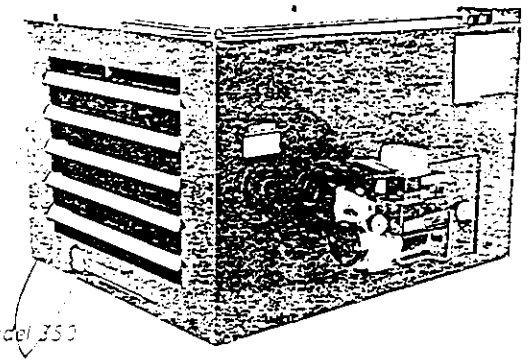
Only at Shenandoah!
Heavy gauge 100% aluminized steel
Corrosion resistant alloy designed for rust resistance and greater heat transfer.



Model 175



Model 235

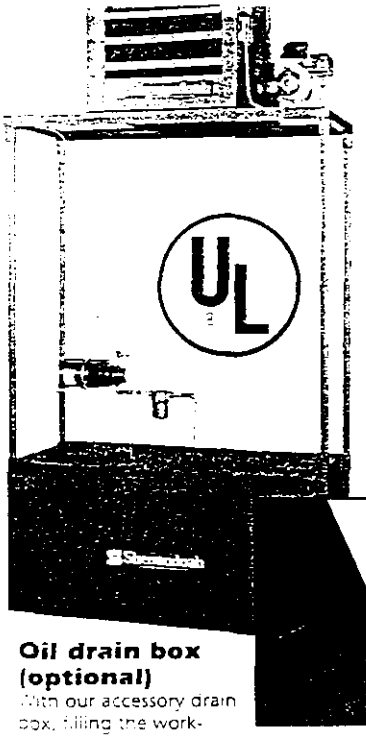


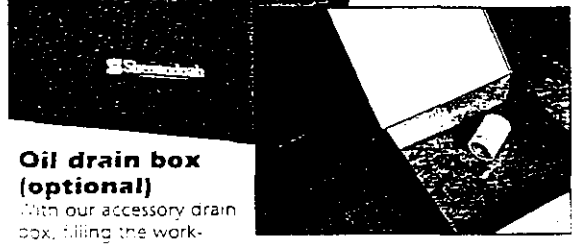
Model 350

175	235	350	500
75,000 44,100 KCAL	235,200 59,270 KCAL	350,000 88,200 KCAL	500,000 126,000 KCAL
50,000 37,800 KCAL	200,000 50,400 KCAL	300,000 75,600 KCAL	400,000 100,800 KCAL
449 lbs. 203.6 cm x 204 kg	8" x 487 lbs. 30.3 cm x 221 kg	8" x 735 lbs. 30.3 cm x 334 kg	8" x 829 lbs. 30.3 cm x 376 kg
40" x 45" x 36" 102 cm x 114 x 91	40" x 51" x 36" 102 cm x 130 x 91	62" x 57" x 33" 158 cm x 145 x 84	62" x 57" x 33" 158 cm x 145 x 84
115 60 20 AMPS	115 60 20 AMPS	115 60 30 AMPS	220V 60 30 AMPS
1.25 GPH 4.7 LPH	1.68 GPH 6.4 LPH	2.5 GPH 9.5 LPH	3.5 GPH 13.3 LPH
2300 CFM 65 cu. mm.	2900 CFM 82 cu. mm.	4700 CFM 133 cu. mm.	5800 CFM 164 cu. mm.
UL, CSA, C-UL, ETLM	UL, CSA, C-UL, ETLM	UL, CSA, C-UL, ETLM	ETLM (UL pending)

Oil transfer pump 1.8 GPH @ 40 PSI 6.8 LPH @ 2.8 kPa, for all models except Model 175: 2.5 GPH @ 40 PSI 9.5 LPH @ 2.8 kPa

Patents **US:** 5,367,894 utility, 331,104 des., 331,105 des. **Can:** Pat. 2,029,366, 69,374 des., 69,457 des.





Oil drain box (optional)
With our accessory drain box, filling the work-bench tank is a no-mess procedure. Extra large drain box (20" sq. x 6" deep) allows quick disposal. The drain pipe extends to within several inches of the tank bottom, providing an air lock that eliminates the need for plugs and satisfies fire codes.

Convenient oil storage

Use the tank as your primary or secondary storage area. Your fuel stays at room temperature for improved performance.

Safety tested by UL

The design of the Shenandoah Workbench Tank meets the strict safety requirements of Underwriters Laboratories.

Quick access for servicing

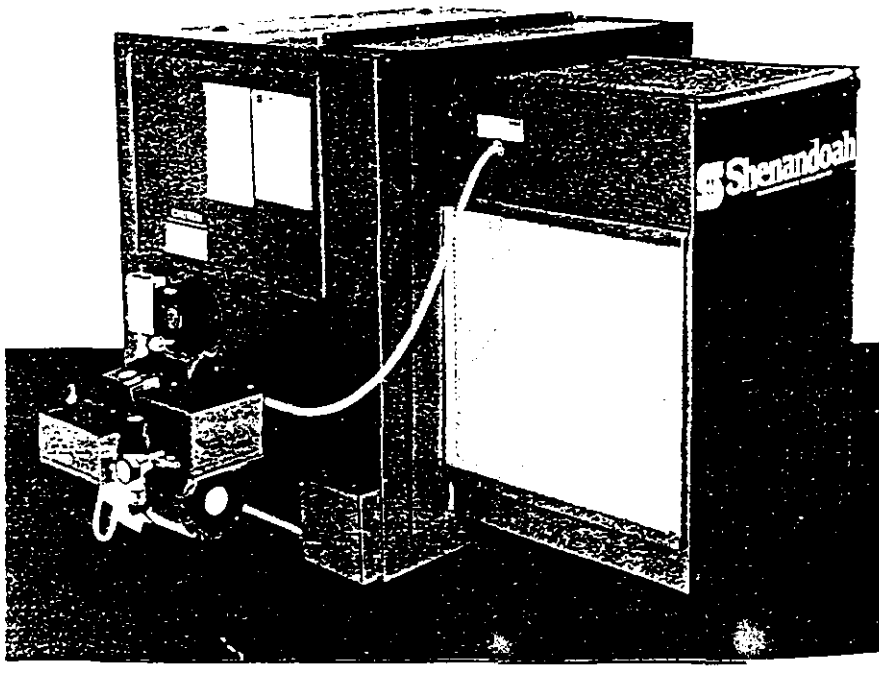
Your heater is within easy step-ladder reach for routine cleaning and maintenance.

add value

Model	WBT-250	WBT-350
Capacity	250 gal. 946 L	350 gal. 1327 L
Size (L x W x H) add 2" height for retainer lip sides and back)	60" x 30" x 33" 152 cm x 76 x 84	60" x 42" x 33" 152 cm x 107 x 84
Height of mounting rack	96" 244 cm	96" 244 cm
Weight		
Tank	280 lbs. 127 kg	430 lbs. 195 kg
Rack	105 lbs. 48 kg	105 lbs. 48 kg
Threaded openings		
2" fill 5 cm	2" vent 5 cm	2" top outlet 5 cm
1" end drain 2.5 cm	4" emergency vent 10 cm	
Construction		
12 gage material (3 mm) mounted on heavy duty skids.		

Ductible Furnaces distribute heat

If your shop is large, you can distribute heat directly to each service bay through a duct system. The Shenandoah Waste Oil Furnace with its quiet squirrel cage fan delivers heat through your duct system to where it's needed most.



Ductible furnaces

are identical to unit heaters with the addition of the ductible kit at the factory. Refer to heater specs on the previous page.

Overall dimensions (L x W x H)

175	51" x 45" x 36" 130 cm x 114 x 91	**235**	51" x 51" x 36" 130 cm x 130 x 91
350	73" x 57" x 33" 185 cm x 145 x 84	**500**	73" x 57" x 33" 185 cm x 145 x 84

Shipping weight with burner

175	538 lbs. 244 kg	**235**	578 lbs. 262 kg
350	934 lbs. 424 kg	**500**	1063 lbs. 482 kg

Model	Blower CFM	Voltage	Duct Opening
175	2,420 @ .25" SP 69 m³/min. @ .64 cm	115V	23-1/4" x 23-1/4" 59 cm x 59
235	2,860 @ .5" SP 81 m³/min. @ 1.3 cm	115V	29" x 23-1/4" 74 cm x 59
350	4,800 @ .75" SP 136 m³/min. @ 1.9 cm	115V, 220V	29" x 23-1/4" 74 cm x 59
500	5,800 @ .75" SP 164 m³/min. @ 1.9 cm	220V	29" x 23-1/4" 74 cm x 59

Ductible kit available for heater add-on

Yes for Models 175, 235, 350 and 500

Not available for Model 125

EF-1
EF-2

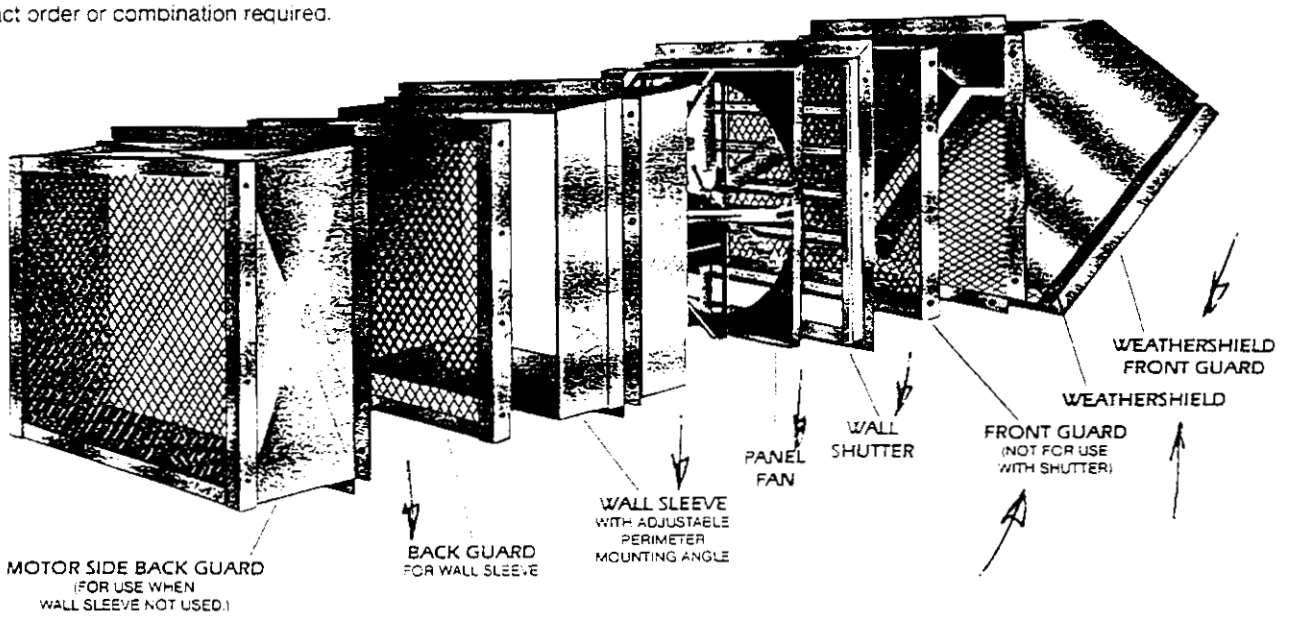
ACCESSORIES

ACCESSORIES

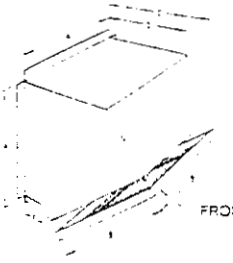
CORDOVA, VALDEZ & WHITTIER

ACCESSORIES

Penn provides a wide variety of accessory components for Breezeway Panel Fans. These accessory items can be used in different combinations to suit your application. The drawing below represents the variety of accessory items available, not necessarily in the exact order or combination required.



WEATHERSHIELD



Weathershields are designed to exclude rain and snow from wall openings and shutters. Standard construction is galvanized steel, optional front guard is available. Weathershields may be surface mounted or used in conjunction with wall sleeves.

DIMENSIONAL DATA

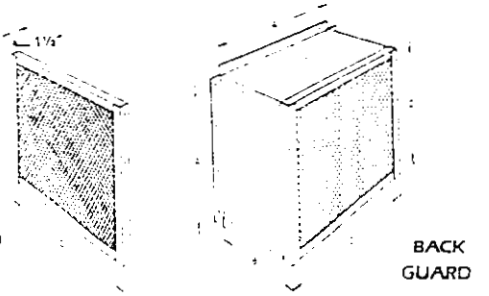
SIZE	10	12	16	18	20	24*	24	30	36	42	48	54	60	72
Wo	15¾	17¾	23½	25	27½	33¼	28¾	34¾	40¾	46¾	55	61	67	79
A	15¼	17¼	23	24½	27	32¾	28¼	34¼	40¼	46¼	54¼	60¼	66¼	78¼
B	15¼	17¼	23	24½	27	32¾	28¼	34¼	40¼	46¼	54¼	60¼	66¼	78¼
C	17⅞	19⅛	23¼	24¼	26⅛	30⅛	27⅜	31¾	36⅜	41	45¾	50⅛	55⅛	62¼
D	12⅜	13⅛	15½	16⅛	17¼	19½	17⅜	20¼	23⅜	25⅜	28⅜	31	34¼	38¼

* TYPE P

ALL DIMENSIONS IN INCHES

BACK AND FRONT GUARDS

Guards are available for both the rear (motor side) of the fan and (less often) the front face of the fan. All guards conform to OSHA specifications. Rear guards are removable or have a removable access section for fan maintenance. Rear guards can be shipped knocked down. Guards which comply with OSHA regulations should be installed when fans are located within seven feet of floor and/or working level, or within reach of personnel. Review OSHA codes.



DIMENSIONAL DATA

SIZE	10	12	16	18	20	24*	24	30	36	42	48	54	60	72
A	**	**	**	**	**	**	28 3/16	34 3/16	40 3/16	46 3/16	54¼	60¼	66¼	78¼
B	**	**	**	**	**	**	13½	16½	16½	20½	25	25	25	25
Screen	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	1 Piece	2 Pieces	2 Pieces	2 Pieces	2 Pieces
CSQ.	15½	17½	23¼	24¾	27¼	33	28⅝	34⅝	40⅝	46⅝	54¾	60¾	66¾	78¾

* TYPE P ** MOTOR SIDE GUARD OF CONCENTRIC RINGS INTEGRAL TO UNIT.

ALL DIMENSIONS IN INCHES

Alyeska Pump & Equipment

A DIVISION OF FAMILIAN NORTHWEST #74
6251 Tuttle Place #102
Anchorage, AK 99507
(907) 561-5842
Fax (907) 561-5072

FAX TRANSMISSION COVER SHEET

Date: 02/11/96

To: Matt Stepisl PE.

Fax: 277-4722

Subject: Elec. Diaphragm Pump

Sender: Timothy J. Bergin P.E.

YOU SHOULD RECEIVE 3. PAGE(S), INCLUDING THIS COVER SHEET. IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (907) 561-5842.

NOTES:

Model 5515-15 = $1705.-

Available on the floor -

3" Diaphragm 1ϕ - 1.5 H.P. - 1750 RPM.

115/230V.

W/ this we can easily package it tank.

Any Q's Please call.

AVAILABLE:

WITHOUT POWER OR WITH HEAVY DUTY GASOLINE ENGINE

CH&E
QUALITY PRODUCTS

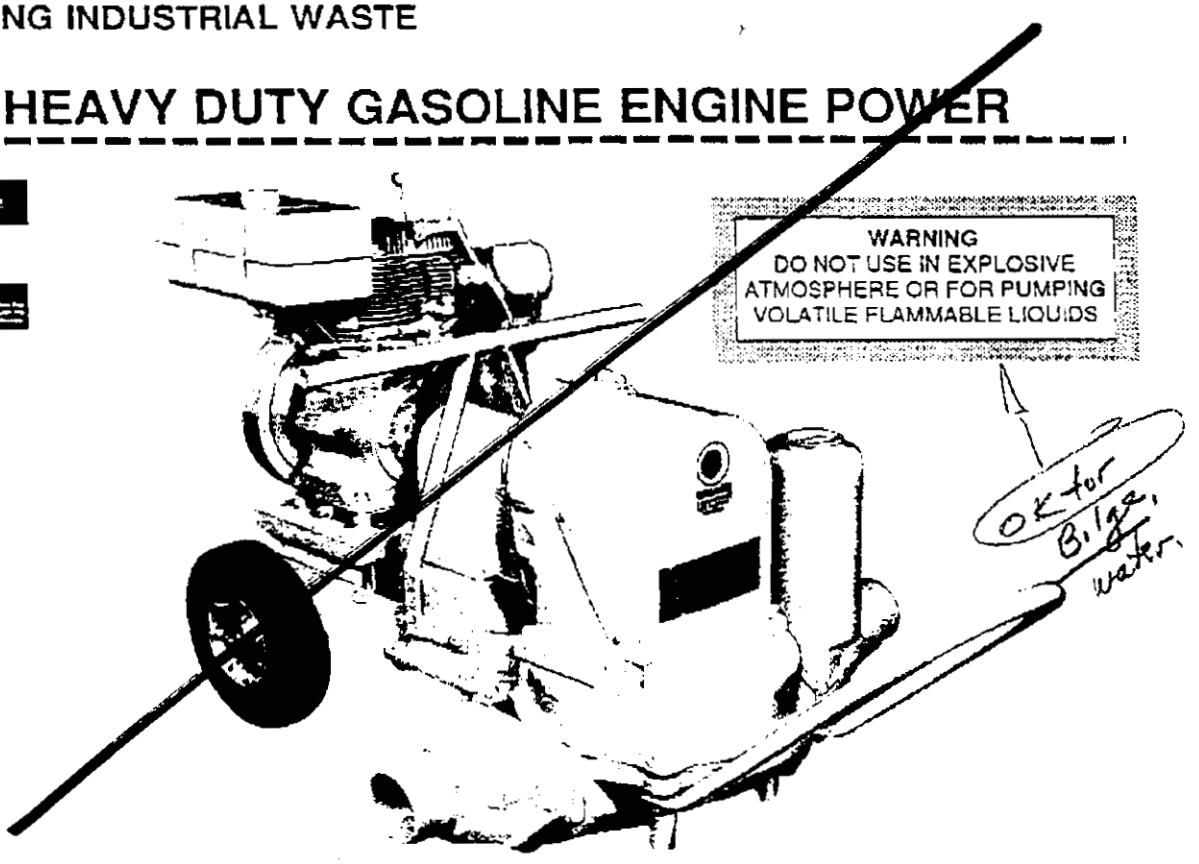
Long Coupled Diaphragm Pumps
Series
5400-6400 2"
5500-6500 3"

DIAPHRAGM PUMPS ARE BEST FOR:

- SEEPAGE DEWATERING
- SANDY - MUDDY - MUCKY WATER
- HIGH SUCTION LIFT
- CLEANING SEPTIC TANKS
- PUMPING INDUSTRIAL WASTE

HEAVY DUTY GASOLINE ENGINE POWER

CERTIFIED PERFORMANCE cpp



B&S AIR COOLED ENGINE. 8 H.P. STANDARD SHAFT ENGINES CONNECTED THROUGH FLEXIBLE COUPLING. ENGINES HAVE AMPLE OIL CAPACITY FOR CONTINUOUS OPERATION. ENGINES RUN AT 2600 RPM FOR LONG SERVICE. A 1750 RPM ELECTRIC MOTOR MAY BE USED WHICH WILL DECREASE PUMPING CAPACITIES.

C. H. & E. Manufacturing Co. 3849 N. Palmer St. Milwaukee, Wis. 53212
phone 414-964-3400 • FAX 414-964-0677

FEATURES:

- Lightweight all aluminum . . . or water end parts abrasive resistant cast iron.
- Identical construction on two and three inch pumps except for size.
- Totally enclosed double gear reduction running in oil. Needle and ball bearing.
- Large opening RUBBER swing type valves.
- Self-cleaning straight water flow through valves and waterbox.
- Suction air chamber cushions stroke.
- Fast sure priming at all lifts.
- Roller bearing crankshaft and eccentric.
- Male hose connections for fast coupling.
- Skid or wheel mounting for all pumps.

PUMPS ANY LIQUID SUFFICIENTLY FLUID TO FLOW TO AND THROUGH THE PUMP

CAPACITIES – ALL PUMPS	GALLONS PER HOUR	
	TWO INCH PUMPS	THREE INCH PUMPS
* 5 Foot Suction Lift	3000	6000
10 Foot Suction Lift	2500	5500
15 Foot Suction Lift	2000	4500
20 Foot Suction Lift	1500	3500
25 Foot Suction Lift	1250	3000

SPECIFICATIONS

TWO INCH DIAPHRAGM PUMPS

MODEL		POWER	NET WEIGHT	
ALUMINUM CONSTR.	CAST IRON WATER END		SKID MOUNTED	4 x 8 Semi-Neumatic Tires
5420	6420	WITHOUT POWER— 2600 RPM INPUT SPEED	102 129	9 118
5422	6422	8 H.P. AIR COOLED ENG BRIGGS MODEL 190402	148 175	137 164

THREE INCH DIAPHRAGM PUMPS

MODEL		POWER	NET WEIGHT	
ALUMINUM CONSTR.	CAST IRON WATER END		SKID MOUNTED	4 x 8 Semi-Neumatic Tires
5520	6520	WITHOUT POWER— 2600 RPM INPUT SPEED	122 175	115 168
5522	6522	8 H.P. AIR COOLED ENG BRIGGS MODEL 190402	168 221	161 214

*THESE HEAD CONDITIONS ARE OPEN DISCHARGE. WHEN YOU USE THIS MUCH HORSEPOWER ON A DIAPHRAGM PUMP, DAMAGE CAN BE DONE BY EXCESSIVE DISCHARGE HEAD CONDITIONS. PLEASE CONTACT FACTORY WITH YOUR HEAD CONDITIONS.

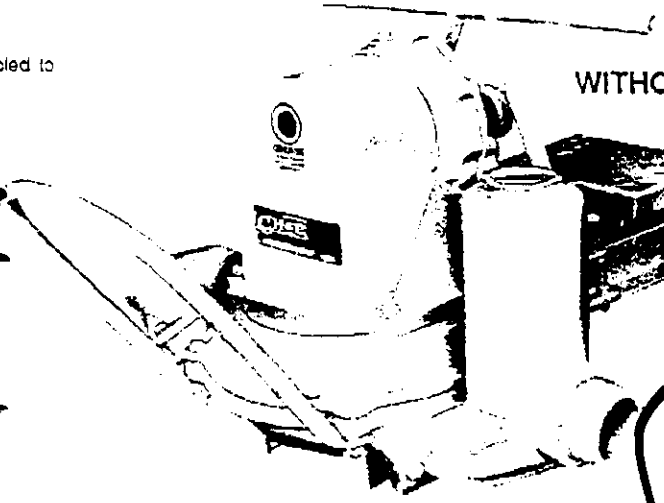
- Either engine or motor can be directly coupled to pump shaft with flexible coupling.

Bilge Pump

Add elec motor

CONTACT FACTORY FOR OVER-ALL DIMENSIONS ON SPECIFIC MODELS.

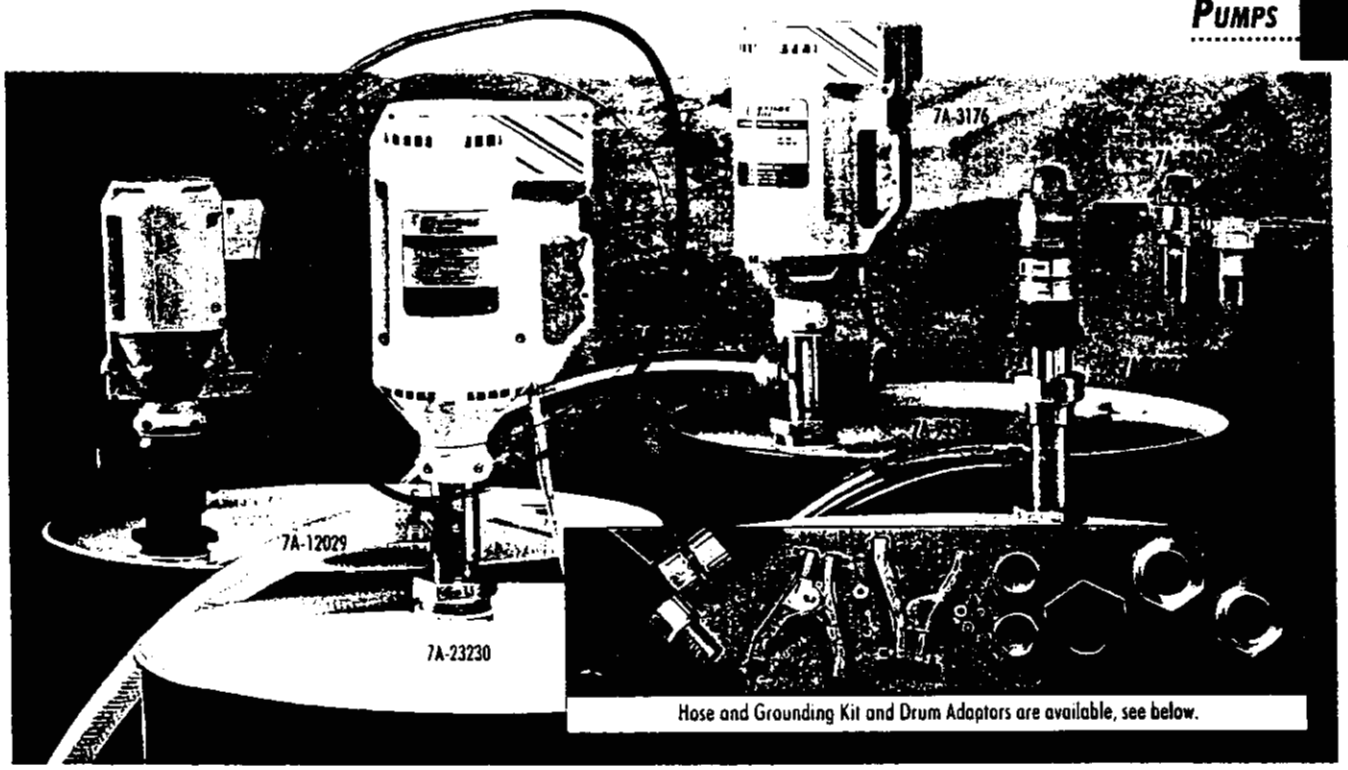
explosion proof



WITHOUT POWER

$2000 w/ explosion proof elec motor

C. H. & E. Manufacturing Co. 3849 N. Palmer St. Milwaukee, Wis. 53212
phone 414-964-3400 • FAX 414-964-0677



Hose and Grounding Kit and Drum Adaptors are available, see below.

Finish-Thompson Automatic Drum Pumps

Select from Many Tube and Motor Types to Suit a Wide Range of Uses and Applications

Heavy-duty automatic pumps quickly and safely transfer your workplace liquids.

Specifications: All pumps are designed to fit standard 2" drum openings. ***Air-Drive*** motor features ½hp, 300–6000 rpm, 50–80 psi and 17–25 cfm. ***Totally Enclosed Fan-Cooled*** (TEFC) double-insulated, ¼hp motor and ***Open-Dripproof*** (ODP) ½hp motor features 110V, 60 Hz, single-phase, 10,000 rpm and 12' grounded cord with plug. Handle contains built-in switch with manual reset to protect against thermal overload. TEFC motor is designed for corrosive environments. ODP motor is designed for non-corrosive environments. ***Explosion-Proof***, double-insulated motor features 110V, 60 Hz, single-phase, 5000 rpm, ¼hp and a 12' 3-wire cord without plug. Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232 and 23233 have a 30-minute run-dry capability. Choose from Polypropylene and 316 Stainless Steel material types below. Call 1-800-356-2501 for chemical compatibility.

Accessories: ***Hose and Grounding Kit*** are used for pumping flammables and combustibles. ***Filter/Lubricating Assembly*** extends the life of your Air-Drive Motor. ***PVC Discharge Hose and Clamp, Reinforced PVC Discharge Hose and Clamp, Teflon® Discharge Hose and Clamp*** and ***Drum Adaptors*** let you customize your pump to your application.

Please Specify: Drum Adaptor Material: G (galvanized steel), P (polypropylene), S (316 stainless steel).

No.	Motor Type	Tube Material	Shaft	Shaft Length	Internals	Max. GPM	Max. Feet Head	Max. Temp.	Max. Viscosity (CPS)	Seal	Each
7A-9231	Air	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	32	60	160°F	500	Sealless	675.60
7A-12031	Air	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	32	60	220°F	500	Sealless	883.50
7A-3175	Air	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	16	32	150°F	800	Teflon	927.55
7A-23228	Air	Stainless Steel (USDA Sanitary)	Stainless Steel (USDA Sanitary)	36" x 1½" dia.	S.S./Teflon	16	32	150°F	800	Teflon	1355.95
7A-3174	TEFC	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1055.95
7A-23229	TEFC	Polypropylene	Inconel	40" x 2" dia.	Polypro/Inconel	40	80	160°F	500	Sealless	894.10
7A-23230	TEFC	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	40	80	220°F	500	Sealless	1102.00
7A-23231	TEFC	Stainless Steel (USDA Sanitary)	Stainless Steel (USDA Sanitary)	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1695.00
7A-9230	ODP	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	40	80	160°F	500	Sealless	675.60
7A-12030	ODP	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	40	80	220°F	500	Sealless	883.50
7A-3176	Expl. Proof	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1305.15
7A-23232	Expl. Proof	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	8	20	160°F	500	Sealless	1143.35
7A-23233	Expl. Proof	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	8	20	220°F	500	Sealless	1351.20

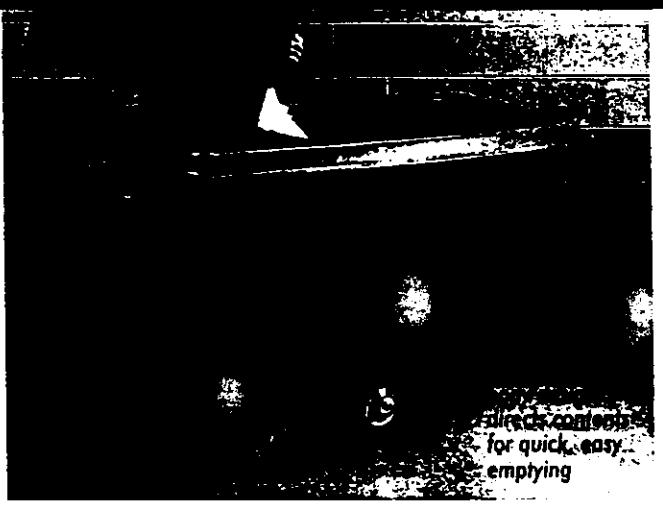
Adaptors

No.	Description	Inside Dia. (in.)	Each Galvanized	Each Polypropylene	Each Stainless Steel
7A-23925	2" NPT Drum Adaptor for Nos. 3175, 23228, 3174, 23231, 3176	1½	42.25	63.40	186.95
7A-23926	2" NPT Drum Adaptor for Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232, 23233	2	42.25	63.40	186.95

Accessories

No.	Description	Each
7A-9337	Hose and Grounding Kit	297.35
7A-8267	Filter/Lubricating Assembly	161.25
7A-9358	1" x 5'L. PVC Discharge Hose and Clamp for use with Nos. 3175, 23228, 3174, 23231, 3176	49.10
7A-12029	Reinforced 1" x 5'L PVC Discharge Hose with Hose Clamp for use with Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232, 23233	56.10
7A-23924	Teflon Discharge Hose and Clamp, 1" x 5'L for use with Nos. 3175, 23228, 3174, 23231, 3176	250.60

DRUM PUMP



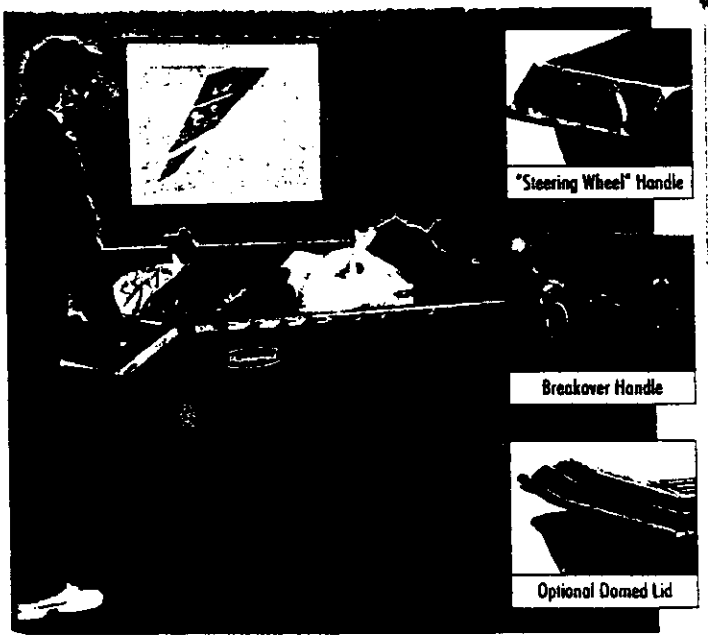
Rubbermaid® Tilt Trucks

- Easy-to-clean HDPE construction inhibits bacteria growth
- Resists denting and chipping; corrosion-free

A single operator can roll truck from place to place, collecting waste quickly and efficiently. Available in three styles: ***Utility***, with two semi-pneumatic rubber wheels and two rear casters; ***Standard***, with two vulcanized rubber wheels and two rear casters; and ***Heavy-Duty***, with two vulcanized rubber wheels, two casters and side rails. In stock.

No.	Description	Dimensions (in.) H x W x D	Volume (gal./cubic yd.)	Capacity (lbs.)	Each
7A-26445	Utility	38½ x 29 x 56¾	100 ½	300	309.55
7A-26446	Standard	38½ x 29 x 60½	100 ½	750	447.25
7A-26447	Heavy-Duty	38½ x 29 x 60½	100 ½	1200	516.40
7A-26448	Utility	44 x 34 x 72¼	200 1	750	422.05
7A-26449	Standard	44 x 34 x 72¼	200 1	1000	572.75
7A-26450	Heavy-Duty	44 x 34 x 72¼	200 1	2000	661.30

Note: *No. 26445 does not have steel handle.*



Rubbermaid® Ergonomic Tilt Trucks

- "Pushover" design includes an extra handle to reduce the strain of dumping
- Streamlined shape, inset wheels—great in tight spaces
- Strong, rust-free structural foam body

Unique "steering-wheel" handle keeps hands and arms in a safe, natural position while you do your maneuvering. Just hose down to clean. ***400-lb. Truck*** has non-marking 12" x 2⅞" soft rubber wheels. ***800-lb. Truck*** has extra-strong, 12" x 2⅞" hard rubber wheels. Both styles measure 38"H x 30¼"W x 64½"L. Optional ***Domed Lid*** with hinged top section keeps cargo safely contained, yet easily accessible. In stock.

No.	Description	Each
7A-27211	400 lb Capacity Truck	474.80
7A-27212	800-lb Capacity Truck	558.65
7A-27213	Domed Lid	136.35

Insider's Tip: Ergonomics

Back injuries are the number one cause of lost-time work accidents among material handlers. Wearing a quality back support while lifting, bending, stooping and reaching for parts helps material handlers maintain proper body postures, reducing the potential for stress-and-strain injuries.

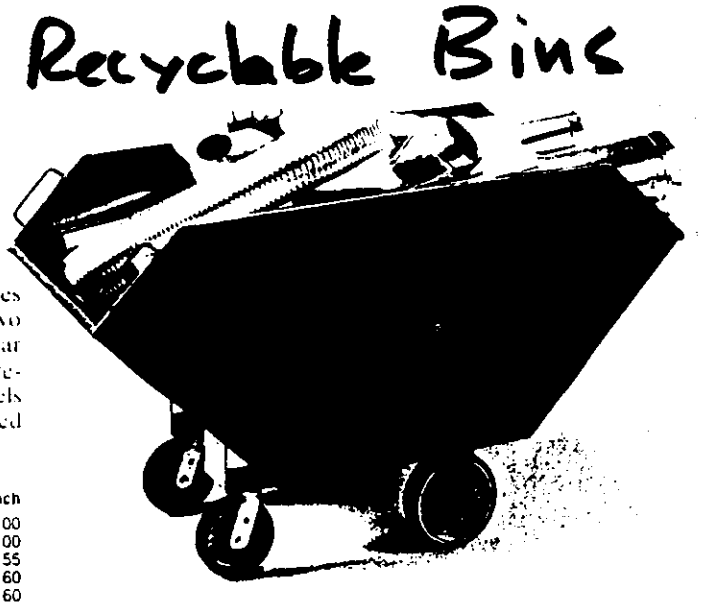
Check out our selection of Ergonomic Back Supports for material handlers on pages 270-277.

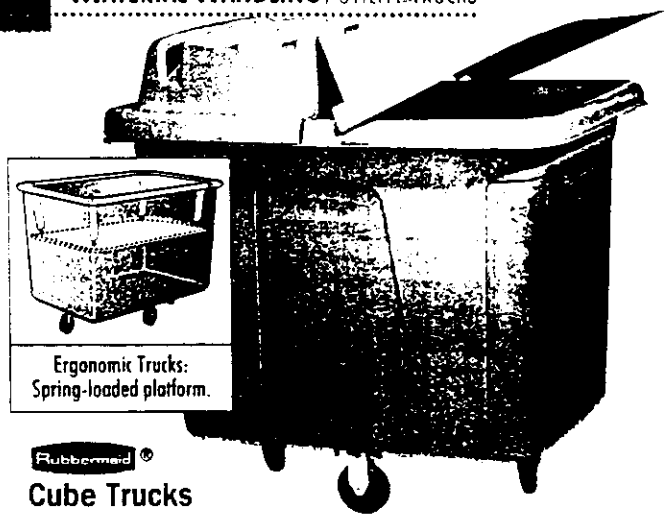
Valley Craft® Steel Tilt Trucks

- Made entirely of 14-ga. steel
- Leakproof welds along all seams
- Available with or without hand brake

Large capacity—easy to handle. Tapered on the ends for easier loading and dumping. Convenient welded-on handles allow pinpoint control. Heavy-duty wheel-and-caster assemblies are steel-reinforced for years of worry-free use. Features two 10" x 2½" solid front wheels and one or two 8" x 2" solid rear swiveling wheel(s). ***4-wheel Trucks with Hand Brakes*** have a remote, hand-engaged braking handle that locks the front wheels in place for stationary loading of heavy items or simplified break-over dumping.

No.	Description	Dim. (in.) H x W x D	Volume (cu. ft.)	Cap. (lbs.)	Shipping Wt. (lbs.)	Each
7A-29709	3-wheel	40 x 24 x 68	17.5	1500	169	376.00
7A-29710	4-wheel	40 x 30 x 68	22.2	2000	198	443.00
7A-29711	4-wheel	40 x 36 x 68	26.7	2000	205	477.55
7A-29712	4-wheel w/brake	40 x 30 x 68	22.2	2000	215	610.60
7A-29713	4-wheel w/brake	40 x 36 x 68	26.7	2000	225	633.60





Rubbermaid®

Cube Trucks

- Leakproof plastic body with metal crossbar base
- Straight, smooth walls are easy to clean and sanitize
- USDA approved for food processing

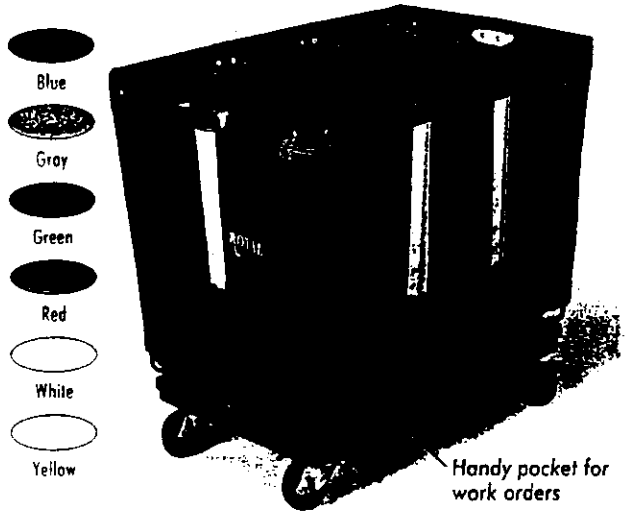
Has two fixed, two swivel casters placed in a diamond configuration. Two sizes are available with a spring-loaded interior platform that automatically brings material to a comfortable working height, reducing the need to bend and reach. Optional hinged, domed *Lids* sold separately. In stock.

Compliance: USDA approved for use in food processing.

Please Specify a Color for Cube Truck: GR (gray), W (white). Trucks with Platform and all Lids available in gray only.

No.	Description	Cap. (lbs.)	Dim. (in.) H x W x D	Each
7A-30925	8 cu. ft. truck	300	28 x 25 x 38	186.40
7A-30926	12 cu. ft. truck	400	33 x 27 x 43	244.30
7A-30927	14 cu. ft. truck	500	33 x 30 x 44	270.60
7A-30928	16 cu. ft. truck	500	37 x 30 x 44	297.00
7A-30929	20 cu. ft. truck	600	37 x 33 x 48	348.95
7A-30930	14 cu. ft. truck w/platform	500	33 x 30 x 44	364.65
7A-30931	20 cu. ft. truck w/platform	600	37 x 33 x 48	432.35
7A-30932	Lid for 8 cu. ft. truck		9 x 25 x 38	107.95
7A-30933	Lid for 12 cu. ft. truck		9 x 27 x 43	117.80
7A-30934	Lid for 14 and 16 cu. ft. trucks		9 x 30 x 44	127.55
7A-30935	Lid for 20 cu. ft. trucks		9 x 34 x 48	137.40

Note: *No. 26445 does not have steel handle.*



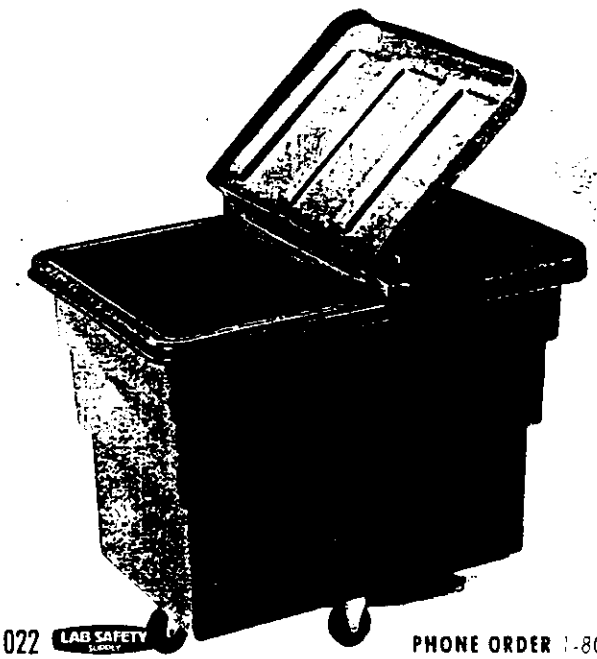
Basket Trucks

- Double-reinforced walls
- Tough, tightly woven polyester substrate
- Coated inside and out with self-bonding royal vinyl for maximum puncture, abrasion and chemical resistance

Heavy vinyl top crown, all-steel welded frame, extra coverage at all wear points—this truck is ready for many years of rugged service. Moves easily about on swiveling, 3" corner casters attached to a hardwood base. Optional pre-fitted *Vinyl Cover* with elastic hem available in black only.

Please Specify a Color: B (blue), G (green), GR (gray), R (red), W (white), Y (yellow).

No.	Capacity	Overall Height (in.)	Dim. (in.) L x W x D	Shipping Wt. (lbs.)	Each
7A-26993	10-bushel	31	36 x 24 x 25	33	136.90
7A-26994	12-bushel	33½	36 x 26 x 27½	38	149.60
7A-26995	16-bushel	36	40 x 28 x 30	50	188.65
7A-26996	18-bushel	36	42 x 30 x 30	56	200.25
7A-26997	20-bushel	36	48 x 32 x 30	64	210.30
7A-26998	Vinyl Cover for No. 26993			4	19.45
7A-31327-12	Vinyl Cover for No. 26994			4	20.90
7A-31327-16	Vinyl Cover for No. 26995			4	20.90
7A-31328-18	Vinyl Cover for No. 26996			5	24.05
7A-31328-20	Vinyl Cover for No. 26997			5	24.05



Rubbermaid®

Large-Capacity Utility Trucks

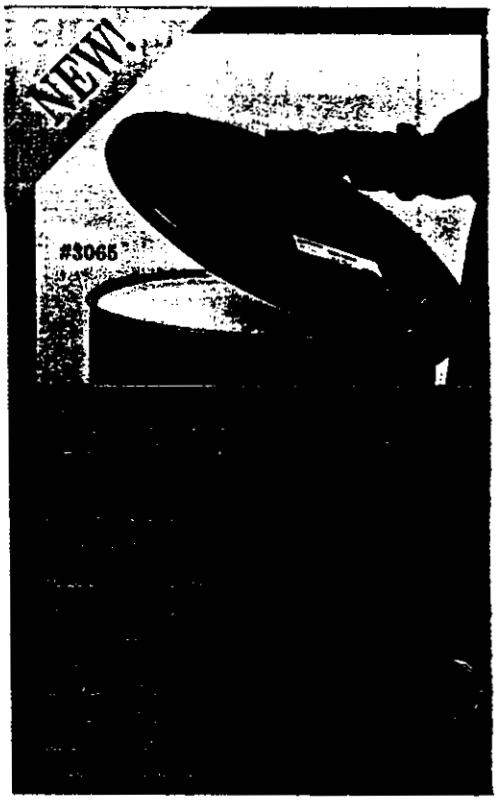
- Sturdy polyethylene resists cracking and denting
- Molded-in side ribs add extra strength

The ideal truck for transporting awkward or bulky items. One-piece, smooth-surface design offers easy cleaning; two fixed and two swivel casters (placed in diamond formation) provide fast, easy mobility. *No. 30447* includes a steel support ring to prevent bowing and bulging with full loads. Gray. Add a hinged *Lid* to keep contents safely inside and present a more pleasing appearance. In stock.

No.	Description	Wt. Capacity (lbs.)	Size (in.) H x W x D	Weight (lbs.)	Each
7A-30444	12-Bushel Utility Truck	600	34 x 44½ x 31⅛	44	298.05
7A-30445	12-Bushel Utility Truck	800	34 x 44½ x 31⅛	48	339.85
7A-30446	20-Bushel Utility Truck	800	36 x 53 x 39	77	416.00
7A-30447	20-Bushel Utility Truck	1000	36 x 53 x 39	84	457.95
7A-30448	Lid for 12-Bushel Truck	–	3⅜ x 45⅜ x 31⅛	16	128.75
7A-30449	Lid for 20-Bushel Truck	–	3⅜ x 53⅜ x 39⅛	19	171.65

ENPAC POLY-FUNNELS™ prevent splashes without draining your budget!

Save time, money, and prevent nuisance splashes while protecting workers with our POLY-FUNNELS™. These heavy-duty performers can handle whatever you dish out - from oil filter draining to caustic solvents and chemicals.



POLY-FUNNEL 55/30™

Fits 55- and 30-gallon open- and closed-head drums. Perfect for spent drum draining. Deep 6 1/2" side wall handles the contents of a five-gallon pail all at once. Tapered bottom drains FAST! Ask about the funnel cover locking feature. Cover available.

POLY-DRUM FUNNEL 16/5™

Designed for five-gallon pails, 16-gal lon drums, and 55-gallon closed-head drums. Handles up to 2.5 gallons poured at once, thanks to the deep 6 1/2" side walls. Cover available.

POLY-FUNNEL 55™

Specifically designed for closed-head 55-gallon drums. Set it and forget it. The scalloped design, 2½" side wall and gravity do the rest. Cover available.

POLY-FUNNEL™ TALL

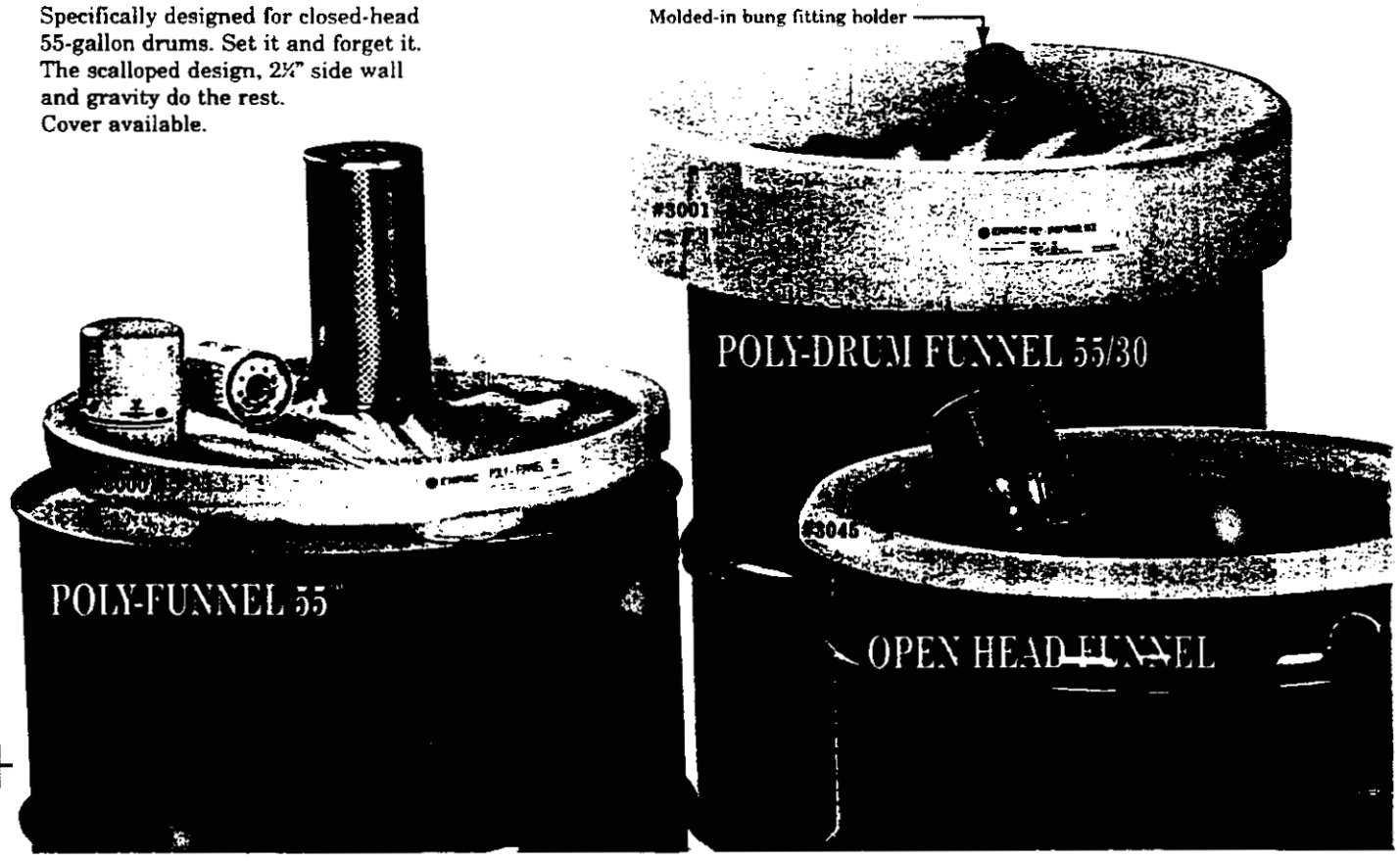
Big splash protection when you're pouring from buckets into closed-head drums. It provides a higher 3½" side wall to reduce splash.

OPEN HEAD FUNNEL™

Large 24 1/2" diameter funnel sits easily on top of open-head 55-gallon drums. Five-inch side wall keeps work areas clean.

POLY-PAIL FUNNEL™

Mounts to 3 1/2-, 5-, and 6-gallon tight-head pails. Also fits open-top pails with 11 1/4" diameter. Cover available.



FUNNELS

Specifications

POLY-DRUM FUNNEL 55/30™

Product No.	3001
Weight	6 lbs. / 3 kg
Capacity	6 gallons / 23 liters

FUNNEL 55/30™ COVER

Product No.	3056
Weight	2 lbs. / 1 kg

SAFETY FUNNEL 55/30™

Product No.	3018
Weight	6 lbs. / 3 kg

*Includes flame arrestor & POLY-DRUM FUNNEL 55/30

POLY-DRUM FUNNEL 16/5™

Product No.	3003
Weight	3 lbs. / 1.5 kg
Capacity	2¼ gallons / 9 liters

FUNNEL 16/5™ COVER

Product No.	3057
Weight	1½ lbs. / 1 kg

POLY-FUNNEL™ TALL

Product No.	3002
Weight	6 lbs. / 3 kg

POLY-FUNNEL™ 55

Product No.	3000
Weight	5 lbs. / 2 kg

POLY-FUNNEL™ 55 COVER

Product No.	3050
Weight	2½ lbs. / 1 kg

SAFETY FUNNEL™

Product No.	3090
Weight	5 lbs. / 2 kg

*Includes flame arrestor & POLY-FUNNEL 55

OPEN-HEAD FUNNEL™

Product No.	3045
Weight	10 lbs. / 5 kg

POLY-PAIL FUNNEL™

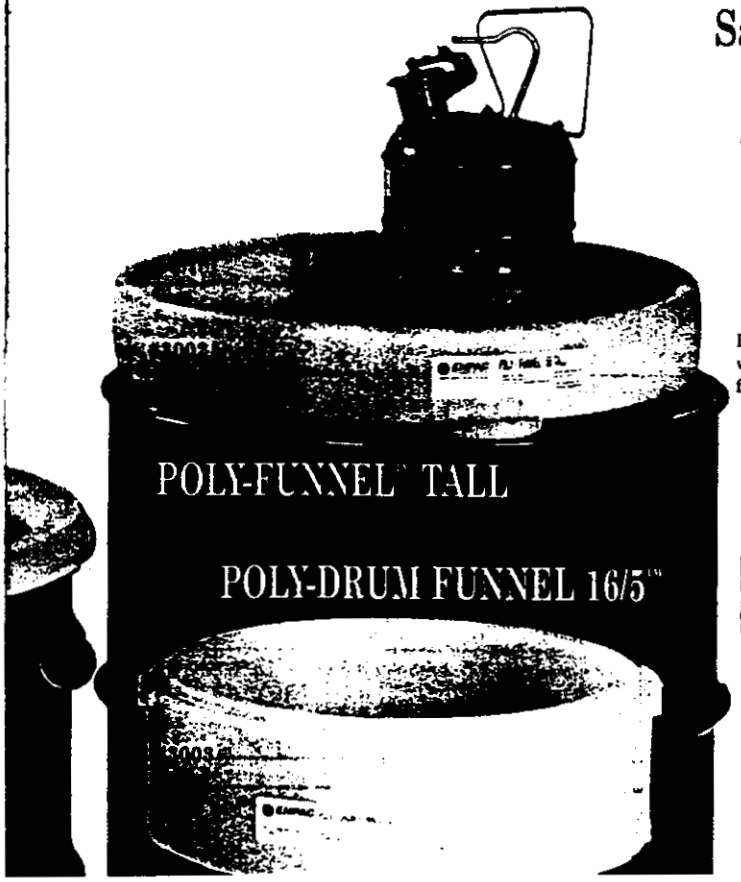
Product No.	3005
Weight	2 lbs. / 1 kg

POLY-PAIL COVER™

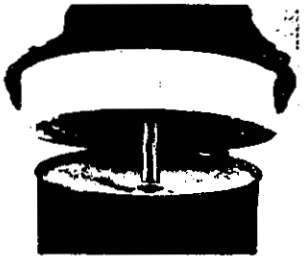
Product No.	3051
Weight	1 lb. / .5 kg

DRUM TOPPER™

Product No.	3065
Weight	2.5 lbs. / 2 kg



Safety Funnel™ 55/30



POLY-DRUM FUNNEL 55/30 with flame arrestor. Ideal for flamable liquids. #3018

Drain Drums!

Spent drum contents drain easily with POLY-DRUM FUNNEL 55/30, saving time and materials. #3001

ENPAC CORPORATION

EXAMPLES
EXAMPLES

SHOWN IN ACTUAL SITUATIONS

SPILL CONTAINMENT WHEN HANDLING ENVIRONMENTALLY SENSITIVE MATERIALS

SPILL PREVENTION DURING FLUID TRANSFER.

Additional Products

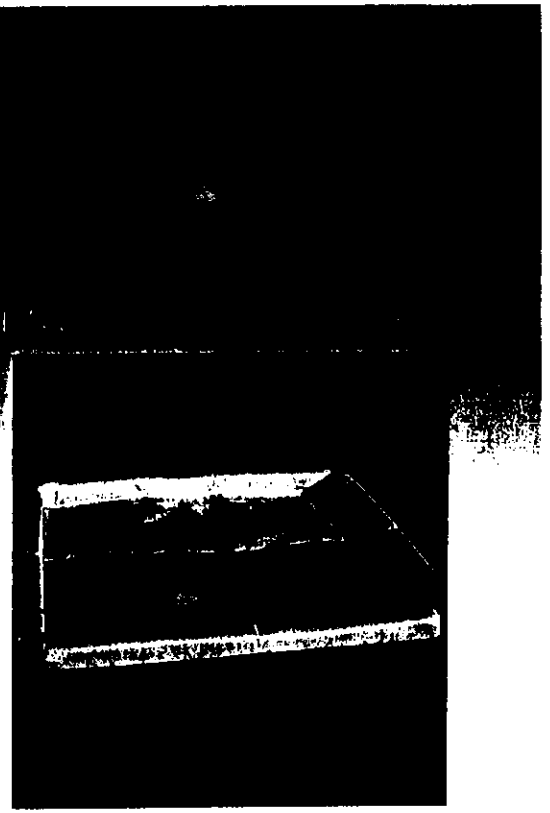
- FIBERGLASS STRUCTURES
  By RM Storage Products Ltd.
- ZORBOLITE HYDROCARBON ABSORBENT
  By GEM Manufacturing Ltd.
- POWERCLEAN & PREWASH MULTIPURPOSE CLEANER
  By EcoSolv
- POLYSHIELD SS100
  By CCI

For more information on our other products, please call

(907)-452-7043

Or fax (909)-452-8310

KNOCK DOWN PORTABLE BERMS



Spill Containment

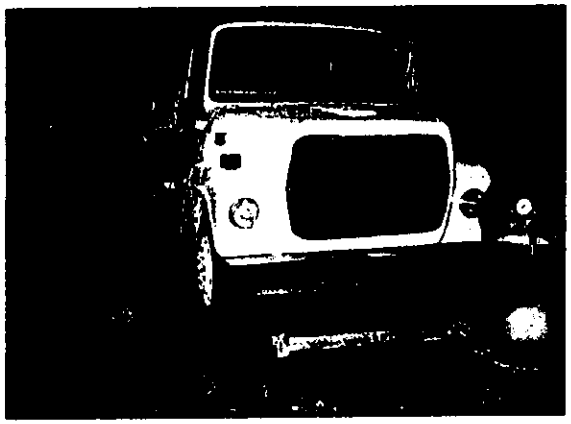
Features

- Reusable
- Light weight
- Good in temperatures down to -65° F
- Will contain petroleum & glycol products
- Stores easily
- Cost effective & in compliance with safety standards

DESCRIPTION

The knock down portable berm ("berm") consists of a liner and berm, that is formed from closed and open cell foam (for a 4" berm). The foam has been chosen for its low temperature properties and its resiliency. The liner material has been chosen for its extremely strong properties of resisting chemicals such as crude, diesel, methanol, and glycol. The liner material has also been used extensively in the Arctic and is suitable for temperatures as low as -65° F.

Berms were designed by CCI as a quick, temporary installation for the prevention of spills. The size of the containment area can be customized to fit any need. Suitable applications stem anywhere from drip pans for use under equipment to containment of spills during fuel transfers. They are also used extensively to store chemicals in.



OPTIONS

The material which makes up these berms is very smooth. Thus, if personnel are going to stand in or on the berms, we offer some additional features that can be added to our berms. Ruftop is an overlay we can add that is placed on the liner to form a slip resistant wear surface and provide protection for the material against heavy traffic. Although the liner material is tough this ruftop helps prevent sharp objects from tearing down through the liner. The working overlay is a flexable cold weather matting that will offer a good slip resistant surface. When working in areas of snow or ice we offer sets of cleats that are welded to the bottom of the berm. These additions will make the berms safer when they are placed on snow or ice.

SIZES

In addition to the 4" foam berm we offer a 2" sand filled berm. Our standard 2" berm is the 18" x 18" x 2" drip pan. These berms are made from the same liner material and are designed to hold a 18" x 18" pad of absorbent material. The 2" sand filled berm allows for the containment of small spills (approximately 2.5 gallons) and it weighs 9 lbs.. The drip pan can be folded into a compact size and is handy for storing in a truck or heavy equipment cab.

PRICE LIST

4" FOAM FILLED BERM

Sizes	Price (bare)	Price (w/cleats)	Price (w/cleats & ruftop)
2' x 2' x 4"	$168.00		
3' x 3' x 4"	$270.00	$285.00	$305.00
3' x 4' x 4"	$283.00	$298.00	$315.00
4' x 4' x 4"	$292.00	$305.00	$321.00
4' x 5' x 4"	$319.00	$327.00	$355.00
4' x 6' x 4"	$340.00	$354.00	$416.00
4' x 8' x 4"	$389.00	$402.00	$465.00

2" SAND FILLED BERM

Sizes	Price (1-5)	Price (5+)
18" x 18" x 2"	$59.50	$59.50
30" x 42" x 2"	$98.00	$98.00
30" x 84" x 2"	$183.00	$166.00
40" x 40" x 2"	$147.00	$133.00
40" x 74" x 2"	$187.00	$170.00
40" x 96" x 2"	$222.00	$202.00
3' x 3 x 2"	$126.00	$116.00
3' x 6' x 2"	$175.00	$159.00
4' x 4' x 2"	$171.00	$156.00
4' x 6' x 2"	$217.00	$198.00
4' x 8' x 2"	$253.00	$230.00

Quotes are avalable on any size berms

We WILL design to fit your needs

If you have any questions or wish to place an order please call

(907)-452-7043

or fax an order to

(907)-452-8310

1/26/97

Call for Current Pricing

NuERA Technologies, Inc.

NW REGIONAL OFFICE
P.O. Box 5357
Kent, WA 98064
(206) 639-3630
FAX 206-639-3622

ALASKA OFFICE
P.O. Box 112332
Anchorage AK 99511
(907) 345-6411

DATE: 6/5/96

FAX TRANSMITTAL TO: Tom Fisher
USKH
FAX # 452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 8 PAGES

MESSAGE: Ref: Oil Filter Crusher Info.
Elements > 16" Tall

Herkules - 3 pgs.

Oberg - 4 pgs.

Tom,

Give me a call if you have any questions.

Tks.

Steve

RECEIVED
JUN-05-1996
USKH
FAIRBANKS, ALASKA

NuERA Technologies, Inc. Steven R. Ransom
Profitable Waste Management
· Waste Oil Furnaces
· On Site Disposal/Recycling Eq.
· Waste Assessment & Minimization Programs

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NuERA Technologies, Inc. Steven R. Ransom

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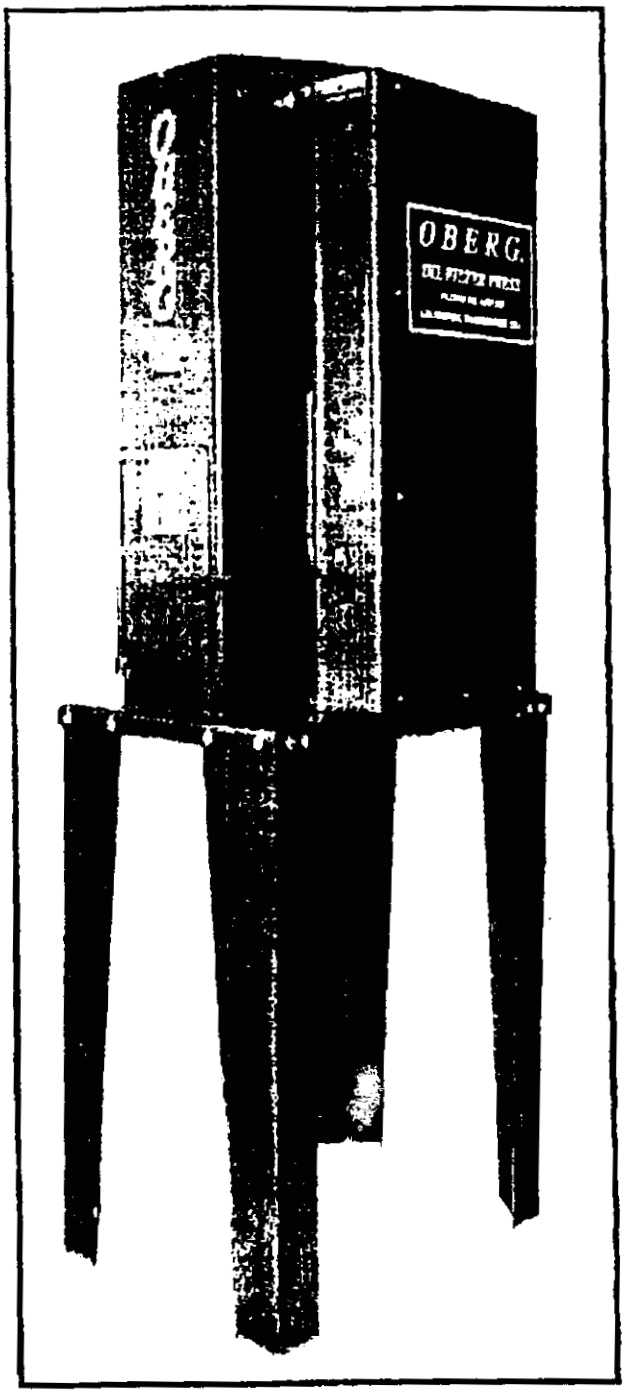
OBERG™

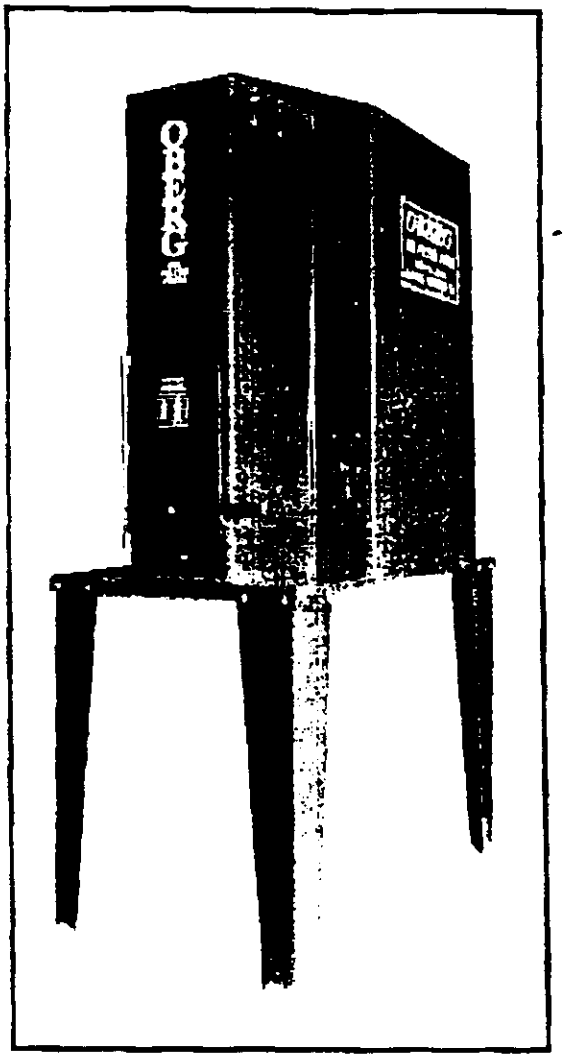
America's #1 Quality Filter Press



Models For Automotive, Heavy Truck And Industrial Filters

MODEL P-300

#1 CHOICE FOR CRUSHING INDUSTRIAL SIZE FILTERS



The *OBERG* Model P-300 provides more crushing force than any competitor, crushing filters up to 20" tall, multiple smaller filters at once, and oily shop rags. The large crushing chamber also allows crushing five gallon paint cans into thin wafers. With over 70,000 pounds of crushing force, the P-300 removes the maximum oil possible from used filters! This eliminates the fabric mess and disposal problem typical when cutting filters.

Crushed filters are deposited through a trap door in the rear of the crushing chamber directly into a transport drum. The P-300 includes legs to house two 55 gallon drums under the machine. One drum can be used for crushed filters and the other for waste oil. A drain located under the crushing chamber allows for waste oil to be plumbed directly to a drum or bulk tank.

All operation is provided by a fully self-contained electric/hydraulic power unit. This provides consistent crushing force without the need for high volume air supply, condensation filters and lubricators necessary with air units.

A push button control activates the system and a built in safety mechanism prevents the machine from operating when the loading door is open.

DIMENSIONS

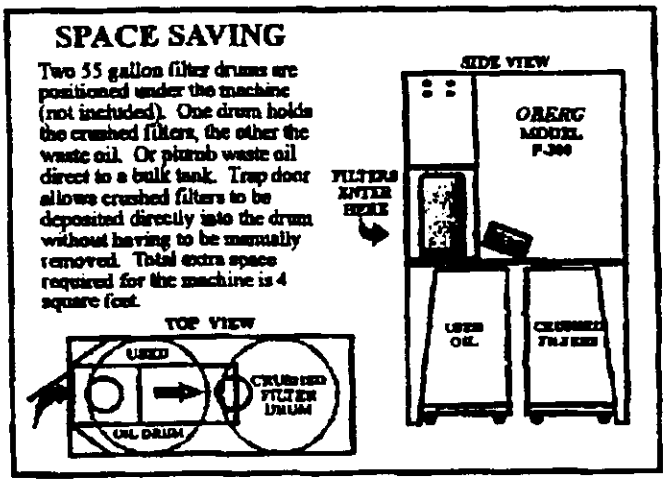
Overall Height	*104"*
Overall Width	*36"*
Overall Length	*60"*
Shipping Weight	*1,380 Lbs.*

SPECIFICATIONS

Cycle Time	*57 sec.*
Cavity Size	*15"w x 15"d x 20"h*
Electrical	*208-220v. 15 amp. Single Phase*
Crushing Force	*70,650 Lbs.*

SPACE SAVING

Two 55 gallon filter drums are positioned under the machine (not included). One drum holds the crushed filters, the other the waste oil. Or plumb waste oil direct to a bulk tank. Trap door allows crushed filters to be deposited directly into the drum without having to be manually removed. Total extra space required for the machine is 4 square feet.



OBERG International Inc.

NuERA TECHNOLOGIES
P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411

800-347-9575

Manufacturer of Quality Waste Reduction Equipment

OBERG OIL FILTER PRESS
USER PRICE SHEET

OBERG PART #	PRODUCT DESCRIPTION	USER PRICE	SHIPPING WEIGHT
P100WM	**FILTER PRESS** Automotive and Light Industrial Filter Press Mounts To Wall	1,695.00	360 lbs
P200L	**FILTER PRESS** H.D. Truck Filter Press (Note: Model P-200 Will Also Crush Multiple Automotive And Light Industrial Filters) With Legs To House One 55 Gallon Drum	3,880.00	615 lbs
P300	**FILTER PRESS** H.D. Industrial Filter Press (Crushes Filters Up To 20" Tall) (Also Crushes 5 Gallon Size Cans) With Legs To House Two 55 Gallon Drums	5,495.00	1380 lbs
P350	**FILTER PRESS** H.D. Industrial Filter Press (Crushes Railroad Type Filters Up To 40" Tall) (Also Crushes Multiple 5 Gallon Size Cans) Includes Bins For Collection Of Filters And Waste Oil	14,950.00	3000 lbs

Tatitlek
Chenega

Valdez
Cordova
Whittier

SHIPMENTS: F.O.B. ARLINGTON, WASHINGTON
TERMS: 2%10 NET30

Prices effective September 1, 1995

OBERG™ FILTER PRESS

The American Standard For Crushing All Size Filters

Auto - Heavy Duty Truck - Industrial - Railroad

Used Filter Recycling Across America

PARTIAL COMMERCIAL CUSTOMER LIST

Cummins Service Products - Detroit Diesel
Volvo GM Heavy Truck - PACCAR
Rollins Truck Leasing - Ryder Truck Leasing
Penske Truck Leasing - United Parcel Service
Waste Management - Coca Cola - Boeing
Chicago Transit - Milwaukee Transit
Peabody Coal - Mobil

Weyerhauser
Puget Power
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City of San Diego
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Pacific Gas & Electric
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City of Huntington Beach
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Exxon
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Atlantic City Int'l Airport
Texas Gulf
Fleetguard Filters
Southeastern Freightways
Florida Power
Disney World
City of Miami
City of Lakeland

Louisiana Pacific - Chevron USA - Pepsi Cola
Atlantic Richfield - Borden
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AND THOUSANDS MORE, REFERENCES UPON REQUEST

OBERG **Also Supplies Federal Government Facilities Under Contract**

GSA Contract #GS-07F-71950

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Call Or Fax To Request Complete Catalog And Video

OBERG International, Inc., Arlington WA U.S.A.

"America's #1 Quality Filter Press"

NuERA Technologies, Inc.

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FAX 206-639-3622

ALASKA OFFICE
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Anchorage AK 99511
(907) 345-6411

DATE: 7/29/96

FAX TRANSMITTAL TO: Tom Fisher, USKH

FAX # 907/452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 1 PAGES

MESSAGE:

REF: Bid specs: Kerkules oil filter crusher (manufacturer's written bid sheet not located)

Sample spec for Model OFC-4

Capable of crushing filters 20" high by 9" diameter, minimum crushing pressure 17.5 tons, maximum 55 second cycle time, air operated; supplied with air filter-regulator & gauge, and timer.

NuERA Technologies, Inc. Steven R. Ransom
Profitable Waste Management
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- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs
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NuERA Corporation

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(206) 639-3630
Fax (206) 639-3622

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P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411
1-800-347-9575

SMART ASH

Date: 1/10/97

To: Tom Fisher - USKH

Page 1 of 5 Pages

Fax # 452-4225

From: Steve Ransom, NuERA Corporation Fax 206-639-3622

Message:

Tom,

Here's the Smart Ash information I was able to copy for you. Original Brochure Slicks enroute via US Mail, (and associated data)

List Price on Incinerator @ $3,295

"Smart Heat" Energy Recovery Unit @ $4,700

Thanks for your Call

Sincerely,

Steve R.

NuERA Corporation **Steven R. Ransom**

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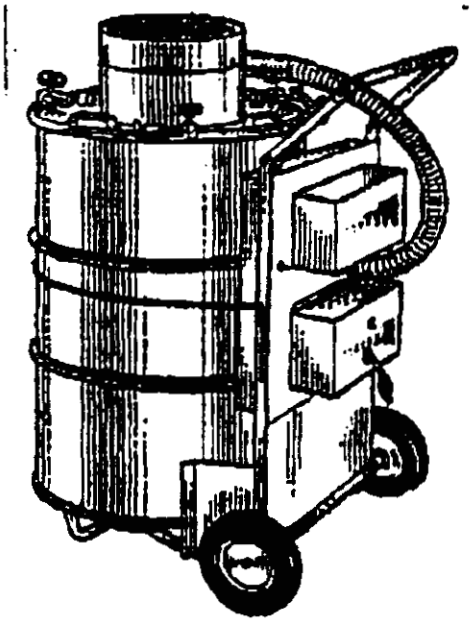
ELASTEC INC

POLLUTION CONTROL SYSTEMS

SmartAsh Power to Burn

This innovative combustion system meets EPA requirements for burning non-hazardous refuse.



SmartAsh uses no fuel. Simply load a 55 gallon, open head, steel drum; light it and clamp on the lid.

Two 120v electric high-velocity blowers create a cyclone of intense heat. Combustion is so complete the volume of materials is reduced to an average of 3% ash. Portable and convenient, SmartAsh rolls out of sight when the job is done.

The air powered SmartAsh reduces disposal cost while eliminting possible long term environmental liabilities.

SmartAsh gives you the power to burn!

REPORTED FUELS:

Absorbent Materials
(Natural & Synthetics)
Classified Papers
Office Waste
Filters
Packing Materials
Clothing

Specifications

Construction:
*Stainless Steel Lid
*Plated Tubular Steel Frame
*2-Blowers, Axial Vane 120 V Standard
or 220 V optional
*Requires: 55 Gallon Steel Open Head Drum

Height: 43"
Floor Space: 32" x 32"
Weight: 75 lbs. Without Drum
116 lbs. With Drum
Burn Rate: 50 LBS./HR.

NuERA Corporation
P.O. Box 5357
KENT, WASHINGTON 98064-5357
(206) 639-3630
800-347-9575
Product #100

SMART ASH MODEL 100A

This innovative combustion system meets EPA & DEC requirements for burning non-hazardous oily waste and other combustible refuse. The Smart Ash uses no fuel. Simply load a 55 gal. open-head steel drum; light it and clamp on the lid. Two 120V electric high velocity blowers create a cyclone of intense heat. Combustion is so complete, the volume of materials is reduced to an average of 3% ash. Portable and convenient, the Smart Ash rolls out of sight when the job is done.

SMART

Ash®

POWER TO BURN!

[redacted]

Attn: Tom. 5 of 5

List of burnable's for Smart Ash

1.) Absorbent types
- a.) Cellulose base types
- b.) Cotton
- c.) Polypropylene & Cotton mix
- d.) Corn cob
- e.) Saw dust
- f.) Peat moss

2.) Hydrocarbons
- a.) All types of crude's
- b.) Waste oils
- c.) Used motor oils
- d.) Transmission oils all types and weights
- e.) Lubricating greases
- f.) Hydraulic oils
- g.) Diesel fuels #1 and #2
- h.) Kerosene's
- I.) Jet fuels (flash point above 100 degrees Fahrenheit.)

All **liquids must** be absorbed in a burnable absorbent, to be incinerated.

3.) Filters
- a.) Spin on and cartridge oil filters from cars and trucks, heavy equipment
- b.) Air filters of all types, car, truck, industrial types
- c.) Poly & Fiberglass filters
- d.) Natural Gas pipeline filters (glycol filters)

4.) Paper Products
- a.) Newspapers
- b.) Office wastes
- c.) Cardboards
- d.) Fast food paper wastes
- e.) Computer papers
- f.) Sensitive documents

5.) Wood products
- a.) Saw dust
- b.) Scrap at construction sites
- c.) Tree limbs & leaves
- d.) Shipping Pallets
- e.) Any type of wood products will fit this category

6.) Plastic's

This unit will incinerate a wide variety of plastic's. The volatile emission's emitted by these types of material are not acceptable in the permitting requirements.

7.) Miscellaneous
- a.) Clothing
- b.) Gloves
- c.) Oily rags
- d.) Packaging material

ADMITTANCE

DANGER
HAZARDOUS WASTE STORAGE AREA
UNAUTHORIZED PERSONNEL KEEP OUT

FG	10 x 14	70375
AL	7 x 10	40665
AL	10 x 14	40666
PL	7 x 10	22101
PL	10 x 14	22102
SS	7 x 10	84080
SS	10 x 14	84081

DANGER
KEEP OUT

FG	10 x 14	47008
FG	14 x 20	75478
AL	7 x 10	40675
AL	10 x 14	40676
PL	7 x 10	22111
PL	10 x 14	22112
SS	7 x 10	84095
SS	10 x 14	84096

DANGER
PESTICIDE STORAGE
AUTHORIZED PERSONNEL ONLY

FG	10 x 14	70479
AL	7 x 10	40685
AL	10 x 14	40686
PL	7 x 10	22121
PL	10 x 14	22122
SS	7 x 10	84107
SS	10 x 14	84108

NOTICE
ALL EMPLOYEES WHOSE WORK DOES NOT REQUIRE THEM TO ENTER THIS AREA MUST KEEP OUT

FG	10 x 14	69380
AL	7 x 10	40695
AL	10 x 14	40696
PL	7 x 10	22131
PL	10 x 14	22132
SS	7 x 10	84119
SS	10 x 14	84120

NOTICE
AUTHORIZED PERSONNEL ONLY

FG	7 x 10	70600
FG	10 x 14	70602
AL	7 x 10	40708
AL	10 x 14	40709
PL	7 x 10	22141
PL	10 x 14	22142
SS	7 x 10	84129
SS	10 x 14	84130

NOTICE
NO ADMITTANCE EMPLOYEES ONLY

FG	10 x 14	70601
AL	7 x 10	40707
AL	10 x 14	40708
PL	7 x 10	22140
PL	10 x 14	22141
SS	7 x 10	84128
SS	10 x 14	84129

DANGER
HIGH VOLTAGE KEEP OUT

FG	7 x 10	45470
FG	10 x 14	45471
FG	14 x 20	45472
AL	7 x 10	40667
AL	10 x 14	40668
PL	7 x 10	22103
PL	10 x 14	22104
SS	2¼ x 4½	89174
SS	3½ x 5	84082
SS	7 x 10	84083
SS	10 x 14	84084

DANGER
KEEP OUT
HAZARD AREA

FG	14 x 20	71091
AL	7 x 10	40677
AL	10 x 14	40678
PL	7 x 10	22113
PL	10 x 14	22114
SS	7 x 10	84097
SS	10 x 14	84098

DANGER
RESTRICTED AREA

FG	10 x 14	69473
AL	7 x 10	40687
AL	10 x 14	40688
PL	7 x 10	22123
PL	10 x 14	22124
SS	7 x 10	84109
SS	10 x 14	84110

NOTICE
ALL LUNCH BOXES, PACKAGES, BAGS, PURSES, ETC. ARE SUBJECT TO INSPECTION

FG	10 x 14	69382
AL	7 x 10	40697
AL	10 x 14	40698
PL	7 x 10	22133
PL	10 x 14	22134
SS	7 x 10	84121
SS	10 x 14	84122

NOTICE
EMPLOYEES ONLY

FG	7 x 10	47301
FG	10 x 14	47322
AL	7 x 10	40707
AL	10 x 14	40708
PL	7 x 10	22143
PL	10 x 14	22144
SS	7 x 10	84131
SS	10 x 14	84132

NOTICE
NO ADMITTANCE WITHOUT A PERMIT

FG	7 x 10	47302
FG	10 x 14	47323
AL	7 x 10	40709
AL	10 x 14	40710
PL	7 x 10	22145
PL	10 x 14	22146
SS	7 x 10	84133
SS	10 x 14	84134

DANGER
HIGH VOLTAGE
UNAUTHORIZED PERSONNEL KEEP OUT

FG	14 x 20	71580
AL	7 x 10	40669
AL	10 x 14	40670
PL	7 x 10	22105
PL	10 x 14	22106
SS	7 x 10	84085
SS	10 x 14	84086

DANGER
NO ADMITTANCE

FG	7 x 10	47154
AL	7 x 10	40679
AL	10 x 14	40680
PL	7 x 10	22115
PL	10 x 14	22116
SS	7 x 10	84101
SS	10 x 14	84102

DANGER
ROBOTIC AREA
AUTHORIZED PERSONNEL ONLY

FG	10 x 14	69481
AL	7 x 10	40689
AL	10 x 14	40690
PL	7 x 10	22125
PL	10 x 14	22126
SS	7 x 10	84111
SS	10 x 14	84112

NOTICE
ALL TRUCK DRIVERS MUST SIGN IN BEFORE PROCEEDING PAST THIS POINT

FG	10 x 14	69386
AL	7 x 10	40699
AL	10 x 14	40700
PL	7 x 10	22135
PL	10 x 14	22136
SS	7 x 10	84123
SS	10 x 14	84124

NOTICE
ENTRANCE FOR EMPLOYEES ONLY

FG	10 x 14	69210
AL	7 x 10	40709
AL	10 x 14	40710
PL	7 x 10	22145
PL	10 x 14	22146
SS	7 x 10	84133
SS	10 x 14	84134

NOTICE
NO ADMITTANCE WITHOUT PASS FROM OFFICE

FG	7 x 10	47303
FG	10 x 14	47324
AL	7 x 10	40711
AL	10 x 14	40712
PL	7 x 10	22147
PL	10 x 14	22148
SS	7 x 10	84135
SS	10 x 14	84136

DANGER
KEEP AWAY

FG	10 x 14	47006
FG	14 x 20	69310
AL	7 x 10	40671
AL	10 x 14	40672
PL	7 x 10	22107
PL	10 x 14	22108
SS	7 x 10	84089
SS	10 x 14	84090

DANGER
NOT A PEDESTRIAN WALKWAY
FORK TRUCKS ONLY

FG	10 x 14	69410
AL	7 x 10	40681
AL	10 x 14	40682
PL	7 x 10	22117
PL	10 x 14	22118
SS	7 x 10	84103
SS	10 x 14	84104

DANGER
THIS ENCLOSURE CONTAINS HIGH VOLTAGE ELECTRICAL EQUIPMENT AND MUST NOT BE ENTERED EXCEPT BY PERMISSION

FG	14 x 20	69523
AL	7 x 10	40691
AL	10 x 14	40692
PL	7 x 10	22127
PL	10 x 14	22128
SS	7 x 10	84113
SS	10 x 14	84114

NOTICE
ALL VEHICLES ENTERING OR LEAVING THE PREMISES ARE SUBJECT TO INSPECTION

FG	10 x 14	69387
AL	7 x 10	40701
AL	10 x 14	40702
PL	7 x 10	22137
PL	10 x 14	22138
SS	7 x 10	84125
SS	10 x 14	84126

NOTICE
NO ADMITTANCE

FG	10 x 14	70699
AL	7 x 10	40711
AL	10 x 14	40712
PL	7 x 10	22147
PL	10 x 14	22148
SS	7 x 10	84137
SS	10 x 14	84138

NOTICE
NO ENTRY UNLESS AUTHORIZED

FG	7 x 10	47304
FG	10 x 14	47325
AL	7 x 10	40713
AL	10 x 14	40714
PL	7 x 10	22149
PL	10 x 14	22150
SS	7 x 10	84139
SS	10 x 14	84140

DANGER
KEEP OFF

FG	7 x 10	47152
FG	10 x 14	47007
AL	7 x 10	40673
AL	10 x 14	40674
PL	7 x 10	22109
PL	10 x 14	22110
SS	7 x 10	84091
SS	10 x 14	84092

DANGER
PESTICIDE STORAGE AREA ALL UNAUTHORIZED PERSONS KEEP OUT FIRE MAY CAUSE TOXIC FUMES

FG	10 x 14	70480
AL	7 x 10	40683
AL	10 x 14	40684
PL	7 x 10	22119
PL	10 x 14	22120
SS	7 x 10	84105
SS	10 x 14	84106

DANGER
UNSAFE ROOF
KEEP OFF

FG	10 x 14	74391
AL	7 x 10	40693
AL	10 x 14	40694
PL	7 x 10	22129
PL	10 x 14	22130
SS	7 x 10	84115
SS	10 x 14	84116

NOTICE
ALL VISITORS AND JOB APPLICANTS MUST STOP AND SIGN IN AT GATE HOUSE

FG	10 x 14	69388
AL	7 x 10	40703
AL	10 x 14	40704
PL	7 x 10	22139
PL	10 x 14	22140
SS	7 x 10	84127
SS	10 x 14	84128

NOTICE
NO ADMITTANCE APPLY AT OFFICE

FG	10 x 14	47326
AL	7 x 10	40715
AL	10 x 14	40716
PL	7 x 10	22149
PL	10 x 14	22150
SS	7 x 10	84139
SS	10 x 14	84140

NOTICE
NO SOLICITATION OR DISTRIBUTION OF MATERIALS ALLOWED ON COMPANY PROPERTY AT ANY TIME

SIGNS

Hazard Communication 1910.1200(e)

Every workplace exposure that an employee [illegible] emergencies is the responsibility of the employer. The worker has the right to know what he is being exposed to. You must placard to make the employee aware of this exposure. Under Hazard Communication the employer must ensure that every container of hazardous chemicals in the workplace where there is the potential of exposure is labeled, tagged or marked [illegible]

Liquefied Hydrogen, Flammable Gas 1910.103(c)(2)(i)

Hydrogen storage sites must be placarded as follows: LIQUEFIED HYDROGEN – FLAMMABLE GAS – NO SMOKING – NO OPEN FLAMES.

No Unauthorized Personnel 1910.103(c)(2)(i)

Hydrogen storage sites have to be fenced and posted to prevent entrance by unauthorized personnel.

Hydrogen Gas Storage Areas 1910.103(b)(1)(v)

Hydrogen gas storage locations must be permanently placarded as follows: HYDROGEN – FLAMMABLE GAS – NO SMOKING – NO OPEN FLAMES or the equivalent.

Non-potable Water 1926.51(b)

Outlets for non-potable water must be identified with signs meeting the requirements of Subpart G of Part 1926 (Signs, Signals and Barricades) to clearly indicate that the water should not be used for drinking, washing, or cooking purposes.

CAUTION
CHLORINE AREA

FG	10 x 14	69042
AL	7 x 10	40830
AL	10 x 14	40831
PL	7 x 10	22266
PL	10 x 14	22267
SS	7 x 10	84291
SS	10 x 14	84292

CAUTION
EYE AND GLOVE PROTECTION MUST BE WORN WHEN HANDLING CHEMICALS

FG	10 x 14	69228
AL	7 x 10	40840
AL	10 x 14	40841
PL	7 x 10	22276
PL	10 x 14	22277
SS	7 x 10	84301
SS	10 x 14	84302

CAUTION
POSSIBLE HYDROGEN SULFIDE GAS PRESENT

FG	10 x 14	[illegible]
AL	7 x 10	[illegible]
AL	10 x 14	[illegible]
PL	7 x 10	[illegible]
PL	10 x 14	[illegible]
SS	7 x 10	[illegible]
SS	10 x 14	[illegible]

CAUTION
COMPRESSED AIR

FG	10 x 14	69051
AL	7 x 10	40832
AL	10 x 14	40833
PL	7 x 10	22268
PL	10 x 14	22269
SS	7 x 10	84293
SS	10 x 14	84294

CAUTION
HAZARDOUS WASTE STORAGE AREA UNAUTHORIZED PERSONS KEEP OUT

FG	10 x 14	70374
AL	7 x 10	41273
AL	10 x 14	41274
PL	7 x 10	22709
PL	10 x 14	22710
SS	7 x 10	85409
SS	10 x 14	85410

CAUTION
PREVENT STATIC SPARK DISCHARGE – USE GROUNDING DEVICES

FG	10 x 14	[illegible]
AL	7 x 10	[illegible]
AL	10 x 14	[illegible]
PL	7 x 10	[illegible]
PL	10 x 14	[illegible]
SS	7 x 10	[illegible]
SS	10 x 14	[illegible]

CAUTION
CONTAINS HAZARDOUS MATERIAL SEE MSDS FILE

FG	10 x 14	70256
AL	7 x 10	40834
AL	10 x 14	40835
PL	7 x 10	22270
PL	10 x 14	22271
SS	7 x 10	84295
SS	10 x 14	84296

CAUTION
HIGH PRESSURE PIPELINE

FG	10 x 14	72495
AL	7 x 10	41275
AL	10 x 14	41276
PL	7 x 10	22711
PL	10 x 14	22712
SS	7 x 10	85411
SS	10 x 14	85412

CAUTION
TOXIC/HAZARDOUS CHEMICALS ARE USED IN THIS WORKPLACE – SAFETY DATA SHEETS ARE AVAILABLE IN THE SUPERVISOR'S OFFICE

FG	10 x 14	70559
AL	7 x 10	40854
AL	10 x 14	40855
PL	7 x 10	22280
PL	10 x 14	22281
SS	7 x 10	84321
SS	10 x 14	84322

CAUTION
CORROSIVE MATERIALS WEAR REQUIRED PROTECTION

FG	7 x 10	47079
FG	10 x 14	47117
AL	7 x 10	40836
AL	10 x 14	40837
PL	7 x 10	22272
PL	10 x 14	22273
SS	7 x 10	84297
SS	10 x 14	84298

CAUTION
NON-POTABLE WATER DO NOT DRINK

FG	10 x 14	69408
AL	7 x 10	40846
AL	10 x 14	40847
PL	7 x 10	22282
PL	10 x 14	22283
SS	7 x 10	84313
SS	10 x 14	84314

CAUTION
WELDING FUMES MAY BE PRESENT

AL	10 x 14	43499

CAUTION
ACID

FG	10 x 14	69371
AL	7 x 10	40826
AL	10 x 14	40827
PL	7 x 10	22262
PL	10 x 14	22263
SS	7 x 10	84285
SS	10 x 14	84286

CAUTION
CARBON MONOXIDE MAY BE PRESENT

AL	10 x 14	43496

CAUTION
CHEMICAL LINES OVERHEAD

FG	10 x 14	76073
AL	7 x 10	40828
AL	10 x 14	40829
PL	7 x 10	22264
PL	10 x 14	22265
SS	7 x 10	84289
SS	10 x 14	84290

CAUTION
ENTRY PROHIBITED WITHOUT PERMIT
TEST FOR O₂ DEFICIENCY, H₂S AND COMBUSTIBLE VAPORS

FG	14 x 20	69216
AL	7 x 10	40631
AL	10 x 14	40632
PL	7 x 10	22067
PL	10 x 14	22068
SS	7 x 10	84018
SS	10 x 14	84019

CAUTION
PERSONAL PROTECTIVE CLOTHING IS TO BE WORN AT ALL TIMES WHEN HANDLING CHEMICALS

FG	10 x 14	70474
AL	7 x 10	40848
AL	10 x 14	40849
PL	7 x 10	22284
PL	10 x 14	22285
SS	7 x 10	84315
SS	10 x 14	84316

DANGER
ACETYLENE

FG	7 x 10	70206
FG	10 x 14	70207
AL	7 x 10	40856
AL	10 x 14	40857
PL	7 x 10	22286
PL	10 x 14	22287
SS	7 x 10	84323
SS	10 x 14	84324

DANGER

ACID

FG	7 x 10	47150
FG	10 x 14	47206
AL	7 x 10	40858
AL	10 x 14	40859
PL	7 x 10	22294
PL	10 x 14	22295
SS	3½ x 5	84325
SS	7 x 10	84326
SS	10 x 14	84327

DANGER

BENZENE CANCER HAZARD

FG	10 x 14	69765
AL	7 x 10	41289
AL	10 x 14	41290
PL	7 x 10	22725
PL	10 x 14	22726
SS	7 x 10	85441
SS	10 x 14	85442

DANGER

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST-CANCER
AND LUNG DISEASE HAZARD

SS	3½ x 5	85451
SS	7 x 10	85452
SS	10 x 14	85453

DANGER

ETHYLENE OXIDE
CANCER HAZARD AND
REPRODUCTIVE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING MAY BE REQUIRED
TO BE WORN IN THIS AREA

AL	10 x 14	43507

DANGER

EXPLOSIVES KEEP OUT

FG	10 x 14	70330
AL	7 x 10	43235
AL	10 x 14	43236
PL	7 x 10	25658
PL	10 x 14	25659
SS	7 x 10	85173
SS	10 x 14	85174

DANGER

FLAMMABLE MATERIALS

FG	10 x 14	72246
FG	14 x 20	72249
AL	7 x 10	43243
AL	10 x 14	43244
PL	7 x 10	25666
PL	10 x 14	25667
SS	7 x 10	85183
SS	10 x 14	85184

DANGER

ACID

WEAR PROPER PROTECTION

FG	10 x 14	72384
AL	7 x 10	40860
AL	10 x 14	40861
PL	7 x 10	22296
PL	10 x 14	22297
SS	7 x 10	84332
SS	10 x 14	84333

DANGER

BENZENE
CANCER HAZARD
FLAMMABLE-NO SMOKING
AUTHORIZED PERSONNEL ONLY
RESPIRATOR REQUIRED

FG	10 x 14	70853
AL	7 x 10	43353
AL	10 x 14	43354
PL	7 x 10	25776
PL	10 x 14	25777
SS	7 x 10	85443
SS	10 x 14	85444

DANGER

CYANIDE

FG	10 x 14	72428
AL	7 x 10	41291
AL	10 x 14	41292
PL	7 x 10	22727
PL	10 x 14	22728
SS	7 x 10	85456
SS	10 x 14	85457

DANGER

EXPLOSIVE GAS NO SMOKING

FG	10 x 14	70327
FG	14 x 20	72207
AL	7 x 10	43227
AL	10 x 14	43228
PL	7 x 10	25650
PL	10 x 14	25651
SS	7 x 10	85161
SS	10 x 14	85162

DANGER

FLAMMABLE GAS

FG	10 x 14	72230
AL	7 x 10	43237
AL	10 x 14	43238
PL	7 x 10	25660
PL	10 x 14	25661
SS	7 x 10	85175
SS	10 x 14	85176

DANGER

FLAMMABLE

NO MATCHES OR OPEN LIGHTS

FG	10 x 14	71945
AL	7 x 10	43247
AL	10 x 14	43248
PL	7 x 10	25670
PL	10 x 14	25671
SS	7 x 10	85187
SS	10 x 14	85188

DANGER

ACIDS

AL	7 x 10	40862
AL	10 x 14	43455
PL	7 x 10	22298
PL	10 x 14	25878
SS	7 x 10	84334
SS	10 x 14	84335

DANGER

CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
NO SMOKING OR EATING

FG	10 x 14	72410
AL	7 x 10	41990
AL	10 x 14	41991
PL	7 x 10	23090
PL	10 x 14	23091
SS	7 x 10	86031
SS	10 x 14	86032

DANGER

DIESEL

FG	10 x 14	69089
AL	7 x 10	41293
AL	10 x 14	41294
PL	7 x 10	22729
PL	10 x 14	22730
SS	7 x 10	85458
SS	10 x 14	85459

DANGER

EXPLOSIVE VAPOR
NO SMOKING
NO OPEN FLAMES
NO SPARKS

FG	14 x 20	71901
AL	7 x 10	43229
AL	10 x 14	43230
PL	7 x 10	25652
PL	10 x 14	25653
SS	7 x 10	85165
SS	10 x 14	85166

DANGER

FLAMMABLE

KEEP FLAMES AND HEAT AWAY

FG	10 x 14	71932
AL	7 x 10	43239
AL	10 x 14	43240
PL	7 x 10	25662
PL	10 x 14	25663
SS	7 x 10	85179
SS	10 x 14	85180

DANGER

FUEL OIL

FG	10 x 14	78082
AL	7 x 10	41305
AL	10 x 14	41306
PL	7 x 10	22741
PL	10 x 14	22742
SS	7 x 10	85485
SS	10 x 14	85486

DANGER

ASBESTOS
CANCER AND LUNG
DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING ARE REQUIRED
IN THIS AREA

FG	20 x 14	74520
AL	10 x 7	41285
AL	14 x 10	41286
PL	10 x 7	22721
PL	14 x 10	22722
B-836	18 x 12	78058
SS	10 x 7	85437
SS	14 x 10	85438

DANGER

CAUSTIC

FG	7 x 10	72392
FG	10 x 14	72394
AL	7 x 10	40869
AL	10 x 14	40870
PL	7 x 10	22305
PL	10 x 14	22306
SS	3½ x 5	84344
SS	7 x 10	84345
SS	10 x 14	84346

DANGER

DIESEL FUEL

FG	7 x 10	70265
FG	10 x 14	70266
FG	14 x 20	70267
AL	7 x 10	43005
AL	10 x 14	43006
PL	7 x 10	25428
PL	10 x 14	25429
SS	7 x 10	84375
SS	10 x 14	84376

DANGER

EXPLOSIVES

FG	10 x 14	75639
AL	7 x 10	43231
AL	10 x 14	43232
PL	7 x 10	25654
PL	10 x 14	25655
SS	7 x 10	85167
SS	10 x 14	85168

DANGER

FLAMMABLE LIQUIDS

FG	10 x 14	72238
AL	7 x 10	43241
AL	10 x 14	43242
PL	7 x 10	25664
PL	10 x 14	25665
SS	7 x 10	85181
SS	10 x 14	85182

DANGER

FUEL STORAGE NO SMOKING

FG	10 x 14	71951
AL	7 x 10	43249
AL	10 x 14	43250
PL	7 x 10	25672
PL	10 x 14	25673
SS	7 x 10	85189
SS	10 x 14	85190

DANGER

BENZENE

FG	7 x 10	75974
FG	10 x 14	75975
AL	7 x 10	41287
AL	10 x 14	41288
PL	7 x 10	22723
PL	10 x 14	22724
SS	3½ x 5	89175
SS	7 x 10	85439
SS	10 x 14	85440

DANGER

CHLORINE

FG	10 x 14	72408
AL	7 x 10	40877
AL	10 x 14	40878
PL	7 x 10	22313
PL	10 x 14	22314
SS	7 x 10	84355
SS	10 x 14	84356

DANGER

DO NOT BURN
OR WELD
ON THIS VESSEL

SS	7 x 10	85157

DANGER

ETHYLENE OXIDE

AL	10 x 14	43506

DANGER

EXPLOSIVES KEEP AWAY

FG	14 x 20	71895
AL	7 x 10	43233
AL	10 x 14	43234
PL	7 x 10	25656
PL	10 x 14	25657
SS	7 x 10	85169
SS	10 x 14	85170

DANGER

FLAMMABLE MATERIAL NO SMOKING

FG	7 x 10	47148
FG	10 x 14	47024
FG	14 x 20	75662
AL	7 x 10	43245
AL	10 x 14	43246
PL	7 x 10	25668
PL	10 x 14	25669
SS	7 x 10	85185
SS	10 x 14	85186

DANGER

GASOLINE AND OIL

FG	10 x 14	69286
AL	7 x 10	41308
AL	10 x 14	41310
PL	7 x 10	22746
PL	10 x 14	22748
SS	7 x 10	85489
SS	10 x 14	85490

CHEMICAL HAZARD

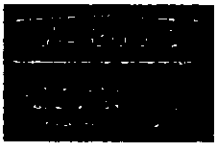
NOTICE
DO NOT DUMP CHEMICALS DOWN THIS DRAIN

FG	10 x 14	70270
AL	7 x 10	40919
AL	10 x 14	40920
PL	7 x 10	22355
PL	10 x 14	22356
SS	7 x 10	84463
SS	10 x 14	84464

NOTICE
NON-POTABLE WATER
NOT TO BE USED FOR DRINKING, WASHING OR COOKING PURPOSES

FG	10 x 14	69394
AL	7 x 10	40925
AL	10 x 14	40926
PL	7 x 10	22361
PL	10 x 14	22362
SS	7 x 10	84469
SS	10 x 14	84470

AL	10 x 14	43503



FG	10 x 14	69615
AL	7 x 10	40941
AL	10 x 14	40942
PL	7 x 10	22377
PL	10 x 14	22378
SS	7 x 10	84491
SS	10 x 14	84492

CORROSIVE LIQUIDS
USE PERSONAL PROTECTIVE EQUIP.

AL	7 x 10	40946
PL	7 x 10	22382
SS	3½ x 10	84499
SS	7 x 10	84500

HYDROGEN

SS	2¼ x 4½	43989

OXYGEN

SS	2¼ x 4½	43987

NOTICE
NEED AND THE WRITTEN HAZARDOUS COMMUNICATION PROGRAM FOR THIS WORK PLACE IS LOCATED IN FOREMAN'S OFFICE

FG	10 x 14	70430
AL	7 x 10	40921
AL	10 x 14	40922
PL	7 x 10	22357
PL	10 x 14	22358
SS	7 x 10	84465
SS	10 x 14	84466

NOTICE
"RIGHT TO KNOW" INFORMATION AVAILABLE IN THIS OFFICE

FG	10 x 14	70513
AL	7 x 10	40929
AL	10 x 14	40930
PL	7 x 10	22365
PL	10 x 14	22366
SS	7 x 10	84473
SS	10 x 14	84474

FG	10 x 14	69573
AL	7 x 10	40935
AL	10 x 14	40936
PL	7 x 10	22371
PL	10 x 14	22372
SS	7 x 10	84483
SS	10 x 14	84484

ACETYLENE

SS	2¼ x 4½	43986

DANGER—ACIDS
WEAR GOGGLES
AVOID FUMES AND SKIN CONTACT
WASH WITH WATER IMMEDIATELY

FG	10 x 14	72434
AL	7 x 10	43321
PL	7 x 10	25744
SS	7 x 10	85562
SS	10 x 14	85563

OXYGEN
NO SMOKING
NO OPEN FLAMES

FG	10 x 14	70471
AL	7 x 10	42715
PL	7 x 10	25138
SS	7 x 10	88455
SS	10 x 14	88456

NOTICE
NON-POTABLE WATER

FG	10 x 14	69407
AL	7 x 10	40923
AL	10 x 14	40924
PL	7 x 10	22359
PL	10 x 14	22360
SS	7 x 10	84467
SS	10 x 14	84468

SAFETY FIRST
IF YOU GET CHEMICALS ON YOUR BODY OR EYES WASH THOROUGHLY WITH PLENTY OF WATER

FG	14 x 20	74616
AL	7 x 10	40931
AL	10 x 14	40932
PL	7 x 10	22367
PL	10 x 14	22368
SS	7 x 10	84475
SS	10 x 14	84476

FG	10 x 14	69604
AL	7 x 10	40937
AL	10 x 14	40938
PL	7 x 10	22373
PL	10 x 14	22374
SS	7 x 10	84487
SS	10 x 14	84488

ACETYLENE
NO SMOKING
NO OPEN FLAMES

FG	10 x 14	69370
AL	7 x 10	40943
PL	7 x 10	22379
SS	7 x 10	84493
SS	10 x 14	84494

DIRTY REFRIGERANT
DO NOT USE
WITHOUT RECYCLING

SS	7 x 10	43984

SPRAY PAINT BOOTH
PAINT FUMES MAY BE PRESENT

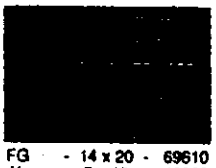
AL	10 x 14	43502

NOTICE
NON-POTABLE WATER
NOT FOR DRINKING OR COOKING USE

FG	7 x 10	72546
AL	7 x 10	40927
AL	10 x 14	40928
PL	7 x 10	22363
PL	10 x 14	22364
SS	7 x 10	84471
SS	10 x 14	84472

SAFETY FIRST
WEAR FACESHIELDS, RUBBER GLOVES AND APRONS WHEN WORKING WITH ACIDS

FG	14 x 20	74464
AL	7 x 10	40933
AL	10 x 14	40934
PL	7 x 10	22369
PL	10 x 14	22370
SS	7 x 10	84477
SS	10 x 14	84478



FG	14 x 20	69610
AL	7 x 10	40939
AL	10 x 14	40940
PL	7 x 10	22375
PL	10 x 14	22376
SS	7 x 10	84489
SS	10 x 14	84490

CHEMICAL
GOGGLES REQUIRED

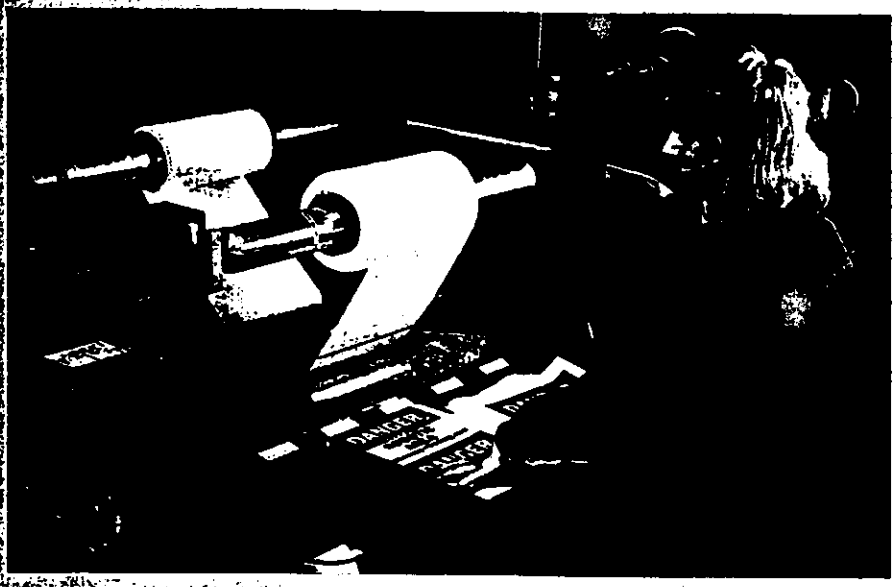
FG	10 x 14	73033
AL	7 x 10	40944
AL	10 x 14	40945
PL	7 x 10	22380
PL	10 x 14	22381
SS	7 x 10	84497
SS	10 x 14	84498

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CALL DAY OR NIGHT

FG	14 x 20	69256
AL	7 x 10	40947
AL	10 x 14	40948
PL	7 x 10	22383
PL	10 x 14	22384
SS	7 x 10	84505
SS	10 x 14	84506

USED OIL

SS	7 x 10	43983



GAS
NO SMOKING, MATCHES OR LIGHTS

FG	10 x 14	69261
AL	7 x 10	40949
PL	7 x 10	22385
SS	7 x 10	84507
SS	10 x 14	84508

WARNING
IF YOU COME IN CONTACT WITH CORROSIVE CHEMICALS GET UNDER A SHOWER IMMEDIATELY —SECONDS COUNT— LARGE VOLUMES OF WATER ARE NECESSARY

FG	14 x 20	72982
AL	7 x 10	40950
PL	7 x 10	22386
SS	7 x 10	84511
SS	10 x 14	84512

SATISFACTION GUARANTEED

A special overlaminating process applied here by Katy Krostag, Graphic Artist, makes every Brady self-sticking sign even more durable.

Find it fast! See the Safety Sign Locator, pages 6-13.

HAZARDOUS MATERIALS

DANGER
H_2S
POISONOUS GAS

FG	10 x 14	72473	
AL	7 x 10	41311	
AL	10 x 14	41312	
PL	7 x 10	22747	
PL	10 x 14	22748	
SS	7 x 10	85491	
SS	10 x 14	85492	

DANGER
HIGHLY COMBUSTIBLE AREA
NO WELDING, BURNING OR OPEN FLAMES PERMITTED

FG	14 x 20	71954	
AL	7 x 10	43251	
AL	10 x 14	43252	
PL	7 x 10	25674	
PL	10 x 14	25675	
SS	7 x 10	85191	
SS	10 x 14	85192	

DANGER
SULFURIC ACID

FG	14 x 20	72587	
AL	7 x 10	41328	
AL	10 x 14	41329	
PL	7 x 10	22764	
PL	10 x 14	22765	
SS	7 x 10	85521	
SS	10 x 14	85522	

NOTICE
NON-POTABLE WATER
NOT TO BE USED FOR DRINKING, WASHING OR COOKING PURPOSES

AL	7 x 10	40925	
AL	10 x 14	40926	
PL	7 x 10	22361	
PL	10 x 14	22362	
SS	7 x 10	84469	
SS	10 x 14	84470	

FG	10 x 14	69768	
AL	7 x 10	43319	
AL	10 x 14	43320	
PL	7 x 10	25742	
PL	10 x 14	25743	
SS	3½ x 5	89170	
SS	7 x 10	85553	
SS	10 x 14	85554	

EMPTY CYLINDERS

FG	10 x 14	70317	
AL	7 x 10	43322	
PL	7 x 10	25745	
SS	7 x 10	85564	
SS	10 x 14	85565	

DANGER
HAZARDOUS AREA

FG	10 x 14	69000	
AL	7 x 10	41313	
AL	10 x 14	41314	
PL	7 x 10	22749	
PL	10 x 14	22750	
SS	7 x 10	85493	
SS	10 x 14	85494	

DANGER
HYDROCHLORIC ACID

FG	7 x 10	72503	
AL	7 x 10	43025	
AL	10 x 14	43026	
PL	7 x 10	25448	
PL	10 x 14	25449	
SS	7 x 10	84407	
SS	10 x 14	84408	

DANGER
TOXIC MATERIALS

FG	14 x 20	72593	
AL	7 x 10	41330	
AL	10 x 14	41331	
PL	7 x 10	22766	
PL	10 x 14	22767	
SS	7 x 10	85525	
SS	10 x 14	85526	

SAFETY FIRST
IF YOU GET CHEMICALS ON YOUR BODY OR EYES WASH THOROUGHLY WITH PLENTY OF WATER

FG	14 x 20	74616	
AL	7 x 10	43313	
AL	10 x 14	43314	
PL	7 x 10	25736	
PL	10 x 14	25737	
SS	7 x 10	85543	
SS	10 x 14	85544	

FG	10 x 14	69767	
AL	7 x 10	40775	
AL	10 x 14	40776	
PL	7 x 10	22211	
PL	10 x 14	22212	
SS	7 x 10	84216	
SS	10 x 14	84217	

FULL CYLINDERS

FG	10 x 14	70356	
AL	7 x 10	43323	
PL	7 x 10	25748	
SS	7 x 10	85566	
SS	10 x 14	85567	

DANGER
HAZARDOUS MATERIALS

FG	10 x 14	69002	
AL	7 x 10	41315	
AL	10 x 14	41316	
PL	7 x 10	22751	
PL	10 x 14	22752	
SS	7 x 10	85497	
SS	10 x 14	85498	

DANGER
INORGANIC ARSENIC
CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
NO SMOKING OR EATING
RESPIRATOR REQUIRED

AL	10 x 14	43505	

NOTICE
CHAIN ALL CYLINDERS SECURELY

FG	10 x 14	70239	
AL	7 x 10	41332	
AL	10 x 14	41333	
PL	7 x 10	22768	
PL	10 x 14	22769	
SS	7 x 10	85531	
SS	10 x 14	85532	

FG	10 x 14	69585	
AL	7 x 10	43315	
AL	10 x 14	43316	
PL	7 x 10	25738	
PL	10 x 14	25739	
SS	7 x 10	85547	
SS	10 x 14	85548	

CANCER SUSPECT AGENT AREA
PROTECTIVE EQUIPMENT REQUIRED
AUTHORIZED PERSONNEL ONLY

FG	10 x 14	69781	
AL	7 x 10	43459	
AL	10 x 14	43460	
PL	7 x 10	25882	
PL	10 x 14	25883	
SS	7 x 10	85557	
SS	10 x 14	85558	

SPILL CONTROL STATION

SS	7 x 10	43678	

DANGER
HAZARDOUS WASTE

FG	10 x 14	69003	
AL	7 x 10	41317	
AL	10 x 14	41318	
PL	7 x 10	22753	
PL	10 x 14	22754	
SS	7 x 10	85499	
SS	10 x 14	85500	

DANGER
LIVE STEAM

FG	10 x 14	69337	
AL	7 x 10	41324	
AL	10 x 14	41325	
PL	7 x 10	22760	
PL	10 x 14	22761	
SS	7 x 10	85512	
SS	10 x 14	85513	

NOTICE
CYLINDERS NOT CONNECTED MUST BE CAPPED

FG	10 x 14	70261	
AL	7 x 10	41334	
AL	10 x 14	41335	
PL	7 x 10	22770	
PL	10 x 14	22771	
SS	7 x 10	85533	
SS	10 x 14	85534	

FG	10 x 14	76085	
AL	7 x 10	43317	
AL	10 x 14	43318	
PL	7 x 10	25740	
PL	10 x 14	25741	
SS	7 x 10	85549	
SS	10 x 14	85550	

CANCER SUSPECT AGENT EXPOSED IN THIS AREA. IMPERVIOUS SUIT INCLUDING GLOVES, BOOTS AND AIR SUPPLIED HOOD REQUIRED AT ALL TIMES. AUTHORIZED PERSONNEL ONLY

FG	20 x 28	69782	
AL	7 x 10	43458	
AL	10 x 14	43457	
PL	7 x 10	25679	
PL	10 x 14	25880	
SS	7 x 10	85559	
SS	10 x 14	85560	

WARNING
IF YOU COME IN CONTACT WITH CORROSIVE CHEMICALS GET UNDER A SHOWER IMMEDIATELY - SECONDS COUNT - LARGE VOLUMES OF WATER ARE NECESSARY

FG	14 x 20	70350	
AL	7 x 10	40850	
PL	7 x 10	22286	
SS	7 x 10	84511	
SS	10 x 14	84512	

DANGER
HIGH PRESSURE GAS LINE

FG	10 x 14	72469	
AL	7 x 10	41319	
AL	10 x 14	41320	
PL	7 x 10	22755	
PL	10 x 14	22756	
SS	7 x 10	85501	
SS	10 x 14	85502	

DANGER
PCB
REPORT LEAKS OR SPILLS IMMEDIATELY TO MAINTENANCE SUPERINTENDENT

FG	14 x 20	70473	
AL	7 x 10	41326	
AL	10 x 14	41327	
PL	7 x 10	22762	
PL	10 x 14	22763	
SS	7 x 10	85516	
SS	10 x 14	85517	

NOTICE
DRUMS MUST BE LABELED

FG	10 x 14	69178	
AL	7 x 10	43311	
AL	10 x 14	43312	
PL	7 x 10	25734	
PL	10 x 14	25735	
SS	7 x 10	85535	
SS	10 x 14	85536	

WARNING
NATURAL GAS PIPELINE
HIGH PRESSURE BEFORE DIGGING CALL COLLECT

SS	14 x 3	85551	

CORROSIVE LIQUIDS
USE PERSONAL PROTECTIVE EQUIP.

SS	3½ x 10	84499	
SS	7 x 10	84500	

DANGER - ACIDS
WEAR GOGGLES
AVOID FUMES
AND SKIN CONTACT
WASH WITH WATER
IMMEDIATELY

FG	10 x 14	72434	
AL	7 x 10	43321	
PL	7 x 10	25744	
SS	7 x 10	85562	
SS	10 x 14	85563	

DANGER
HIGH PRESSURE OIL LINE

FG	10 x 14	69018	
AL	7 x 10	41321	
AL	10 x 14	41322	
PL	7 x 10	22757	
PL	10 x 14	22758	
SS	7 x 10	85503	
SS	10 x 14	85504	

DANGER
POISON

FG	10 x 14	69441	
AL	7 x 10	40901	
AL	10 x 14	40902	
PL	7 x 10	22337	
PL	10 x 14	22338	
SS	3½ x 5	84434	
SS	7 x 10	84435	
SS	10 x 14	84436	

NOTICE
NON-POTABLE WATER
NOT FOR DRINKING OR COOKING USE

FG	7 x 10	72546	
AL	7 x 10	40927	
AL	10 x 14	40928	
PL	7 x 10	22363	
PL	10 x 14	22364	
SS	7 x 10	84471	
SS	10 x 14	84472	

WARNING
PETROLEUM PIPELINE
BEFORE EXCAVATING OR IN EMERGENCY CALL COLLECT

SS	14 x 3	85552	

SATISFACTION GUARANTEED

Make it yourself! See p.156 for Safety Sign Software and Sign Blanks.

NOTICE
PLEASE TURN OUT LIGHTS WHEN NOT IN USE

FG - 10 x 14 - 69437
AL - 7 x 10 - 41007
AL - 10 x 14 - 41008
PL - 7 x 10 - 22445
PL - 10 x 14 - 22446
SS - 7 x 10 - 84585
SS - 10 x 14 - 84586

NOTICE
SAVE ENERGY
CLOSE DOORS WHEN NOT IN USE

FG - 10 x 14 - 69483
AL - 7 x 10 - 41009
AL - 10 x 14 - 41010
PL - 7 x 10 - 22445
PL - 10 x 14 - 22446
SS - 7 x 10 - 84585
SS - 10 x 14 - 84586

THINK
CONSERVE ENERGY

FG - 10 x 14 - 69056
AL - 7 x 10 - 41011
AL - 10 x 14 - 41012
PL - 7 x 10 - 22447
PL - 10 x 14 - 22448
SS - 7 x 10 - 84587
SS - 10 x 14 - 84588

THINK
CONSERVE WATER

FG - 10 x 14 - 69060
AL - 7 x 10 - 41013
AL - 10 x 14 - 41014
PL - 7 x 10 - 22449
PL - 10 x 14 - 22450
SS - 7 x 10 - 84589
SS - 10 x 14 - 84590

FG - 12 x 12 - 70623
FG - 10 x 14 - 70624
AL - 7 x 10 - 41968
AL - 10 x 14 - 41969
PL - 7 x 10 - 25943
PL - 10 x 14 - 25944
SS - 7 x 10 - 86023
SS - 10 x 14 - 86024

ALUMINUM CANS ONLY

FG - 7 x 10 - 70627
FG - 10 x 14 - 70628
AL - 7 x 10 - 41972
AL - 10 x 14 - 41973
PL - 7 x 10 - 25947
PL - 10 x 14 - 25948
SS - 7 x 10 - 86027
SS - 10 x 14 - 86028

B-500 - 2¼ x 2¼ - 76289

B-500 - 2¼ x 2¼ - 76288

B-500 - 2¼ x 2¼ - 76287

B-500 - 2¼ x 2¼ - 76285

FG - 12 x 12 - 76879
AL - 7 x 10 - 41015
PL - 7 x 10 - 22451
SS - 10 x 14 - 84596

GLASS ONLY

FG - 7 x 10 - 70625
FG - 10 x 14 - 70626
AL - 7 x 10 - 41970
AL - 10 x 14 - 41971
PL - 7 x 10 - 25945
PL - 10 x 14 - 25946
SS - 7 x 10 - 86025
SS - 10 x 14 - 86026

HELP SAVE OUR ENVIRONMENT
RECYCLE

FG - 10 x 14 - 69014
AL - 7 x 10 - 41016
PL - 7 x 10 - 22452
SS - 7 x 10 - 84598
SS - 10 x 14 - 84599

4 per card

B-500 - 2¼ x 2¼ - 76875

NON RECYCLABLE WASTE

FG - 7 x 10 - 70621
FG - 10 x 14 - 70622
AL - 7 x 10 - 41966
AL - 10 x 14 - 41967
PL - 7 x 10 - 25941
PL - 10 x 14 - 25942
SS - 7 x 10 - 86021
SS - 10 x 14 - 86022

PAPER ONLY

FG - 7 x 10 - 70629
FG - 10 x 14 - 70630
AL - 7 x 10 - 41974
AL - 10 x 14 - 41975
PL - 7 x 10 - 25949
PL - 10 x 14 - 25950
SS - 7 x 10 - 86029
SS - 10 x 14 - 86030

RECYCLABLE
ALUMINUM CANS ONLY

FG - 7 x 10 - 70613
FG - 10 x 14 - 70614
AL - 7 x 10 - 41958
AL - 10 x 14 - 41959
PL - 7 x 10 - 25933
PL - 10 x 14 - 25934
SS - 7 x 10 - 86013
SS - 10 x 14 - 86014

RECYCLABLE
BOTTLES ONLY

FG - 7 x 10 - 70605
FG - 10 x 14 - 70606
AL - 7 x 10 - 41950
AL - 10 x 14 - 41951
PL - 7 x 10 - 25925
PL - 10 x 14 - 25926
SS - 7 x 10 - 86005
SS - 10 x 14 - 86006

RECYCLABLE
CANS ONLY

FG - 7 x 10 - 70611
FG - 10 x 14 - 70612
AL - 7 x 10 - 41956
AL - 10 x 14 - 41957
PL - 7 x 10 - 25931
PL - 10 x 14 - 25932
SS - 7 x 10 - 86011
SS - 10 x 14 - 86012

RECYCLABLE
METALS ONLY

FG - 7 x 10 - 70617
FG - 10 x 14 - 70618
AL - 7 x 10 - 41962
AL - 10 x 14 - 41963
PL - 7 x 10 - 25937
PL - 10 x 14 - 25938
SS - 7 x 10 - 86017
SS - 10 x 14 - 86018

RECYCLABLE
NEWSPRINT ONLY

FG - 7 x 10 - 70619
FG - 10 x 14 - 70620
AL - 7 x 10 - 41964
AL - 10 x 14 - 41965
PL - 7 x 10 - 25939
PL - 10 x 14 - 25940
SS - 7 x 10 - 86019
SS - 10 x 14 - 86020

RECYCLABLE
PAPER ONLY

FG - 7 x 10 - 70609
FG - 10 x 14 - 70610
AL - 7 x 10 - 41954
AL - 10 x 14 - 41955
PL - 7 x 10 - 25929
PL - 10 x 14 - 25930
SS - 7 x 10 - 86009
SS - 10 x 14 - 86010

RECYCLABLE
PLASTIC ONLY

FG - 7 x 10 - 70607
FG - 10 x 14 - 70608
AL - 7 x 10 - 41952
AL - 10 x 14 - 41953
PL - 7 x 10 - 25927
PL - 10 x 14 - 25928
SS - 7 x 10 - 86007
SS - 10 x 14 - 86008

RECYCLABLE
WASTE ONLY

FG - 7 x 10 - 70615
FG - 10 x 14 - 70616
AL - 7 x 10 - 41960
AL - 10 x 14 - 41961
PL - 7 x 10 - 25935
PL - 10 x 14 - 25936
SS - 7 x 10 - 86015
SS - 10 x 14 - 86016

RECYCLABLE
SAVE OUR RESOURCES
ALUMINUM

SS - 10 x 14 - 84601

RECYCLABLE
SAVE OUR RESOURCES
CARDBOARD

SS - 10 x 14 - 84602

RECYCLABLE
SAVE OUR RESOURCES
GLASS

SS - 10 x 14 - 84603

RECYCLABLE
SAVE OUR RESOURCES
PAPER

SS - 10 x 14 - 84604

RECYCLABLE
SAVE OUR RESOURCES
PLASTIC

SS - 7 x 10 - 84605

SAVE ENERGY

B-500 - 2¼ x 2¼ - 76290

SAVE WATER

B-500 - 2¼ x 2¼ - 76291

Turn it down when you're not around!

B-500 - 2¼ x 2¼ - 76292

TURN ME
OFF

B-500 - 2¼ x 2¼ - 76293

Turn off Equipment When Not In Use

SAVE ENERGY

B-500 - 2¼ x 2¼ - 76294

TURN OFF LIGHTS CONSERVE ENERGY

B-500 - 2¼ x 2¼ - 76295

TURN OFF WHEN NOT IN USE

B-500 - 2¼ x 2¼ - 76296

WHEN IN DOUBT

TURN ME OUT

FG - 12 x 12 - 78902
B-500 - 2¼ x 2¼ - 78903

CATALOG DATA

OVERHEAD Sectional Doors

Selection Guide

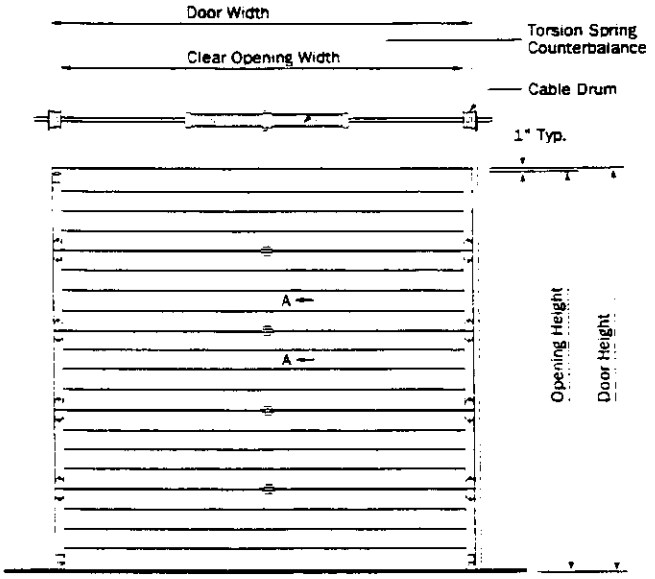
		Visual Access	Glazing	Ventilation	Thermal Insulation	Sound Insulation	Air Infiltration Resistance	Windload Resistance	Security	Fire Rated	Pedestrian Pass Door	Oversized Openings	High Usage
Insulated Steel Doors	Thermacore® 592 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 591 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 595 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 593 Series	◐	●	○	●	●	●	●	●	○	○	○	●
	418 Series	◐	●	○	◐	◐	◐	●	●	○	○	●	◐
	422 Series	◐	●	○	◐	◐	◐	●	●	○	◐	●	◐
	426 Series	◐	●	○	◐	◐	◐	●	●	○	◐	●	◐
	432 Series	◐	●	○	◐	◐	◐	●	●	○	○	◐	◐
	445 Series	◐	◐	○	◐	◐	◐	◐	●	○	○	○	◐
Steel Doors	416 Series	◐	●	○	○	○	◐	●	●	○	○	●	◐
	420 Series	◐	●	○	○	○	◐	●	●	○	◐	●	◐
	424 Series	◐	●	○	○	○	◐	●	●	○	◐	●	◐
	430 Series	◐	●	○	○	○	◐	●	●	○	○	◐	◐
	444 Series	◐	◐	○	○	○	◐	◐	●	○	○	○	◐
Aluminum Doors	520 Series	●	●	◐	○	○	◐	◐	◐	○	○	◐	○
	511 Series	●	●	◐	○	○	◐	◐	◐	○	○	○	○
Special Application Doors		◐	●	◐	◐	◐	◐	●	●	○	◐	●	●

○ Not Applicable
◐ Applicable in Certain Conditions
● Applicable

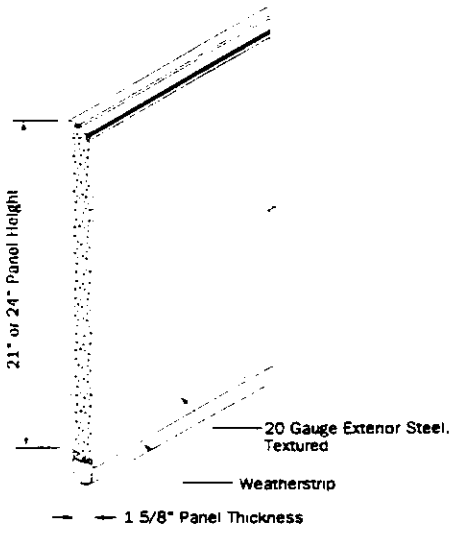
595 Series
Thermacore® Insulated Steel Doors

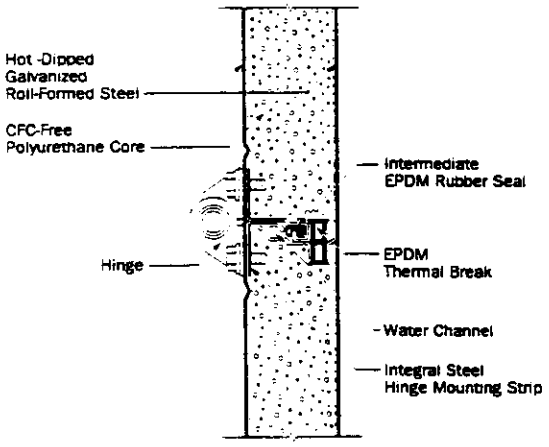
Interior Elevation

For clearance details on electrically operated doors, see Motor Operator detail pages at back of this section.



Panel Detail

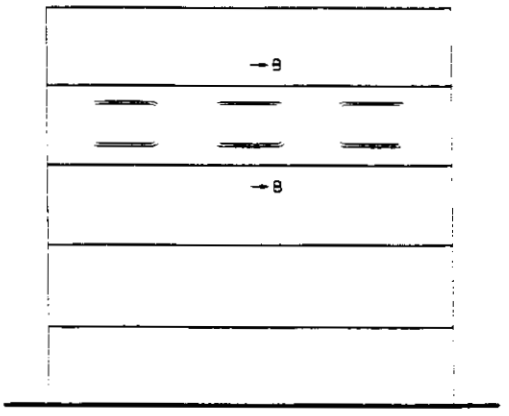


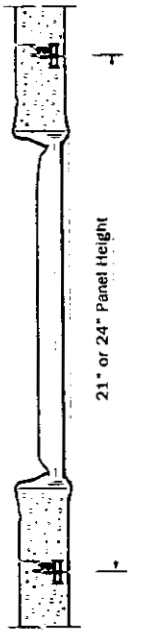


Section A-A

Insulated Thermal Acrylic Window Lite
24" x 11"

Exterior Elevation

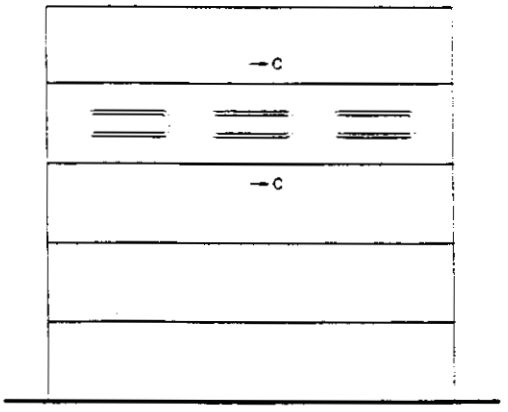


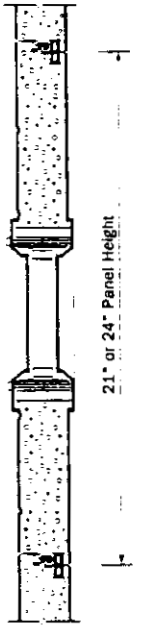


Section B-B

Insulated 1/8" DSB Window Lite
24" x 7"

Exterior Elevation



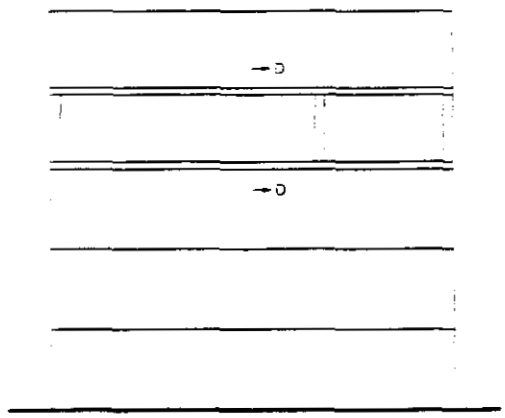


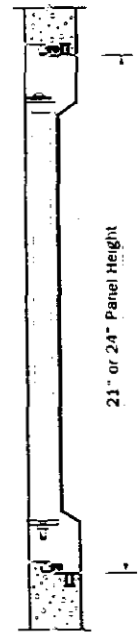
Section C-C

595 Series
Glazing Options

Aluminum Full View Glazing Section

Exterior Elevation





Section D-D

The Frame of the Future is Made in Alaska

ALASKA WINDOW COMPANY is pleased to announce that we are now manufacturing the exciting PRIMO PVC window and patio door systems that have become the *preferred* window products throughout Europe.

Check out these *important* features:

1. The PVC framing sytem is over 1300 times more energy efficient than aluminum systems.

2. This system allows the use of a variety of insulated glass units from 3/4" to 1 3/8" with dead air spaces that range from 3/8" to 3/4" used in conjunction with double and triple pane units.

3. The availability of *Double Sided HEAT MIRROR 88 and KRYPTON Gas* can produce overall "R" values to 5.56.

4. Double weather seal on all units.

5. Unique Tilt and Turn hardware.

6. Clean and re-glaze from inside the building.

7. Custom sizes and styles at *stock prices.*

8. Thoroughly tested and proven under the harshest climatic conditions.

You now have all the advantages of a system that is secure, tested and proven to be energy efficient, with maintenance a breeze. All of our production equipment is of the latest technology so design requirements can be accurately met.

Whether your project is new construction, or remodeling an existing structure, we can produce the units that meet your needs and specifications.

(AW#1)

4141 INGRA, #A □ ANCHORAGE, ALASKA 99503 □ (907) 563-4141 □ FAX: (907) 563-0941 □ 1-800-478-4141

ALASKA WINDOW manufactures a Scandinavian designed PVC window system which has excellent cold weather characteristics. These units are extremely well suited for cold and rough use applications. The window has a 1 3/8 inch glazing pocket which allows the use of triple pane glass with 1/2 inch air spaces between the panes or "HEAT MIRROR" with two 9/16 air spaces. They will not freeze shut under any condition, which makes them the most desirable **EGRESS** window available.

Two separate **EPDM** weatherstrips are used in the operating windows which significantly reduces air infiltration. This weatherstripping will not become brittle at temperatures of -70 degrees F.

Maintenance is very low for the following reasons:

1. The sash is fully adjustable. It can be adjusted vertically as well as horizontally at the top and the bottom. The sash also is adjustable for vertical movement. The compression on the weather seals can be increased or decreased.

2. New weather seals can be installed by the homeowner, inexpensively and without the use of tools.

3. In the event of broken glass, a new insulated unit can be installed by the homeowner without the use of special tools or special skills. (The type of glass and the size can be found under the left glazing bead.)

4. Retrofitting and new construction are made easier because windows are available in any size and *almost* any shape. Complete and simple installation instructions accompany each window.

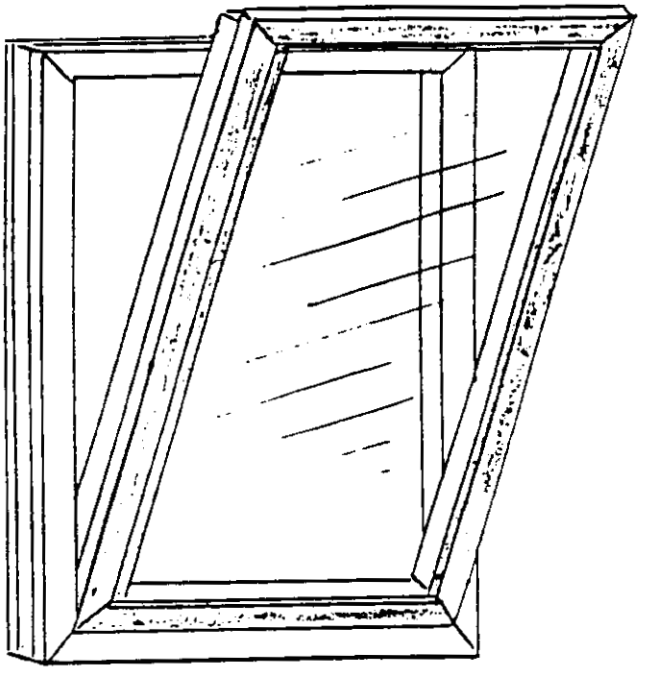
5. The windows will last as long as the building they are installed in and there is no painting or preservation of any kind required.

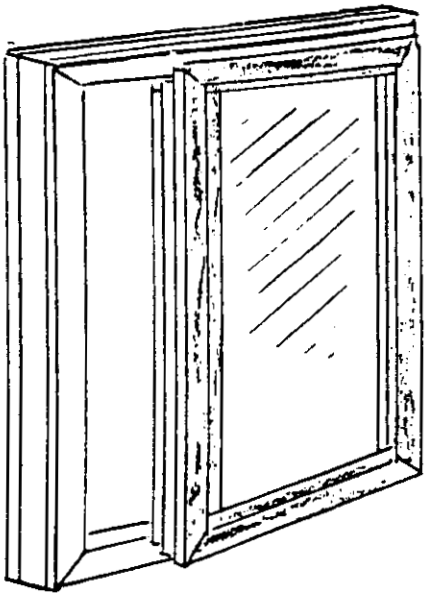
The **ALASKA WINDOW COMPANY** is located at Mile 353.6 on the George Parks Highway, between Fairbanks and Ester. To arrange a tour of the factory please call Monday through Friday, 8:00 AM to 5:00 PM

ALASKA WINDOW Co. is a privately financed Alaskan owned and operated business.

(AW#2)

PRIMO SERIES 400





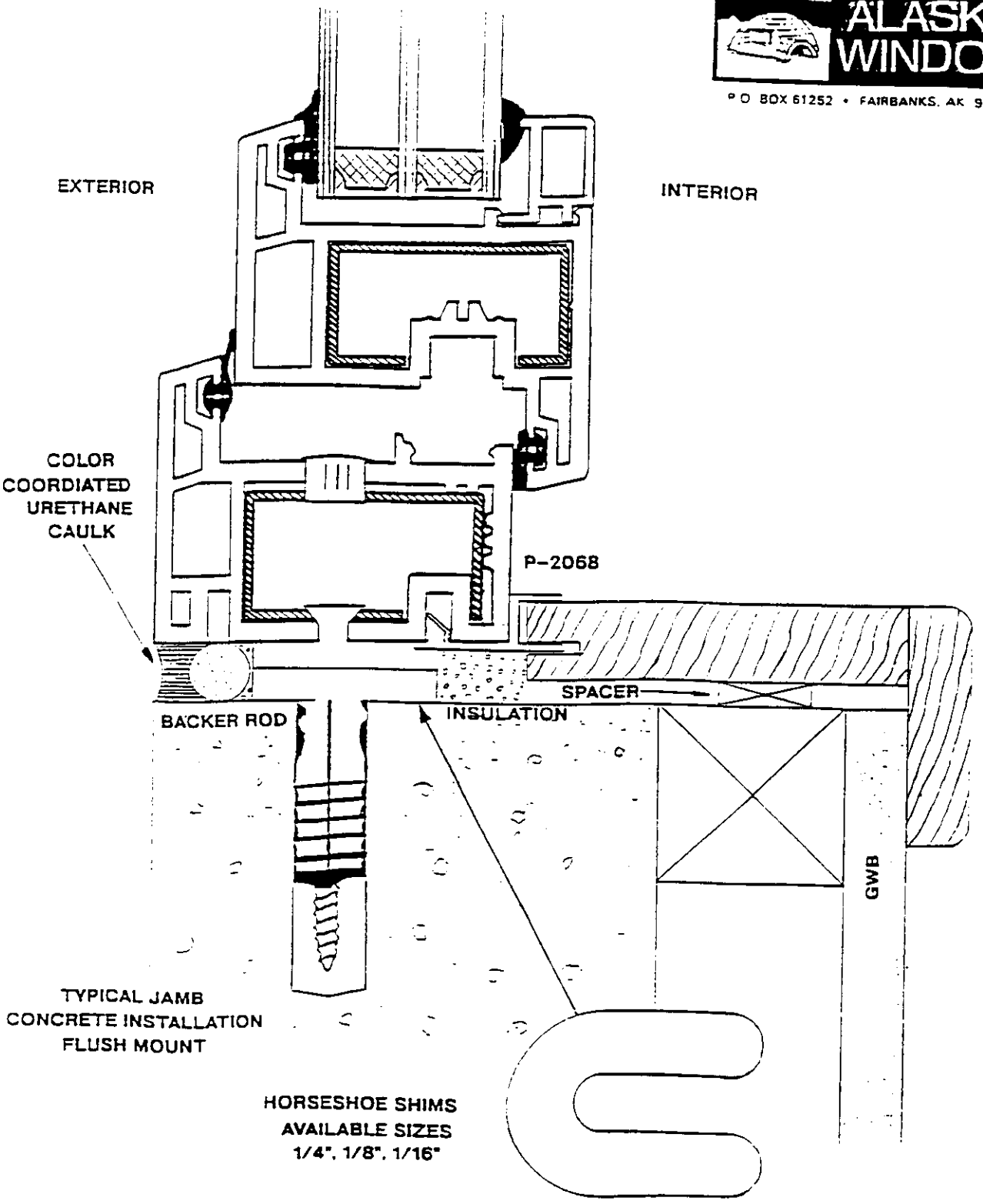
TILT and TURN (T / T)

Minimum Size: 20" x 20"

Maximum Size: 48" wide

This unit should not be
manufactured more than
1.25 times wider than it is tall

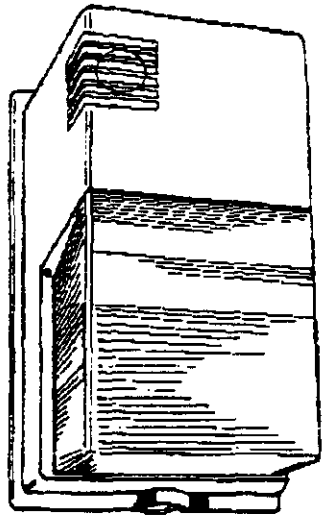
ALASK
WINDO
P O BOX 61252 • FAIRBANKS, AK 9



WALLIGHTER 70 LUMINAIRE

APPLICATIONS

Office and shopping complexes, schools, malls, parking garages, motels, condominiums and residences. Small, aesthetically attractive luminaire with the power saving advantage of high pressure sodium (HPS) lighting



SPECIFICATION FEATURES

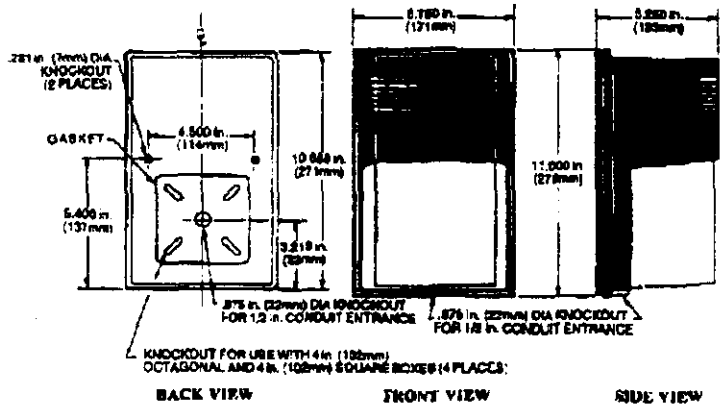
- UL1572 Listed SUITABLE FOR WET LOCATIONS
- CSA Certified
- Standard construction is IP55
- Die-cast aluminum mounting base with dark bronze paint finish
- Compact one-piece polycarbonate front housing
- Versatile mounting provisions allow for mounting to standard 3-in. or 4-in. (76mm or 102mm) outlet boxes, 1/2-in. (13mm) conduit, or directly onto any flat surface
- Easy access to optical and electrical compartments affords quick installation and maintenance
- Knockout for field installation of PE control
- Standard and tamper resistant hardware included
- Medium base socket with coated lamp
- NPF reactor ballast

ORDERING NUMBER LOGIC

WL **03** **S** **1** **PE**

PRODUCT ID. XX	WATTAGE XX	LIGHT SOURCE X	VOLTAGE X	BALLAST TYPE XX
WL = Wallighter 70 Luminaire	03 = 35 05 = 50 07 = 70	S = HPS Standard: Lamp included	1 = 120	PE = PE if required

DIMENSIONS



BALLAST AND PHOTOMETRIC SELECTION TABLE

Voltage	Light Source	Ballast Type 120 Volt	IES Distribution Type	Photometric Curve Number 35-17 - - - -
35, 50, 70	HPS (Coated)	NPF Reactor	Long Non-Cutoff Type IV	7804

DATA

Approximate Net Weight	6 lbs (3 kgs)
Suggested Mounting Height	5-12 ft (2-4M)

REFERENCES

See Page 5980 for Explanation of Options and Other Terms Used

The catalog numbers, options and modifications on this page are UL Listed unless otherwise noted.

Data subject to change without notice

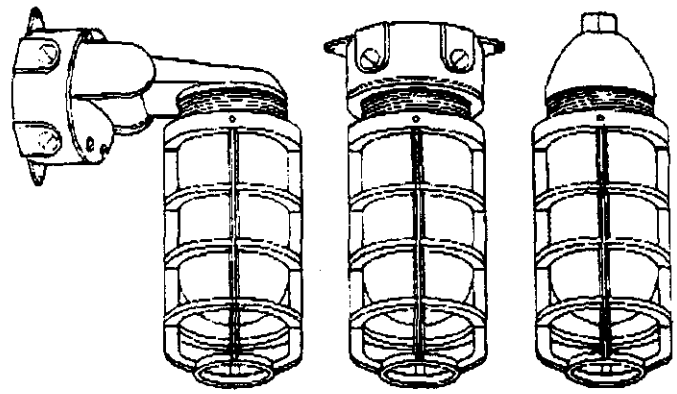
H7 ENCLOSED AND GASKETED LUMINAIRE

APPLICATIONS

Indoor or outdoor non-hazardous locations where lamp protection from rain and the elements is needed

SPECIFICATION FEATURES

- UL Listed SUITABLE FOR WET LOCATIONS
- Standard construction is IP55
- Low copper aluminum alloy housing with gray paint finish
- Incandescent model up to 150 watts (A-21)
- Fluorescent model uses 13 watt biaxial lamp
- Luminaires are single packed and shipped in one carton



Wall Bracket Mounted **Ceiling Mounted** **Pendant Mounted**

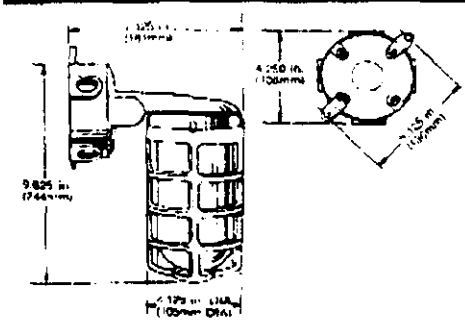
ORDERING NUMBER LOGIC

UL LISTED

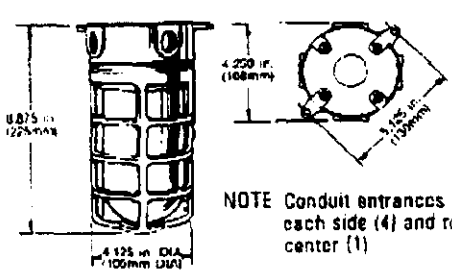
H7 1 13B 3C DD

PRODUCT I.D. XX	VOLTAGE X	LAMP TYPE XXX	MOUNTING XX	OPTIONS XX
H7 = An Enclosed and Gasketed Luminaire	1 = 120 X = 250 volt maximum	13B = 13 watt Biaxial Fluorescent 120 volt (Standard: Lamp included) 15F = 150 watt Medium Base Incandescent A-21 Bulb 250 volt max (Standard: Lamp not included)	3C = 3/4-in. Ceiling 3P = 3/4-in. Pendant 3W = 3/4-in. Wall	DD = Clear Globe with Guard

DIMENSIONS

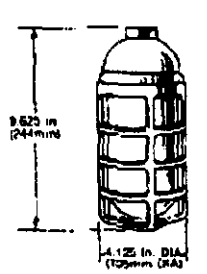


WALL MOUNTED



CEILING MOUNTED

NOTE Conduit entrances on each side (4) and top center (1)



PENDANT MOUNTED

DATA

NOTE: Operating amperes is 0.3 for 13 watt fluorescent

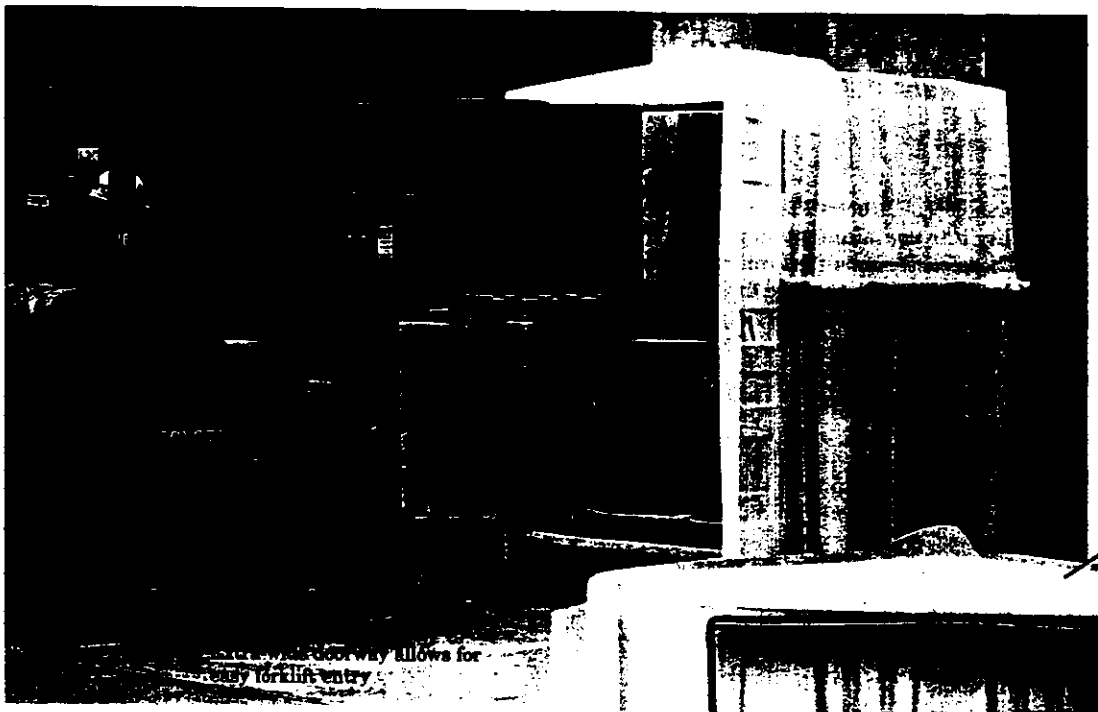
Approximate Net Weight:	
Pendant with Guard	2.75 lbs (1.25 kgs)
Ceiling with Guard	2.75 lbs (1.25 kgs)
Wall Bracket with Guard	3.30 lbs (1.50 kgs)

The catalog numbers, notices and modifications on this page are UL Listed unless otherwise noted.

REFERENCES

See Page 2900 for start of Accessories

STORAGE



Whittier Harbor Collection Stations

Air vents to reduce fumes

100% polyethylene construction with UV inhibitors for increased durability

JOB HUT breaks into two pieces; top piece nests in bottom to reduce shipping costs

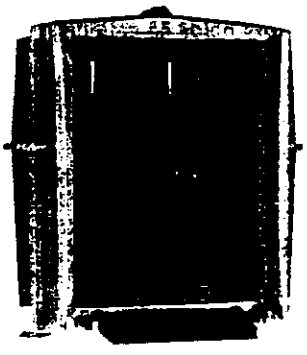
Three removable structural foam grates hold 8,000 lbs. UDL weight

Low profile design allows for easy access

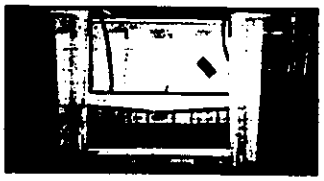
4-way forkliftable design for ease in handling

Built-in 66-gallon sump capacity (exceeds 40 CFR 264.175)

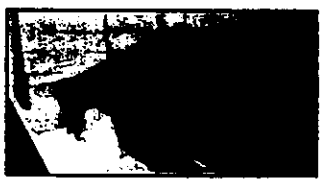
Two heavy-duty, double-walled doors for added security



Stores up to eight 55-gallon drums right on their pallets



Top half of the JOB HUT nests in the bottom half for compact shipping and storage



Structural foam grates remove for easy cleaning

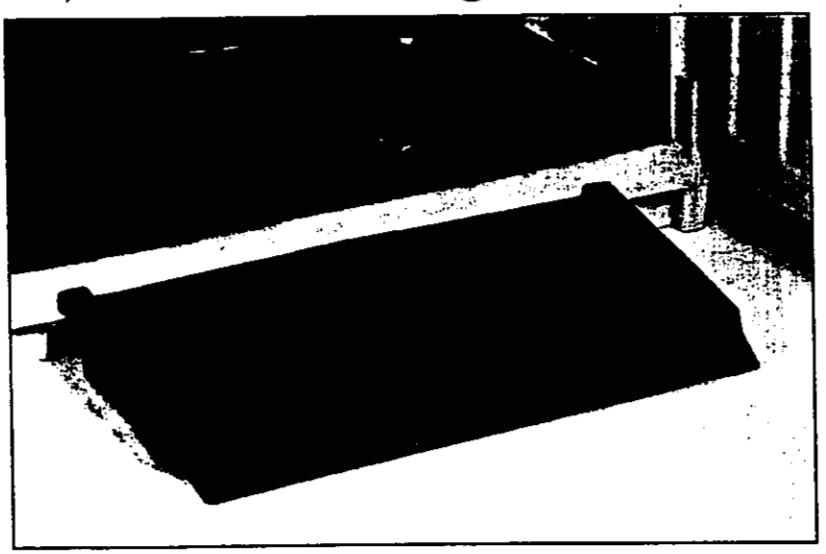
Tie down feature for secure anchorage

ENPAC CORPORATION

Introducing the JOB HUT™

Create an extension to your building for durable, outdoor storage.

If easy access and a large storage area are what you need, JOB HUT is your answer.



Outdoor storage has never been so practical. That's because we've designed the JOB HUT™ to act just like an extension to your building. It's big. It's safe. And it's easy to use.

An extra large storage area lets you store up to eight 55-gallon drums right on their pallets! Its low profile design allows for easy access. And it's forkliftable from all sides for effortless handling.

How safe and secure is the JOB HUT? Tough polyethylene construction means it won't rust or corrode, while UV inhibitors make it extra durable for outdoor use. A large 66-gallon sump capacity eliminates the risk of spills or leaks, and structural foam grates remove for easy cleaning. What's more, a back vent reduces fumes and condensation inside, while heavy-duty hinges and lock keep contents secure.

Let's talk costs. The JOB HUT offers substantial savings when compared to similar metal or concrete storage buildings, while providing the same features. In addition, the top of the JOB HUT breaks apart from the bottom and nests inside of it, reducing shipping charges. Once it's assembled, you can still move the Hut since it does not become a fixed structure. Safe, secure, and cost-effective. What more could you ask for in an outdoor secondary containment unit?

Specifications

JOB HUT™	
Product No.	**4010**
Dimensions Assembled:	**99"l x 62"w x 106"h 251.5cm x 157.5cm x 269.2cm**
Dimensions Nested:	**99"l x 62"w x 66"h 251.5cm x 157.5cm x 168cm**
Weight	**500 lbs. / 227 kg**
Load Bearing Capacity	**8000 lbs. / 3632 kg**
Capacity	**66 gallons / 250 liters**

*JOB HUT not fire rated

Load 'em up with the MULTI-PURPOSE WORK RAMP

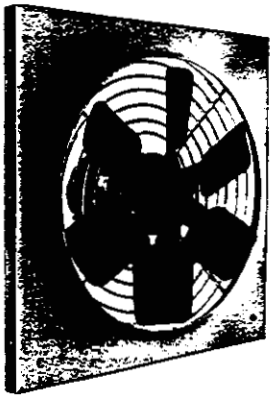
Make loading drums a cinch with the MULTI-PURPOSE WORK RAMP. Light weight and easy to handle, it attaches to the JOB HUT in seconds. Improved non-skid surface eliminates risk of slipping. Plus, it will catch up to two gallons of spillage while loading.

Specifications

MULTI-PURPOSE WORK RAMP	
Product No.	**5111**
Dimensions	**25½" l x 48" w x 7¼" h 65cm x 122cm x 18cm**
Weight	**30 lbs. / 14 kg**
Load Bearing Capacity	**1000 lbs. / 454 kg**
Capacity	**2 gallons / 8 liters**

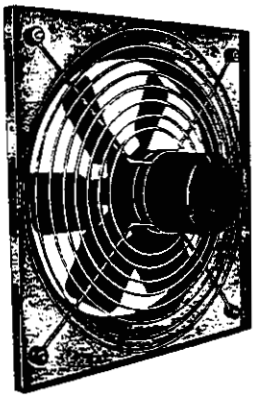
BREEZEWAY TYPE P

INDUSTRIAL / COMMERCIAL / SMALL DIAMETER / DIRECT DRIVE

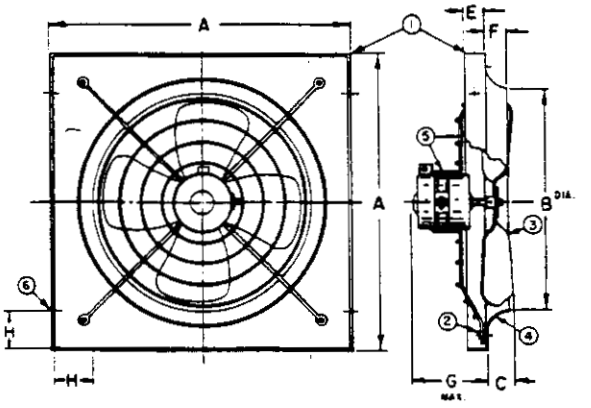


FRONT

BACK



TYPE P
SIZES 10 TO 24



LEGEND

1. Painted Steel Panel
2. Anti-Vibration Mounts
3. Fan Blade
4. Venturi Orifice
5. Wire Guard and Motor Mount
6. Mounting Holes 17/64"

The popular, Type P Bre ...rect drive models, 10" diam ...plit phase, shaded pole an ...are resiliently mounted in t ...are concentric rings of heav ...ons. The spun steel venturis ...ged panel for commercial a ...ted finish is bonded on the p ...des are made of die-formed

EP-2
WHITTER

DIMENSIONAL DATA

FAN DIA.	A	B DIA.	C	E	F	G MAX.	H	APPROX. SHIP WT. (LBS.)
10	15	10¾	2 5/16	1	1½	6	2½	12
12	17	12½	2⅝	1	1½	6	3 15/16	14
16	22¾	17¼	2⅞	1	2	10	4 15/32	30
18	24¼	18¾	2⅞	1	2	10	4 31/32	40
20	26¾	21	2⅞	1	2	10¾	5½	50
24	32¼	25½	4	2	3	12	4⅝	60

ALL DIMENSIONS IN INCHES.

amca CERTIFIED RATINGS AIR

Penn Ventilator certifies that the Type P Breezeway Fans, models 10" through 24", are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Standard 211 and comply with the requirements of the AMCA Certified Ratings Program.

Penn Breezeway Fans are also certified with Canadian Standards Association.

SUGGESTED SPECIFICATIONS

PROPELLER PANEL FANS shall be Penn Breezeway, Type P, direct drive series, manufactured by Penn Ventilator Co., Inc., Philadelphia, PA 19115. Continuous duty motors shall be resiliently mounted in a basket rear guard of concentric rings meeting OSHA specifications. Propeller blades shall be statically and dynamically balanced. Fan panels shall be permanently painted and feature a deep spun steel venturi and welded corners. (Specify accessories from pages 13-15).

PERFORMANCE DATA

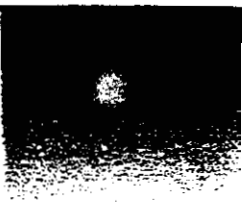
MODEL DIRECT DRIVE	HP	FAN DIAM	RPM	TIP SPD (FPM)	FAN CAPACITY IN CUBIC FEET PER MINUTE (CFM) 0.000" SP CFM	0.125" SP CFM	0.250" SP CFM	0.375" SP CFM	0.500" SP CFM	MAX. BHP	SONES @ .125"
P10V	1/25	10"	1050	2749	545	265					1.9
P10R	1/10		1550	4058	830	610	375				3.1
P12V	1/20	12"	1045	3283	975	645					2.3
P12R	1/7		1550	4869	1110	955	730	385			3.9
P16T	1/8	16"	1140	4775	1680	1410	1000	610	450		6.2
P16Q	1/4		1725	7226	2200	2060	1890	1680	1380		10.6
P18T	1/4	18"	1140	5372	3200	2840	2340	1590	1270		7.4
P18Q	1/2		1725	8129	3735	3530	3275	2975	2570	.555	12.8
P20T	1/3	20"	1140	5969	3795	3470	3060	2330	1500	.400	9.2
P20Q	1		1725	9032	5185	4950	4720	4470	4220	1.000	15.6
P24W	1/2	24"	825	5184	4860	4110	2345	1310		.410	10.1
P24T	3/4		1140	7163	6565	6080	5470	4090	3340	.740	15.0

RPM SHOWN IS NOMINAL AND PERFORMANCE IS BASED ON ACTUAL SPEED OF TEST. PERFORMANCES SHOWN ARE FOR FANS WITHOUT DUCTS. THE AMCA CERTIFIED RATINGS SEAL APPLIES TO AIR CAPACITIES ONLY.

QUARTERHORSE - 1/4 TURN NON-FREEZE WALL HYDRANTS WITH INTEGRAL VACUUM BREAKER

SMITH®
CUSTOMER DRIVEN

S.S. BOX TYPE WITH CONCEALED HOSE CONNECTION

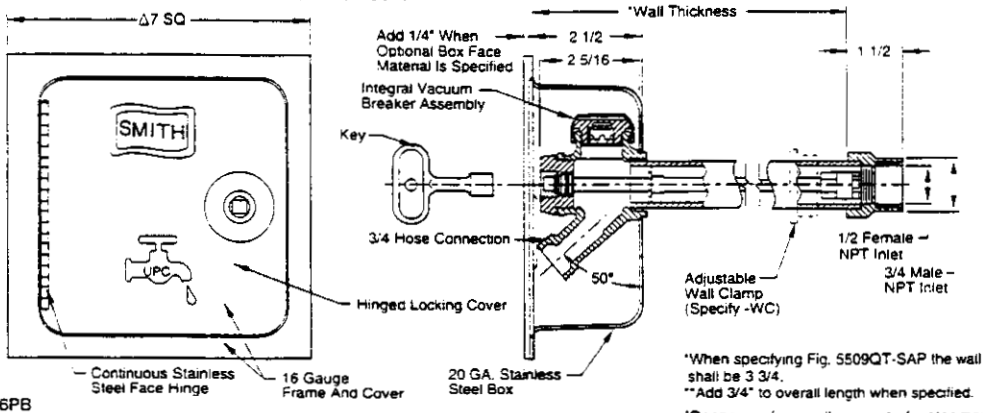


FUNCTION: Provides positive non-freeze protection where water is required at the outside of the building and features an integral vacuum breaker. The stainless steel recessed box conceals the nozzle and operating mechanism. 1/4 turn of the key allows full flow to be obtained. The locking cover prevents unauthorized use.

REGULARLY FURNISHED:
Bronze Nickel Plated Quarter Turn Non-Freeze Hydrant with Hose Connection, Integral Vacuum Breaker, "T" Handle Key, and Stainless Steel Box with Full 180° Cover Opening. This Hydrant meets ANSI A112.21.3 Specifications.

VARIATIONS:
Adjustable Wall Clamp -WC
1" Hose Connection -HC1
**1" Male NPT Inlet Connection -IC1
Cylinder Lock -CL
Mild Climate -SAP
Optional Inlet Connections (See Pg. 5-06)
"Water" On Cover -W

OPTIONAL MATERIALS:
Polished Bronze Box Face -PB
Nickel Bronze Box Face -NB
Rough Bronze Box Face -RB

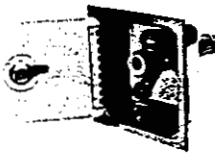


6" Wall PB
eg: 5509QT-06PB

Fig. 5509QT

*When specifying Fig. 5509QT-SAP the wall thickness shall be 3 3/4.
**Add 3/4" to overall length when specified.

[Seepage of a small amount of water may occur from the vacuum breaker upon the initial opening of this hydrant. This is normal operation.]



5509QT

NOTES:
1. ΔRecommended wall opening 6" x 6". Hydrant shall be in the vertical position only, the hose connection must be on the bottom.
2. When ordering, specify wall thickness in 2" increments as follows: 06, 08, 10, 12, 14, 16, 18, 20, 22 or 24. When wall clamp -WC is desired, increase wall thickness dimension by 2".
3. All Jay R. Smith hydrants are manufactured with "NO-LEAD" brazing rings and USDA approved lubricants.
4. When an optional box face material is specified a concealed hinge will be provided, also add 1/4" to flange thickness.

NOTES:

HB-2

WHITTER

APPENDIX G

Chenega EVOS Station Preliminary Design
March 7, 1997

Chenega EVOS Station
Preliminary Design

Prepared for
Prince William Sound Economic Development Council

March 7, 1997

Stephl Engineers
2525 Blueberry, Suite 203
Anchorage, Alaska 99503
(907) 274-7170

In association with
USKH

CONTENTS

Section 1
Purpose of Preliminary Design Memorandum

The purpose of this submittal is to present the proposed preliminary design of the Environmental Operation Stations (EVOS Stations) project. This memorandum will be reviewed and evaluated by members of the Sound Waste Management Plan (SWMP) Committee.

A SWMP Committee meeting was held on January 28, 1997, in Anchorage, to discuss the conceptual design, make changes and answer questions about the proposed projects.

A second SWMP Committee meeting will be held during March. The purpose of this meeting is to receive input from the stakeholders before proceeding with the final design and construction of the facilities.

This project is being designed by Stephl Engineers in association with USKH. Stephl Engineers is under contract to the Prince William Sound Economic Development Council, Inc. (PWSEDC), the organization managing the project. The Alaska Department of Environmental Conservation (ADEC) is the lead state agency administering the project.

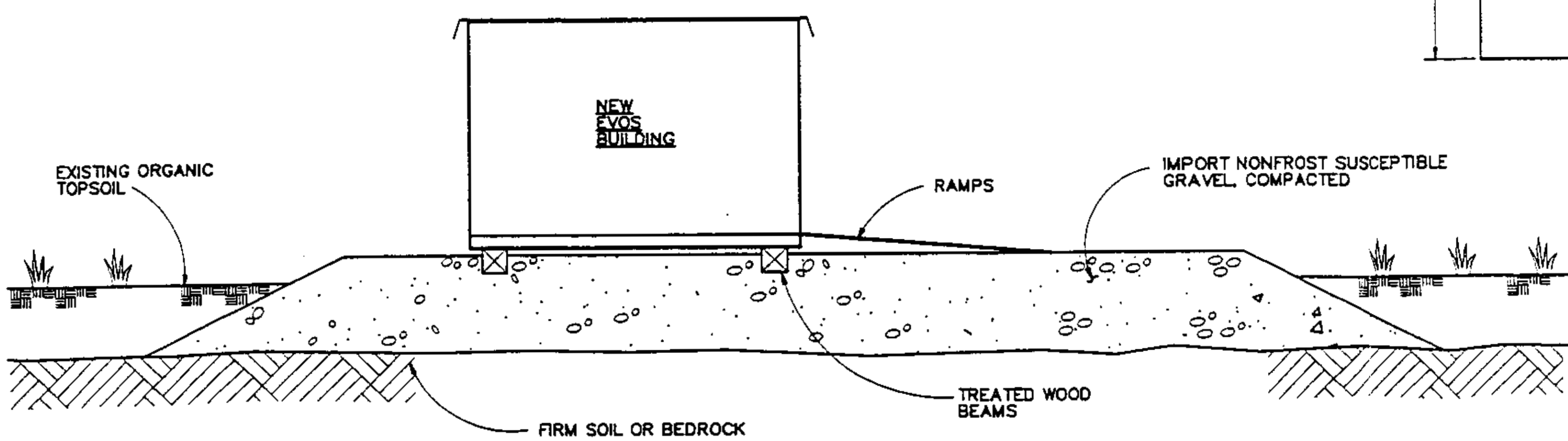
Section 2
Project Description

The EVOS Station design has been modified, based on what we learned during the conceptual design, and from input received during the first Sound Waste Management Plan (SWMP) meeting held in January. The purpose of the modifications is to better meet the goals of the community as well as maintaining the project within the available funding limit.

The project will still accomplish the overall goal of preventing marine pollution that is generated from the five Prince William Sound communities.

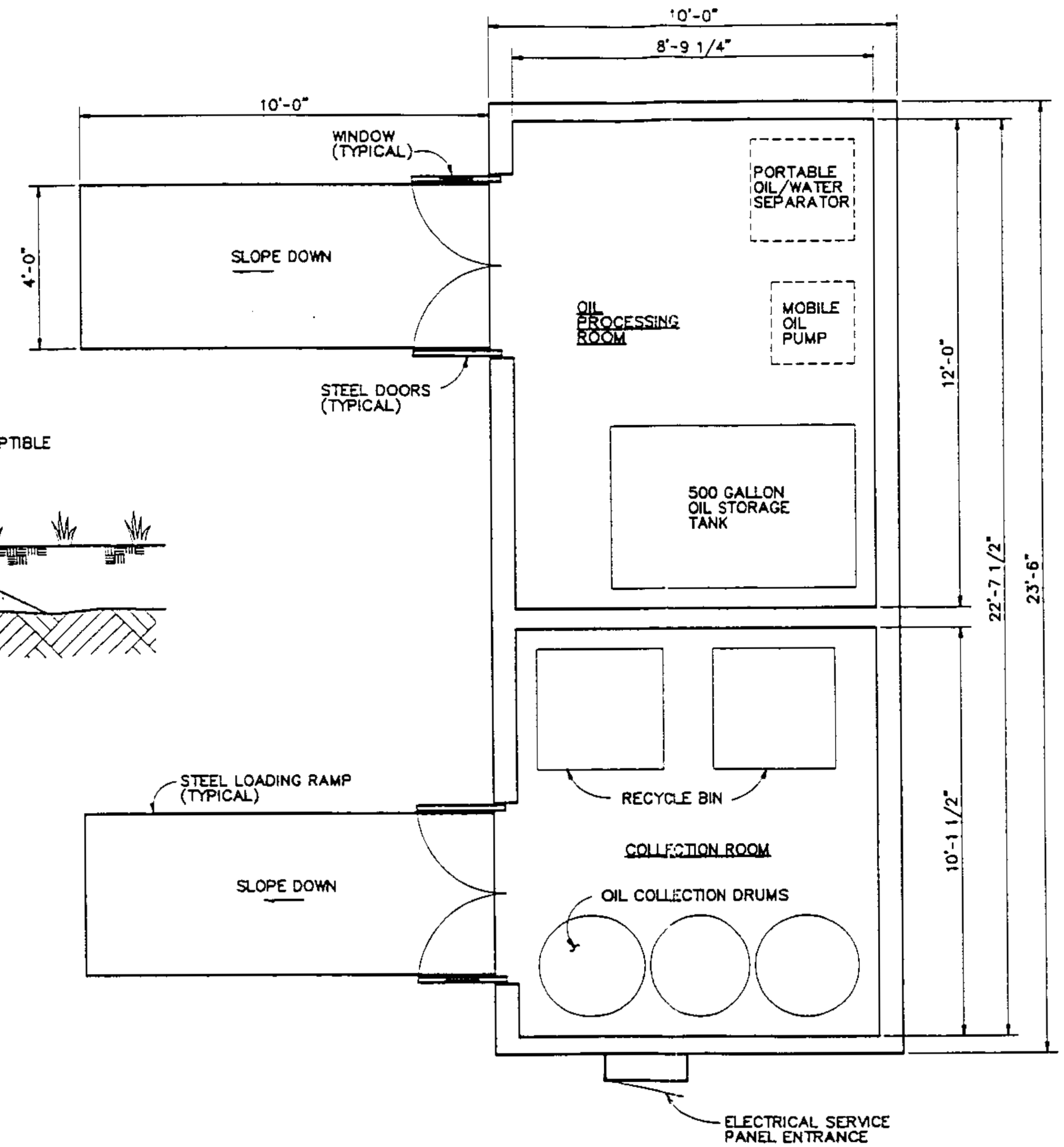
The purpose of the EVOS Station in Chenega is to handle used oil and provide storage for recycled materials.

The recommended first priority is to have the new EVOS Station building installed. It is proposed that a prefabricated 10 foot wide by 24 foot long steel building designed to store oil and recyclable materials be purchased and installed in the community. This structure is available for purchase as a single piece of equipment and is totally self-contained. The steel building comes with containment sumps and is approved for storage of oily and recyclable wastes. The building will sit on a gravel pad constructed at a site selected by the community. The EVOS Station will not be connected to the water and sewer system. Electricity will be connected to the building. The following figure shows the proposed building and gravel pad.



TYPICAL GRAVEL PAD

NTS



10'-0"
8'-9 1/4"
10'-0"
WINDOW (TYPICAL)
4'-0"
SLOPE DOWN
PORTABLE OIL/WATER SEPARATOR
OIL PROCESSING ROOM
MOBILE OIL PUMP
STEEL DOORS (TYPICAL)
500 GALLON OIL STORAGE TANK
12'-0"
22'-7 1/2"
23'-6"
STEEL LOADING RAMP (TYPICAL)
RECYCLE BIN
COLLECTION ROOM
SLOPE DOWN
OIL COLLECTION DRUMS
10'-1 1/2"
ELECTRICAL SERVICE PANEL ENTRANCE

PREFABRICATED EVOS STATION BUILDING

1/4"=1'-0"

70%
SUBMITTAL
3/07/97

Date Stamped:

By	Revision	Date

STEPHL ENGINEERS
2525 Blueberry, Ste. 203
Anchorage, Alaska 99503
(907) 274-7170
(907) 277-4722 FAX

USKH
Architecture • Engineering
Land Surveying • Planning
2515 'A' Street
Anchorage, Alaska 99503
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(907) 258-4653 FAX

Project: TATITLEK & ~~CORDOVA~~ CHENE
EVOS STATION

PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.
Drawn	VND
Drawn	
Checked	
Date	3-07-97

Sheet Contents:

FLOOR PLAN

Sheet No.:

C1

STEPHL W.O. 9615

USKH W.O. 510604

PLOT SCALE:

FILE NAME:

on wheels. Clean liquid from the separator will be discharged directly into a sewer manhole.

The mobile pump and hoses are needed to transfer oil products from the daily collection tanks, transfer clean oil for shipment to other oil heating units in the community, etc. This will be a gear pump that is driven by an explosion proof electric motor.

Miscellaneous equipment will include hoses and fittings to transfer and dispose of oil and bilge water.

O&M manual and training will include development of an O&M manual for equipment in the building and recommendations for handling and disposal of collected materials. Manufacturers equipment operation manuals will be included in the O&M manual. The extent of training has not been determined. One recommendation was to gather all the operators together and have a materials disposal specialist provide a training seminar.

A 125,000 BTU used oil heating unit will be purchased and supplied to the community. Chenega will be responsible for designing and installing the heater in a location selected by the community.

The portable bilge water pump and tank will be a unit containing a 75 gallon single wall steel tank and electric pump with a suction hose. This piece of equipment will be fabricated specifically for this purpose. It will be mounted on wheels and weigh less than 1000 pounds when loaded. The unit will be designed to be pulled behind an ATV or other piece of equipment. Operation of the unit be accomplished by placing the suction line into the bilge and manually turning on the suction pump. The user or operator will watch the level of liquid in the adjacent steel tank and turn off the pump when pumping is complete or when the skid mounted tank is full. The tank will have a level gauge or sight glasses installed to determine the liquid level. Permanent piping and valves installed between the tank and pump will allow the user to both fill and empty the tank with the pump as needed. The pump will be provided with an explosion proof electric motor to reduce the chance of fire if flammable or explosive products are pumped by accident. A diaphragm type pump is recommended. A typical 2-inch diameter pump is capable of pumping up to a 25 foot suction lift at 20 gpm or 33 gpm at a 15 foot lift.

The oil filter crusher will be a Oberg model P100WM electric/hydraulic unit capable of crushing automotive and light industrial size filters. It mounts on the wall.

The oily material burner will be a SmartAsh model that is power by two 120V blowers. This unit fits on a 55 gallon drum.

Section 4
Project Schedule

The proposed schedule for this project is shown on the following bar chart.

TABLE 3-D—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS PRESENTING A PHYSICAL HAZARD
MAXIMUM QUANTITIES PER CONTROL AREA[1]
When two units are given, values within parentheses are in cubic feet (cu. ft.) or pounds (lbs.)

CONDITION		STORAGE[2]			USE[2]—CLOSED SYSTEMS			USE[2]—OPEN SYSTEMS	
Material	Class	Solid Lbs.[3] (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons[3] (Lbs.) × 3.785 for L × 0.4536 for kg	Gas Cu. Ft. × 0.0283 for m³	Solid Lbs. (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons (Lbs.) × 3.785 for L × 0.4536 for kg	Gas Cu. Ft. × 0.0283 for m³	Solid Lbs. (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons (Lbs.) × 3.785 for L × 0.4536 for kg
1.1 Combustible liquid[4,5,6,7,8,9]	II	N.A.	120[10]	N.A.	N.A.	120	N.A.	N.A.	30
	III-A	N.A.	330[10]	N.A.	N.A.	330	N.A.	N.A.	80
	III-B	N.A.	13,200[10,11]	N.A.	N.A.	13,200[11]	N.A.	N.A.	3,300[11]
1.2 Combustible fiber (loose) (baled)		(100) (1,000)	N.A. N.A.	N.A. N.A.	(100) (1,000)	N.A. N.A.	N.A. N.A.	(20) (200)	N.A. N.A.
1.3 Cryogenic, flammable or oxidizing		N.A.	45	N.A.	N.A.	45	N.A.	N.A.	10
2.1 Explosives[12]		(1)[10,13]	(1)[10,13]	N.A.	1/4	(1/4)	N.A.	1/4	(1/4)
3.1 Flammable solid		125[6,10]	N.A.	N.A.	[14]	N.A.	N.A.	[14]	N.A.
3.2 Flammable gas (gaseous) (liquefied)		N.A. N.A.	N.A. 15[6,10]	750[6,10] N.A.	N.A. N.A.	N.A. 15[6,10]	750[6,10] N.A.	N.A. N.A.	N.A. N.A.
3.3 Flammable liquid[4,5,6,7,8,9]	I-A	N.A.	30[10]	N.A.	N.A.	30	N.A.	N.A.	10
	I-B	N.A.	60[10]	N.A.	N.A.	60	N.A.	N.A.	15
	I-C	N.A.	90[10]	N.A.	N.A.	90	N.A.	N.A.	20
	Combination I-A, I-B, I-C[15]	N.A.	120[10]	N.A.	N.A.	120	N.A.	N.A.	30
4.1 Organic peroxide, unclassified detonatable		(1)[10,12]	(1)[10,12]	N.A.	1/4[12]	(1/4)[12]	N.A.	1/4[12]	(1/4)[12]
4.2 Organic peroxide	I	50[6,10]	(5)[6,10]	N.A.	1[6]	(1)[6]	N.A.	1[6]	(1)[6]
	II	50[6,10]	(50)[6,10]	N.A.	50[6]	(50)[6]	N.A.	10[6]	(10)[6]
	III	125[6,10]	(125)[6,10]	N.A.	125[6]	(125)[6]	N.A.	25[6]	(25)[6]
	IV	500[6,10]	(500)[6,10]	N.A.	500[6]	(500)[6]	N.A.	100[6]	(100)[6]
	V	N.L.	N.L.	N.A.	N.L.	N.L.	N.A.	N.L.	N.L.
4.3 Oxidizer	4	1[10,12]	(1)[10,12]	N.A.	1/4[12]	(1/4)[12]	N.A.	1/4[12]	(1/4)[12]
	3[16]	10[6,10]	(10)[6,10]	N.A.	2[6]	(2)[6]	N.A.	2[6]	(2)[6]
	2	250[6,10]	(250)[6,10]	N.A.	250[6]	(250)[6]	N.A.	50[6]	(50)[6]
	1	4,000[6,10]	(4,000)[6,10]	N.A.	4,000[6]	(4,000)[6]	N.A.	1,000[6]	(1,000)[6]
4.4 Oxidizer—gas (gaseous)[6,10] (liquefied)[6,10]		N.A. N.A.	N.A. 15	1,500 N.A.	N.A. N.A.	N.A. 15	1,500 N.A.	N.A. N.A.	N.A. N.A.
5.1 Pyrophoric		2[10,12]	(4)[10,12]	50[10,12]	1[12]	(1)[12]	10[10,12]	0	0
6.1 Unstable (reactive)	4	1[10,12]	(1)[10,12]	10[10,12]	1/4[12]	(1/4)[12]	2[10,12]	1/4[12]	(1/4)[12]
	3	5[6,10]	(5)[6,10]	50[6,10]	1[6]	(1)[6]	10[6,10]	1[6]	(1)[6]
	2	50[6,10]	(50)[6,10]	250[6,10]	50[6]	(50)[6]	250[6,10]	10[6]	(10)[6]
	1	N.L.	N.L.	750[6,10]	N.L.	N.L.	N.L.	N.L.	N.L.
7.1 Water reactive	3	5[6,10]	(5)[6,10]	N.A.	5[6]	(5)[6]	N.A.	1[6]	(1)[6]
	2	50[6,10]	(50)[6,10]	N.A.	50[6]	(50)[6]	N.A.	10[6]	(10)[6]
	1	125[10,11]	(125)[10,11]	N.A.	125[11]	(125)[11]	N.A.	25[11]	(25)[11]

N.A.—*Not applicable.* N.L.—*Not limited.*

[1]Control areas shall be separated from each other by not less than a one-hour fire-resistive occupancy separation. The number of control areas within a building used for retail or wholesale sales shall not exceed two. The number of control areas in buildings with other uses shall not exceed four. See Section 204.

[2]The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

[3]The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials within a single control area of Group M Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

[4]The quantities of alcoholic beverages in retail sales uses are unlimited provided the liquids are packaged in individual containers not exceeding four liters.

The quantities of medicines, foodstuffs and cosmetics containing not more than 50 percent of volume of water-miscible liquids and with the remainder of the solutions not being flammable in retail sales or storage occupancies are unlimited when packaged in individual containers not exceeding four liters.

[5]For aerosols, see the Fire Code.

[6]Quantities may be increased 100 percent in sprinklered buildings. When Footnote 10 also applies, the increase for both footnotes may be applied.

[7]For storage and use of flammable and combustible liquids in Groups A, B, E, F, H, I, M, R, S and U Occupancies, see Sections 303.8, 304.8, 305.8, 306.8, 307.1.3 through 307.1.5, 308.8, 309.8, 310.12, 311.8 and 312.4.

[8]For wholesale and retail sales use, also see the Fire Code.

[9]Spray application of any quantity of flammable or combustible liquids shall be conducted as set forth in the Fire Code.

[10]Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the Fire Code. When Footnote 6 also applies, the increase for both footnotes may be applied.

[11]The quantities permitted in a sprinklered building are not limited.

[12]Permitted in sprinklered buildings only. None is allowed in unsprinklered buildings.

[13]One pound of black sporting powder and 20 pounds (9 kg) of smokeless powder are permitted in sprinklered or unsprinklered buildings.

[14]See definitions of Divisions 2 and 3 in Section 307.1.

[15]Containing not more than the exempt amounts of Class I-A, Class I-B or Class I-C flammable liquids.

[16]A maximum quantity of 200 pounds (90.7 kg) of solid or 20 gallons (75.7 L) of liquid Class 3 oxidizers may be permitted in Groups I, R and U Occupancies when such materials are necessary for maintenance purposes or operation of equipment as set forth in the Fire Code.

Exterior walls, nonbearing = 1 hr < 20 ft.

Openings: Not permitted < 5 ft.
Protected < 10 ft.

Allowable Floor Areas: Table 5-B

F-1, S-1, II-N = 12,000 square feet.

Actual Floor Area: 216 square feet

The actual area is less than the allowable area and therefore the building complies.
Area increases are not required and neither are area separation walls.

Allowable Height and number of stories: Table 5-B

F-1, S-1 II N Max height = 2 stories 55 ft.

The building complies.

Review the building for conformity with the occupancy requirements.

302.5 Heating Equipment Room Occupancy Separation. In Groups A; B; E; F; I; M; R, Division 1; and S Occupancies, rooms containing a boiler, central heating plant or hot-water supply boiler shall be separated from the rest of the building by not less than a one-hour occupancy separation.

EXCEPTIONS: In Groups A, B, F, I, M and S Occupancies, boilers, central heating plants or hot water supply boilers where the largest piece of fuel equipment does not exceed 400,000 Btu per hour (117.2kW) input.

NOTE: Heating equipment is less than 400,000 BTU per hour, therefore separation is not required.

Section 306, F occupancies (F1). #35 Refuse Incineration

306.5 Light, Ventilation and Sanitation. In Group F Occupancies, light, ventilation and sanitation shall be as specified in Chapter 12 and 29. At least 6 continuous air changes per hour will be required.

306.8 Special Hazards. For special hazards of Group F Occupancies, see Section 304.8

304.8 Special Hazards. Chimneys and heating apparatus shall conform to the requirements of Chapter 31 of this code and the Mechanical Code.

Federal Permits

To meet the requirements for EVOS funded projects, a document will be prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project.

An Environmental Assessment (EA) will be completed and published for comment by the public for 30 days. Comments received will be incorporated into the final EA. Assuming there are no significant impacts identified, it is anticipated the USFS will approve the EA.

Section 8
Community Authorization and Acceptance of Project

Before construction of the EVOS Stations can proceed. Valdez will be required to authorize and accept responsibility for operation of the proposed facilities. Phase II construction will be approved by EVOS and ADEC, after the appropriate legally binding notarized Letter of Agreement with Valdez is received. This agreement must be signed by an executive officer of the community who is legally entitled to obligate the community and the Executive Director of the PWSEDC. The letter of agreement must contain, but is not limited to, agreement that:

A.) The community will obtain all titles, easements, and permits necessary to provide clear title and authority to construct and maintain the proposed project.
B.) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management, and maintenance of the EVOS facility after construction has been completed. Accidental discharge of waste products from the facilities, after final transfer to the community had been affected, is the sole responsibility of the community where the accident occurs. In the event of an accident, PWSEDC, its agents, subcontractors, and consultants will be held harmless for resultant damages.
C.) The PWSEDC and its subcontractors may enter upon the community's property and construct the project.
D.) The location, construction, and management of these buildings will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream, or body of water.
E.) The PWSEDC and the community will hold harmless, the ADEC and the EVOS Trustee Council, its officers, agents, and employees from liability of any kind, including costs and expenses, for or on account of any and all suits or damages of any nature, sustained by any person, persons or property, by virtue of performance of the PWSEDC or community acting in place of or for PWSEDC for this project.

Dismas Pumps

Monday, February 03, 1997

GEAR PUMP
OIL
TRANSFER

Matt Stephl
Stephl Engineering
2525 Blueberry, Ste #203
Anchorage, AK 99503

Dear Matt Stephl

Reference: **Dismas Pumps** - High-Volume Pump Systems

Thank you for your interest in Dismas Pumps extensive line of positive displacement, gear driven transfer pumps. Requested information is enclosed.

DISMAS PUMPS PROVIDES:

- Explosion Proof Pumping System for operating in hazardous environments.
- All Dismas pumps can be operated dry with no damage and are self-priming.
- 12 and 24 volt DC pumps that will pump 40 WT oil at 40 F up to 40 GPM & diesel up to 70 GPM.
- Lightweight 110/220 volt AC pumps that will transfer heavy viscous materials such as motor oils & gear lubes. UL & CSA listed motors.

These innovative pumps are currently transferring fluids for hundreds of satisfied customers from commercial and industrial to bulk oil distributors for Pennzoil, Exxon, Chevron, Unocal and Texaco.

To place your order, Fax your credit application along with your confirming Purchase Order to Fax # 406-245-5606 or call (800) 874-8976.

Sincerely,

CAROL STIGEN
Dismas Pumps

P.O. Box 80008, Billings, MT 59108-0008 1110 Maggie Lane, Billings, MT 59101 406-259-8282 800-874-8976 Fax 406-245-5606

DISMAS

PRODUCT NO.	DESCRIPTION	LIST-96
#3001	GP8-AC-100-EP:EXPLOSION-PROOF AC,1.5 HP,2.5:1 RATIO	$1,810.00
#3002	GP8-AC-102-EP:EXPLOSION-PROOF AC,1.5 HP,3:1 RATIO	
#3003	GP8-AC-103-EP:EXPLOSION-PROOF AC,1.5 HP,3:1 RATIO	
#3101	GP8-AC-100-EP-BP: W/BY-PASS	$2,110.00
#3102	GP8-AC-102-EP-BP: W/BY-PASS	
#3103	GP8-AC-103-EP-BP: W/BY-PAS	
#3501	GP8-AC-150-EP:EXPLOSION-PROOF AC,1.5HP,2.5:1 RATIO	$2,998.00
#3502	GP8-AC-152-EP:EXPLOSION-PROOF AC,1.5HP,3:1 RATIO	
#3503	GP8-AC-153-EP:EXPLOSION-PROOF AC,1.5HP,3:1 RATIO	
#3521	GP8-AC-150-EP: W/DRIP CONTAINMENT TANK	$3,190.00
#3522	GP8-AC-152-EP: W/DRIP CONTAINMENT TANK	
#3523	GP8-AC-153-EP: W/DRIP CONTAINMENT TANK	
#3601	GP8-AC-150-EP-BP: W/SWIVEL 90 ELBOWS	$3,326.00
#3602	GP8-AC-152-EP-BP: W/SWIVEL 90 ELBOWS	
#3603	GP8-AC-153-EP-BP: W/SWIVEL 90 ELBOWS	
#3621	GP8-AC-150-EP-BP: W/SWIVEL ELBOWS, TANK	$3,410.00
#3622	GP8-AC-152-EP-BP: W/SWIVEL ELBOWS, TANK	
#3623	GP8-AC-153-EP-BP: W/SWIVEL ELBOWS, TANK	
#3641	GP8-AC-150-EP-BP: W/SWIVEL ELBOWS,TANK, NOZZLE	$3,830.00
#3642	GP8-AC-152-EP-BP: W/SWIVEL ELBOWS,TANK, NOZZLE	
#3643	GP8-AC-153-EP-BP: W/SWIVEL ELBOWS,TANK, NOZZLE	
#2901	GP8-AC-200: 110/230 VOLT AC, 1 1/2 HP, 2.5:1 RATIO	$2,220.00
#2902	GP8-AC-202: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	
#2903	GP8-AC-203: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	
#2921	SAME AS #2901 W/DRIP CONTAINMENT TANK	$2,310.00
#2922	SAME AS #2902 W/DRIP CONTAINMENT TANK	
#2923	SAME AS #2903 W/DRIP CONTAINMENT TANK	
#2951	GP8-AC-200-BP: W/BY-PASS	$2,520.00
#2952	GP8-AC-202-BP: W/BY-PASS	
#2953	GP8-AC-203-BP: W/BY-PASS	
#2971	SAMES AS #2951 W/DRIP CONTAINMENT TANK	$2,610.00
#2972	SAMES AS #2952 W/DRIP CONTAINMENT TANK	
#2973	SAMES AS #2953 W/DRIP CONTAINMENT TANK	

NOTE: ALL DC & AC MOTORS ARE UL & CSA LISTED

TERMS & CONDITIONS:

TERMS ARE 2%-10/NET 30 DAYS, WITH APPROVED CREDIT
ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE
ALL PRICES ARE F.O.B. OUR WAREHOUSE - BILLINGS, MT
MINIMUM ORDER - $25.00

Dismas Pumps

GP8 Mobile Pump Series

This series of general purpose AC-operated pumps can transfer high volumes of light to heavy viscous products with low energy requirements. These versatile pumps are cart-mounted for mobility and are designed to transfer light viscous products such as diesel fuel as well as heavier viscous products such as 250 wt. gear lube.

TYPICAL APPLICATIONS

The AC-150-BP typical applications include direct transfer from 55 gallon drums of light to heavy viscous products and from stationary containers such as totes, and above ground and below ground tanks. These products include diesel fuel, gear lubes, hydraulic oil, motor oil, lubrication oil, antifreeze and industrial products. The AC-150-EP-BP explosion-proof models transfer multi-viscosity liquids such as aviation fuel, paints, gasoline, home heating fuel, waste oil, lacquers and thinners and are operational in explosive atmospheres.

SPECIAL APPLICATIONS

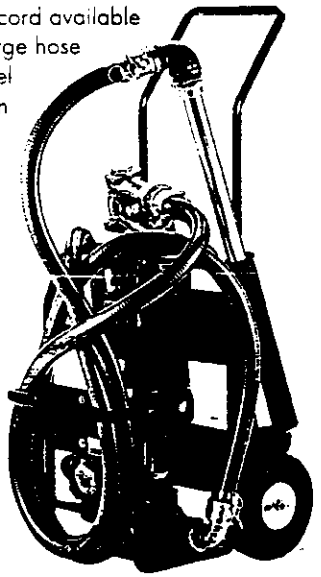
Special applications include auxiliary fire pump, emergency standby pump, factory processing tanks and fire retardant foam.

AC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Custom manufactured needle bearings with inner rings*
- *Viton seals (Optional Buna/nitrile available)*
- *Self priming*
- *Can be operated dry*
- *115/230 volts AC capabilities*
- *By pass*
- *Operational with manual and automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *Complete mobile pumping unit*
- *Designed for mobile transferring of your products*
- *UL and CSA listed motors*
- *Long life durability*
- *One year warranty*

Model AC-150-BP features:

- Pumps in either direction with optional forward/reverse switch
- On/off switch with 12" pigtail
- Can be operated with 100' of 12 gauge 3 conductor portable power cord
- Optional portable power cord available
- 10' of suction and discharge hose
- Complete with carbon steel suction tube and aluminum bung adapter
- Open flow down spout
- Model GP8-AC-150 for multipurpose transferal
- Model GP8-AC-152 for light viscous products, such as diesel fuels and antifreeze transferal
- Model GP8-AC-153 for heavy oils and gear lube transferal
- Optional discharge hose up to 40'



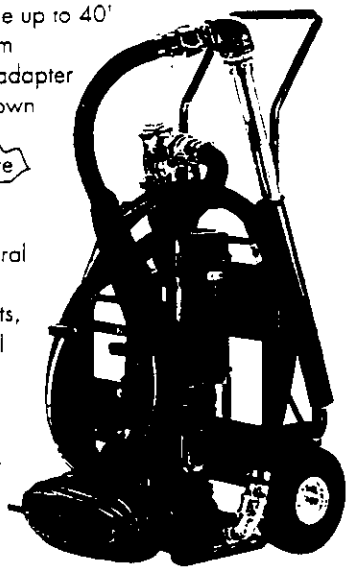
Dimensions

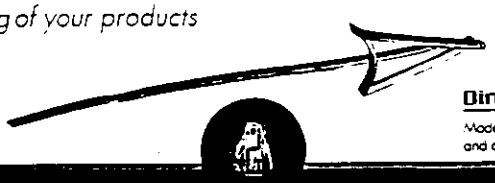
HEIGHT - 52" (Handle) WIDTH - 26" DEPTH - 24"

Model shown with by pass, 90° swivel elbows, manual shut off nozzle and containment tank.

Model AC-150-EP-BP features:

- Built in on/off switch
- Comes standard with 100' of 12 gauge 3 conductor portable power cord
- 10' of suction and discharge gasoline/oil hose
- Optional discharge hose up to 40'
- Complete with aluminum suction tube and bung adapter
- Aluminum open flow down spout
- Operational in explosive atmospheres
- Model GP8-AC-150-EP for multipurpose transferal
- Model GP8-AC-152-EP for light viscous products, such as gasoline, diesel fuels and antifreeze transferal
- Model GP8-AC-153-EP for heavy oils and gear lubes transferal





Dimensions HEIGHT - 52" (Handle) WIDTH - 26" DEPTH - 27"

Model shown with by pass, 90° swivel elbows, manual shut off nozzle and containment tank.

Dismas Pumps

GP8 DC Stationary Pump Series

Dismas Pumps
P.O. Box 80008
Billings, MT 59108-0008
(406) 259-8282
[illegible] Maggie Lane
Billings, MT 59101
TOLL FREE (800) 874-8976
FAX (406) 245-5606

This series of stationary mounted DC- operated pumps offers high volume transfer of liquids with low energy requirements. Designed as a refueling pump, the explosion-proof model DC-050-EP-BP pumps diesel fuel, gasoline and other explosive products up to 60 gallons per minute. Model DC-100-EP-BP pumps gasoline, diesel fuel, motor oil and gear lubes up to 70 gallons per minute. (Also available in the non-explosion proof model DC-100-BP.) *All models available in both 12 and 24 volt DC.

TYPICAL APPLICATIONS

Typical applications for this series include transferring products from stationary containers or delivery vehicles. DC-050-EP-BP transfers light viscous explosive products including water, aviation fuel, home heating fuel, solvents, diesel fuel, gasoline, antifreeze and thinners. In addition to the products above, the DC-100-EP-BP transfers light to heavy viscous products such as diesel fuel, motor oil, antifreeze, hydraulic oil, lubrication oil, gear lubes, waste oil, paints, lacquer and gasoline.

SPECIAL APPLICATIONS

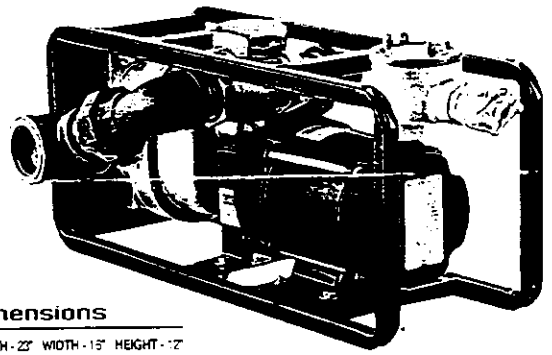
Special applications for this series include auxiliary fire pump, irrigation pump, shallow well pump and aircraft refueling.

DC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Oillite brass bushings (DC-050-EP-BP only)*
- *Viton seals*
- *Self priming*
- *Can be operated dry*
- *Pumps in either direction*
- *By pass*
- *Operational with manual or automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *Long life durability*
- *One year warranty*
- *Custom manufactured needle bearings with inner rings (DC-100-BP and EP only)*

Model DC-050-EP-BP features:

- 12 volt 60 amps and 24 volt 30 amps DC operated
- UL and CSA approved class 1, division 1, group D motors
- Commercial/Industrial applications
- Buna/nitrile seals available
- Optional 6/2 power cord

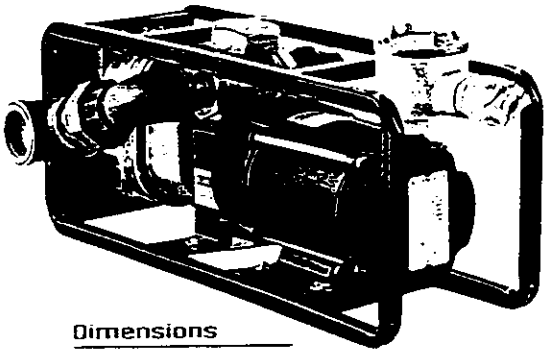


Dimensions

LENGTH - 25" WIDTH - 15" HEIGHT - 12"
(Shown with By pass)

Model DC-100-EP-BP features:

- 12 volt 100 amps and 24 volt 50 amps DC operated
- Operational in explosive environments
- Designed for refueling up to 70 gallons per minute of gasoline, diesel fuel or other explosive products
- Antifreeze transferal
- Hydraulic oils transferal
- Motor oils and gear lubes transferal
- Transferal of 40 wt. motor oil at 40°F up to 40 gallons per minute
- Industrial fluids such as paint and ink transferal
- UL and CSA approved class 1, division 1, group D motors
- Buna/nitrile seals available
- Optional 4/2 power cord
- Non-explosion proof model available

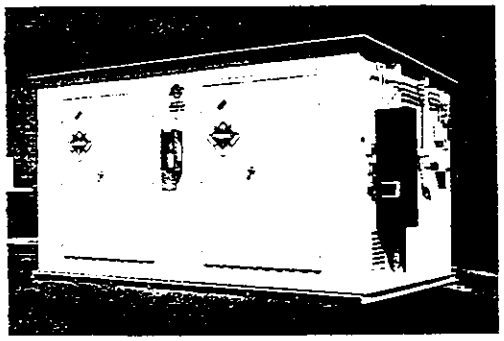


Dimensions

LENGTH - 25" WIDTH - 15" HEIGHT - 12"
(Shown with By pass)

NOTHING ELSE IN SHORT DISTANCE!

SAFETY STORAGE®



Steel and 2-Hour Fire-Rated Prefabricated Storage Buildings

Safety Storage® prefabricated, weather-proof buildings offer a low cost solution to protect your facility from chemical hazards, provide secondary containment for soil and groundwater protection, minimize liability, meet fire safety needs, and safeguard personnel.

These relocatable, turnkey buildings are available in a wide choice of building sizes and storage capacities, at a potential 60% savings over the cost of permanent structures. They are designed to Factory Mutual System standards and utilize UL listed components throughout.

Safety Storage buildings are designed to comply with all federal, state, and local regulations and can be pre-engineered to meet special structural, electrical, fire, and ventilation requirements.

Safety Storage is the nation's leading manufacturer of prefabricated chemical and hazardous material storage buildings. Custom engineering assistance and special application buildings are offered to meet specific requirements.

FEATURES

Steel Buildings

- Walls and sump walls constructed of heavy-gauge welded steel
- Roof/ceiling constructed of heavy-gauge steel
- Single-leaf doors

FireShield Buildings

- UL Classified two-hour fire-rated, non-combustible construction
- Air inlet vents equipped with 1½ hour UL Classified fire dampers
- UL Classified three-hour fire-rated double doors with UL listed frame and hardware. Active door equipped with self door closer, security lock, and interior safety release

All Buildings

- Chemical resistant coated surfaces***
- Water sprinkler piping assembly
- Secondary containment sump, with steel floor grating
- Open-channel construction for visual inspection and crane/forklift openings
- Security locks with interior safety release
- Natural ventilation
- Static grounding system
- Hold-down brackets
- Hazard placards and labeling
- One-year limited warranty

OPTIONS (partial list)

- Stainless steel lining**
- Lighting, heating, air conditioning, and refrigeration systems*
- Electromechanical exhaust ventilation system(s)*
- Dry chemical fire suppression system(s)
- Insulation
- Liquid level detectors*
- Interior wall(s) and shelving
- Chemical resistant sump liner
- Explosion relief construction
- Safety showers and eye wash units
- Sump overflow fitting(s) with cap
- Loading ramp(s)
- Fiberglass floor grating
- Epoxy coated plywood flooring

**Explosion-proof and non-explosion proof available.*

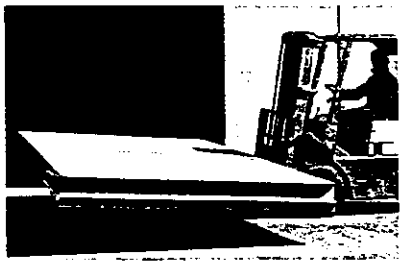
****Stainless steel lining on interior walls and/or ceiling recommended when corrosive materials are dispensed inside of building.*

Model	Nominal Dimensions			Inside Dimensions			Tare Weight (Lbs.)	Door Openings		Designed Storage Capacity			Sump Capacity (Gallons)
	Length*	Width	Height	Length	Width	Height		Height	Width	Weight (lbs.)†	Sq. Ft.	Drums**	
40	41'6"	11'6"	9'	40'8"	10'8¼"	7'3¼"	29,000	6'9"	4'6"	217,000	434	100	1815
32	33'6"	11'6"	9'	32'7½"	10'8¼"	7'3¼"	23,325	6'9"	4'6"	174,250	348	86	1460
24	25'6"	11'6"	9'	24'7½"	10'8¼"	7'3¼"	17,600	6'9"	4'6"	131,500	263	63	1100
22	23'6"	10'	9'	22'7½"	8'9¼"	7'3¼"	16,750	6'9"	4'6"	99,000	198	46	830
15	16'6"	10'	9'	15'3½"	8'9¼"	7'3¼"	8,775	6'9"	4'6"	67,000	134	32	560
7	9'	10'	9'	7'11¼"	8'9¼"	7'3¼"	5,250	6'9"	4'6"	34,750	69	16	290
40FS	41'6"	11'6"	9'	40'	10'	7'1"	44,000	6'7⅜"	4'10¾"	200,000	400	100	1675
32FS	33'6"	11'6"	9'	31'11½"	10'	7'1"	35,300	6'7⅜"	4'10¾"	160,000	320	80	1340
24FS	25'6"	11'6"	9'	23'11½"	10'	7'1"	26,575	6'7⅜"	4'10¾"	120,000	240	60	1000
22FS	23'6"	10'	9'	21'11½"	8'1¼"	7'1"	24,025	6'7⅜"	4'10¾"	89,000	178	44	750
15FS	16'6"	10'	9'	14'7½"	8'1¼"	7'1"	13,975	6'7⅜"	4'10¾"	59,250	118	28	500
7FS	9'	10'	9'	7'3½"	8'1¼"	7'1"	8,125	6'7⅜"	4'10¾"	29,500	59	12	250
6FS	7'6"	7'	8'6"	5'11¾"	5'3"	6'8"	3,500	6'7⅜"	4'10¾"	15,500	31	5	131
10FS	11'6"	7'	8'6"	9'8"	5'3"	6'8"	8,000	6'7⅜"	4'10¾"	22,000	44	11	210

*Includes hold-down brackets. **55 gallon drums. † with steel grating.

(Dimensions shown above are for planning purposes only. Exact dimensions provided by written quotation.)

SAFETY STORAGE® Secondary Containment Products



Hazardous Liquid Spill Containment Sumps

Safety Storage Spill Containment Sumps provide secondary containment storage for hazardous chemicals. The sumps are available in five standard sizes to accommodate up to eighty 55-gallon drums and have a spill capacity of up to 1460 gallons. They may be used inside or outside with a minimum of site preparation.

Model	Nominal Dimensions			Storage Capacity Max.		Sump Capacity Gallons	Tare Weight (Lbs.)
	Length*	Width	Height	Sq. Ft.	Drums**		
32S	33'6"	11'1¾"	11⅛"	371	80	1460	6140
24S	25'7"	11'1¾"	11⅛"	283	60	1100	4610
22S	23'6"	10'	11⅛"	198	46	830	3085
15S	16'6"	10'	11⅛"	134	32	560	2070
7S	9'	10'	11⅛"	69	16	290	1050

*Includes hold-down brackets. **55 gallon drums. † with steel grating.
(Dimensions shown above are for planning purposes only. Exact dimensions provided by written quotation.)

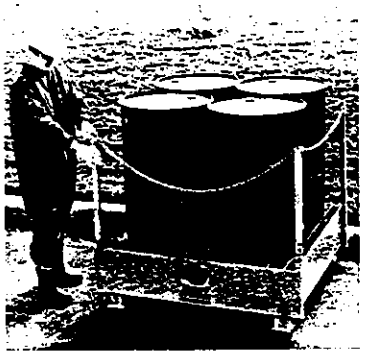
FEATURES

- Constructed of continuously welded heavy-gauge steel
- Chemical resistant coated surfaces
- Steel floor grating
- Forklift openings for ease of relocation
- Static grounding system

OPTIONS (partial list)

- Sump overflow fitting with cap
- Chemical resistant sump liner

SAFE-T-PALLET™ Spill Containment Pallets



Steel

FEATURES

- Constructed of heavy-gauge steel
- Dimensions: 54"L x 48½"W x 15"H
- Storage capacity: four (4) 55-gallon drums (single level)
- Sump capacity: 103 gallons
- Steel floor grating
- Chemical resistant coated surfaces
- Forklift openings for ease of relocation

OPTIONS

- Chemical resistant sump liner
- Sump overflow fitting with cap
- Side rails and safety chains
- Fiberglass floor grating

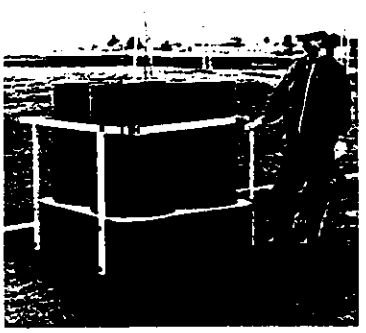
Molded Polyethylene

FEATURES

- Constructed of rotationally-molded, high-density, corrosion-resistant, polyethylene
- Dimensions: 52"L x 51"W x 15"H
- Storage capacity: four (4) 55-gallon drums (single level)
- Sump capacity: 90 gallons
- Fiberglass floor grating
- Forklift pockets for ease of relocation

OPTIONS

- Side rails and safety chains



Factory Mutual Approved* CLASSIFIED STATE APPROVED

*Factory Mutual approval is pending on some products. Usage is subject to local authority having jurisdiction. UL classification not available on all models.

SAFETY STORAGE®

SAFETY STORAGE, INC.
2301 Bert Drive
Hollister, CA 95023
1-800/344-6539
Phone: 408/637-5955
Fax: 408/637-7405

SS-128.5M Printed in U.S.A. 11/96

CUSTOMERS
10-6-96
OilTrap has been installed in the following:

2 - US Navy Torpedo Testing and Recovery Vessels	2 1/2 Years
1 - Virginia V - Historic Steamship	11 Months
1 - WA State Parks - 74' Twin Diesel	2 1/4 Year
1 - NOAA 45' Research Vessel	1 3/4Year
1 - National Parks 75' Twin Diesel	1 3/4 Yrs
1 - 183' Dinner Cruise Ship	1 3/4 Yrs
5 - Various Working Tugs in Pacific NW	1 3/4 Yrs
1 - Commercial System / Mississippi Barge Processing Tug and Barge Fleets Waste Water	1 Year
3 - Commercial Fish Processors	1 1/2 Yrs
2 - Closed Loop Car Wash Systems	1 Year
1 - Commercial System Shoreside Processing Tug Fleet	1 Year
Misc. Private Vessels	

Portables

4 - USCG	1 Year
1 - Private Marina - Mississippi	13 Months
1 - Multiple Boat Owners - California	16 Months
2 - Marine Service Co.'s - Texas	13 Months
3 - Marine Service Co. - Washington	1 Year
2 - Tug Co. - Washington	9 Months

Step 1, Identify the source of the water:_____

_____

_____

The source of the waste water is extremely helpful in order to determine similar solutions and regulations.

Examples of "sources":
marine bilge water, truck wash, steam cleaning, container wash out, ground water, marine hull cleaning, industrial waste water, machine shop tramp oil, tank cleaning, etc.

Step 2, Identify the suspected contaminants!

If the source is not known, then a water analysis is done to determine what contaminants are in the water.

Examples of contaminants:
petroleum elements (gas, oil, diesel, benzene, VOC's) metals, BOD, COD, suspended solids.

OilTrap can assist you in this process by calling (800)943-6495.

Step 3, Estimate the number of gallons generated next to the required frequency!

Minute:_____ Week: _____
Hour: _____ Month:_____
Day:_____ Year:_____
One time only: _____

This step is a key factor in determining system flow rate requirements resulting in system sizing and performance.

Step 4, What are the levels of contaminants in the water:

_____

_____

_____

_____

_____

_____

Knowing the amounts of contaminants in the water will determine the size of the system components.

Example of levels:
- *Oil - 1000 ppm*
- *Benzene - 10 ppm*
- *Lead (metals) - 10 ppm*
- *Suspended solids - 400 ppm*

OilTrap can assist you in this process by calling (800)943-6495.

Step 5, What do you want to do with the water?

Reuse or discharge? (see below)

☐ Reuse:

Don't overlook recycling as there are many uses for cleaned water other than disposal. Reusing the water also eliminates all permits and regulations.

☐ Discharge:

Discharge options: municipal sewer, septic, ground surface, storm water, lakes or streams, marine waterways, etc.

Discharge requirements:
If you are discharging, what are the discharge requirements? Check with your sewer district, city or county regulatory agency, state ecology department, EPA, or Coast Guard for specifics.

OilTrap could be your best ever economics partner. Fax or mail this worksheet to OilTrap today. Since all waste water is unique, please call and we will be glad to walk you through the worksheet and address any unique requirements.

The MA-4000 eliminates any potential of accidental discharge, will override inadvertent operator errors, and will shutdown if a problem occurs. Being both a pollution prevention system and bilge de-watering system relieves the owner/operator from the continuing frustrations, concerns and worries about improper handling and disposal of bilge water. This industrial strength system is compact and affordable. It is easy to own, easy to operate, and requires no preventive maintenance.

OilTrap systems:

- **Removes large volumes of oil/fuel from bilge water.**

The front end separator removes large volumes of oil/fuel for recycling, leaving only lightly contaminated waste water to pass through the filter assembly. The filter assembly cleans the waste water by removing contaminants to less than 1 part per million (ppm) including emulsified and suspended oils.

- **Easy to operate**

The system has one (3 position) switch with a choice of manual, automatic, or off. It has a remote safety start button that allows 110 VAC access to the pump only when the system is activated. Once activated, the system will monitor itself and shut down if any error occurs.

- **Requires no maintenance**

There is no scheduled preventive maintenance required for the system.

Front End Sep or

The maintenance free body of the MA-4000 is a front end oil/water separator that removes large volumes of oil/diesel before the water is passed to the filters for final cleaning. A unique feature of the separator is the oil/fuel level sensor. The sensor continuously monitors for oil/fuel in the separator. When the accumulation of oil/fuel reaches the sensor, the system shuts down and signals the operator via the "Check Oil" indicator on the console panel. To restore the system to normal operation, simply drain the oil through the "oil drain valve" into a container or oily waste holding tank for recycling. Then, return the switch on the console panel to "automatic".
It's really that easy!

Filter Rack Assembly

The heart of the system is the patent pending filtration technology developed by OilTrap. The filter rack assembly consists of 4 filters that remove oil/fuel from the water prior to discharge. As lightly contaminated water from the separator flows through the filters, the first filter traps 90% of the oil/fuel. The remaining 10% is trapped in the second filter. The last 2 "polishing" filters remove remaining emulsified oils from the water. Each filter is designed with a "lock up protection" feature providing for restricted flow when the filter cartridge is full of contaminants. This feature is a back-up safeguard to the oil sensor on the separator. This is truly a pollution prevention system with redundant safeguards to guard against accidental discharges.

Electronics Support (3)

The console panel is mounted on the back o the separator. It includes a "pump run", "ch oil" and "check flow" indicators, 3 way sw (manual, automatic, and off), and fuse hold

Remote Pump

The MA 4000 is configured with 50' of hos (custom lengths available) along with a removable pump. The pump and hose are removed from the system and located at the waste water site (bilge, tank, barrel, etc.). For safety reasons, a remote "start" button i used that allows the 115 VAC power to sta the pump only on command. The 115 VAC not present anywhere in the lines until the remote power button is activated. From thi self priming pump, the contaminated water pumped first through the separator followe the filters and cleaned for discharge.

System Summary

The MA 4000 will monitor the flow of wate from the waste water location through the system and discharge at less than 1 PPM. T system is designed to process water unattended. The pollution prevention safeguards will prevent any accidental spill associated with large volumes of contamina in the bilge. The system is easy to operate a requires no preventive maintenance.
OilTrap also recycles used filters eliminati any local disposal issues.

PAULSEN AND ASSOCIATES
4501 Shilshole Avenue NW
Seattle, Washington 98107
(206) 783-0730 Fax (206) 783-0434
1-800-733-4501

ELECTROCOAGULATION

Dissolved Oxygen Generation and Electronic Purification is a **patented** process that passes low DC voltage through water, using catalytic-type cells. This catalytic action by the cell forces most of the oxygen created (from breaking apart some of the water) to go directly into the dissolved state. The dissolved oxygen levels created by this process can go up from around 3 PPM to 20 PPM depending on starting water conditions. Certain dissolved minerals react with the oxygen slowing down the oxygen generation process.

Physical Contamination is effected by the electrical flow and field that causes a coagulation of solids, colloids and thin oils. The electrolysis with catalytic cells adds large amounts of dissolved oxygen that causes the oxidation of many contaminants.

Chemical Contamination is reduced by the high levels of dissolved oxygen in the water. This oxidizes and breaks down many chemicals and hydrocarbons in low concentrations. Minerals and dissolved metals in the water coagulate into the filterable solids as do soaps and phosphates.

Biological Contamination can be treated electronically very safely and effectively. Dissolved oxygen is a natural bactericide. It kills both anaerobic and aerobic bacteria without harming animals, fish or plants. Oxygen breaks down the outer wall of the bacteria cell, so no bacteria, not even the microscopic organisms, are immune to high dissolved oxygen. Dissolved oxygen has been shown to be very effective with killing fecal coliform bacteria found in waters with sewer contamination. Many cities use oxygen to purify the output of the sewage plants because it is not harmful at all to the environment.

This system allows for high water flow rates with minimal resistance. Meaning, it will not interfere with most water pumping and storage systems. This system is efficient on all types (physical, chemical and biological) of water contamination.

AVAILABLE:

WITHOUT POWER OR WITH HEAVY DUTY GASOLINE ENGINE

CH&E
QUALITY PRODUCTS

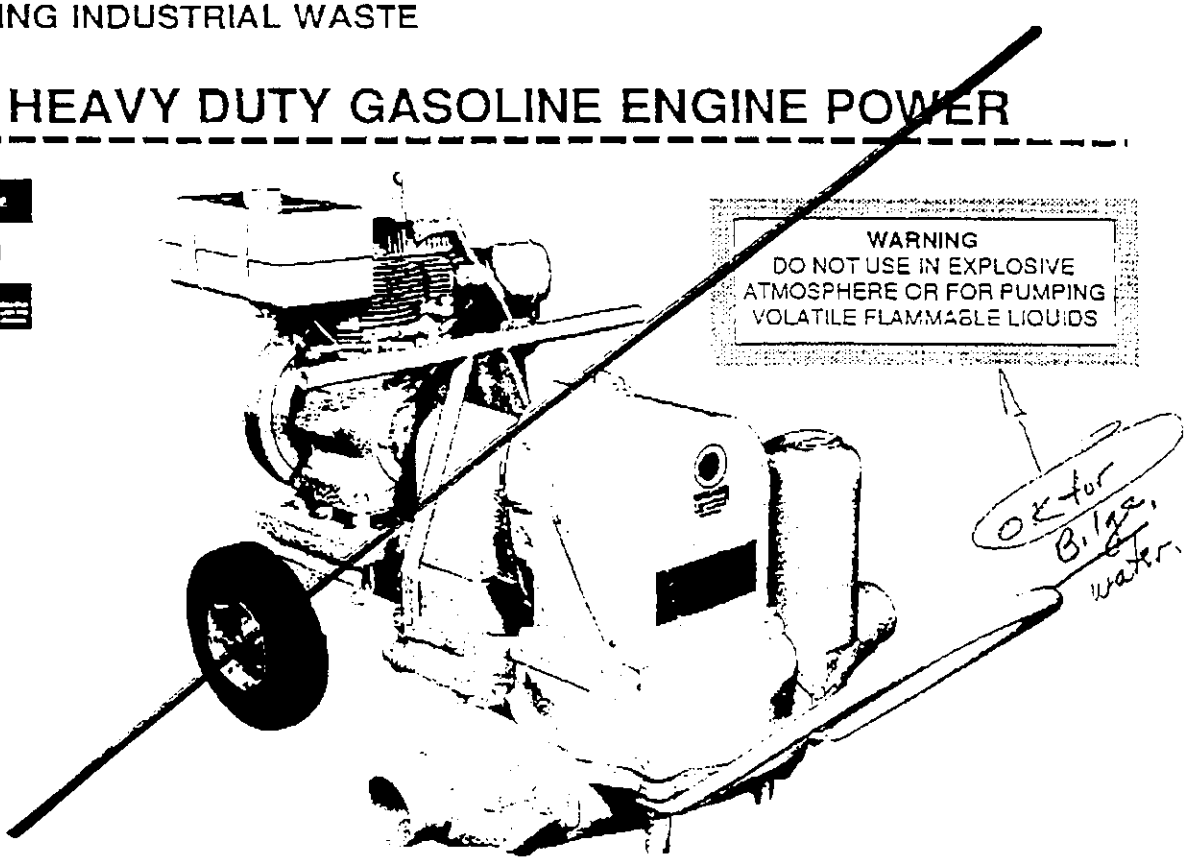
Long Coupled Diaphragm Pumps Series
5400-6400 2"
5500-6500 3"

DIAPHRAGM PUMPS ARE BEST FOR:

- SEEPAGE DEWATERING
- SANDY - MUDDY - MUCKY WATER
- HIGH SUCTION LIFT
- CLEANING SEPTIC TANKS
- PUMPING INDUSTRIAL WASTE

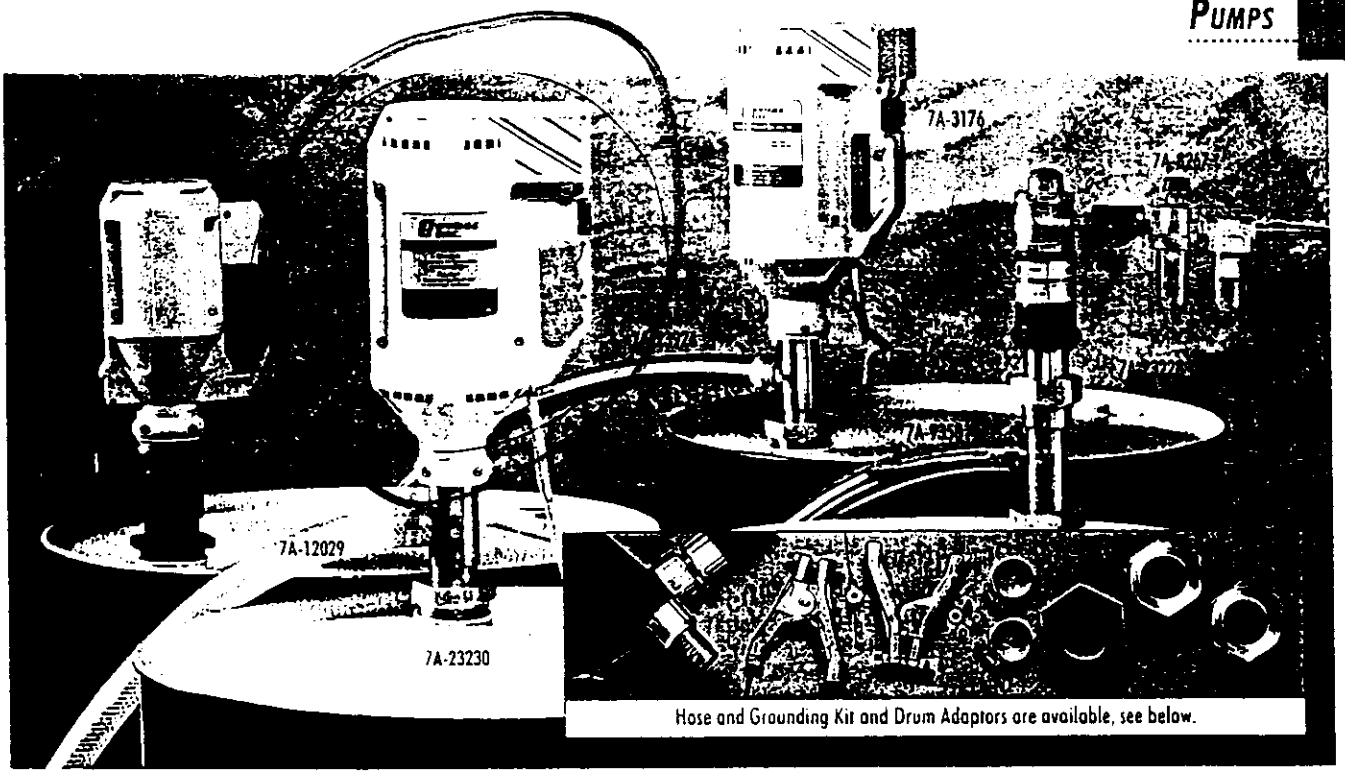
HEAVY DUTY GASOLINE ENGINE POWER

CERTIFIED PERFORMANCE



B&S AIR COOLED ENGINE. 8 H.P. STANDARD SHAFT ENGINES CONNECTED THROUGH FLEXIBLE COUPLING. ENGINES HAVE AMPLE OIL CAPACITY FOR CONTINUOUS OPERATION. ENGINES RUN AT 2600 RPM FOR LONG SERVICE. A 1750 RPM ELECTRIC MOTOR MAY BE USED WHICH WILL DECREASE PUMPING CAPACITIES.

C. H. & E. Manufacturing Co. 3849 N. Palmer St. Milwaukee, Wis. 53212
phone 414-964-3400 • FAX 414-964-0677



Hose and Grounding Kit and Drum Adaptors are available, see below.

Finish-Thompson Automatic Drum Pumps

Select from Many Tube and Motor Types to Suit a Wide Range of Uses and Applications

Heavy-duty automatic pumps quickly and safely transfer your workplace liquids.

Specifications: All pumps are designed to fit standard 2" drum openings. *Air-Drive* motor features ½hp, 300–6000 rpm, 50–80 psi and 17–25 cfm. *Totally Enclosed Fan-Cooled* (TEFC) double-insulated, ¼hp motor and *Open-Dripproof* (ODP) ½hp motor features 110V, 60 Hz, single-phase, 10,000 rpm and 12' grounded cord with plug. Handle contains built-in switch with manual reset to protect against thermal overload. TEFC motor is designed for corrosive environments. ODP motor is designed for non-corrosive environments. *Explosion-Proof,* double-insulated motor features 110V, 60 Hz, single-phase, 5000 rpm, ¼hp and a 12' 3-wire cord without plug. Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232 and 23233 have a 30-minute run-dry capability. Choose from Polypropylene and 316 Stainless Steel material types below. Call 1-800-356-2501 for chemical compatibility.

Accessories: *Hose and Grounding Kit* are used for pumping flammables and combustibles. *Filter/Lubricating Assembly* extends the life of your Air-Drive Motor. *PVC Discharge Hose and Clamp, Reinforced PVC Discharge Hose and Clamp, Teflon® Discharge Hose and Clamp* and *Drum Adaptors* let you customize your pump to your application.

Please Specify: Drum Adaptor Material: G (galvanized steel), P (polypropylene), S (316 stainless steel).

No.	Motor Type	Tube Material	Shaft	Shaft Length	Internals	Max. GPM	Max. Feet Head	Max. Temp.	Max. Viscosity (CPS)	Seal	Each
7A-9231	Air	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	32	60	160°F	500	Sealless	675.60
7A-12031	Air	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	32	60	220°F	500	Sealless	883.50
7A-3175	Air	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	16	32	150°F	800	Teflon	927.55
7A-23228	Air	Stainless Steel (USDA Sanitary)	Stainless Steel (USDA Sanitary)	36" x 1½" dia.	S.S./Teflon	16	32	150°F	800	Teflon	1355.95
7A-3174	TEFC	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1055.95
7A-23229	TEFC	Polypropylene	Inconel	40" x 2" dia.	Polypro/Inconel	40	80	160°F	500	Sealless	894.10
7A-23230	TEFC	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	40	80	220°F	500	Sealless	1102.00
7A-23231	TEFC	Stainless Steel (USDA Sanitary)	Stainless Steel (USDA Sanitary)	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1695.00
7A-9230	ODP	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	40	80	160°F	500	Sealless	675.60
7A-12030	ODP	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	40	80	220°F	500	Sealless	883.50
7A-3176	Expl. Proof	Stainless Steel	Stainless Steel	36" x 1½" dia.	S.S./Teflon	10	10	150°F	400	Teflon	1305.15
7A-23232	Expl. Proof	Polypropylene	Inconel	36" x 2" dia.	Polypro/Inconel	8	20	160°F	500	Sealless	1143.35
7A-23233	Expl. Proof	Stainless Steel	Stainless Steel	36" x 2" dia.	S.S./Teflon/Halar	8	20	220°F	500	Sealless	1351.20

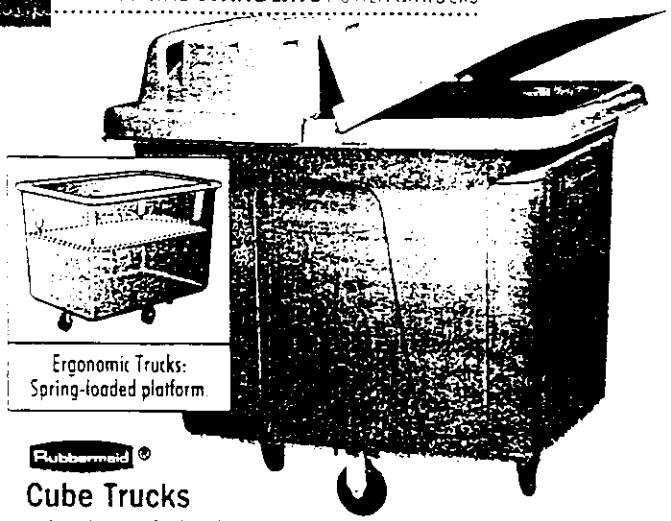
Adaptors

No.	Description	Inside Dia. (in.)	Each Galvanized	Each Polypropylene	Each Stainless Steel
7A-23925	2" NPT Drum Adaptor for Nos. 3175, 23228, 3174, 23231, 3176	1½	42.25	63.40	186.95
7A-23926	2" NPT Drum Adaptor for Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232, 23233	2	42.25	63.40	186.95

Accessories

No.	Description	Each
7A-9337	Hose and Grounding Kit	297.35
7A-8267	Filter/Lubricating Assembly	161.25
7A-9358	1" x 5'L. PVC Discharge Hose and Clamp for use with Nos. 3175, 23228, 3174, 23231, 3176	49.10
7A-12029	Reinforced 1" x 5'L PVC Discharge Hose with Hose Clamp for use with Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232, 23233	56.10
7A-23924	Teflon Discharge Hose and Clamp, 1" x 5'L for use with Nos. 3175, 23228, 3174, 23231, 3176	250.60

DRUM PUMP



Rubbermaid®

Cube Trucks

- Leakproof plastic body with metal crossbar base
- Straight, smooth walls are easy to clean and sanitize
- USDA approved for food processing

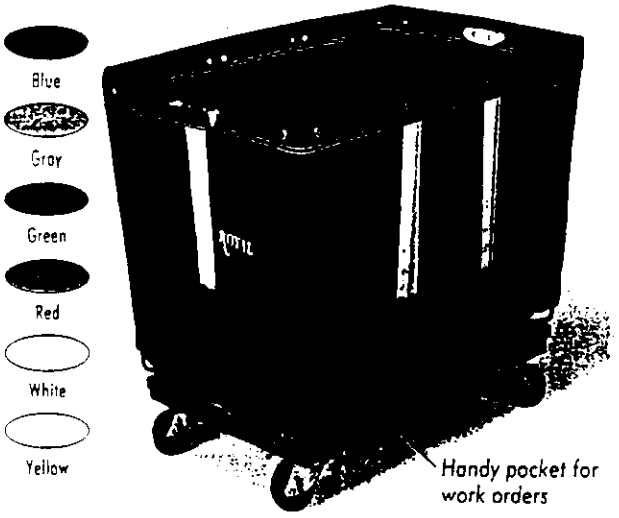
Has two fixed, two swivel casters placed in a diamond configuration. Two sizes are available with a spring-loaded interior platform that automatically brings material to a comfortable working height, reducing the need to bend and reach. Optional hinged, domed *Lids* sold separately. In stock.

Compliance: USDA approved for use in food processing.

Please Specify a Color for Cube Truck: GR (gray), W (white). Trucks with Platform and all Lids available in gray only.

No.	Description	Cap. (lbs.)	Dim. (in.) H	x	W	x	D	Each
7A-30925	8 cu. ft. truck	300	28⅛		25⅞		38⅛	186.40
7A-30926	12 cu. ft. truck	400	33⅛		27		43	244.30
7A-30927	14 cu. ft. truck	500	33		30⅛		44⅛	270.60
7A-30928	16 cu. ft. truck	500	37⅛		30⅛		44⅛	297.00
7A-30929	20 cu. ft. truck	600	37		33⅛		48⅛	348.95
7A-30930	14 cu. ft. truck w/platform	500	33		30⅛		44⅛	354.65
7A-30931	20 cu. ft. truck w/platform	600	37		33⅛		48⅛	432.35
7A-30932	Lid for 8 cu. ft. truck		9		25⅛		38⅛	107.95
7A-30933	Lid for 12 cu. ft. truck		9		27⅛		43⅛	117.80
7A-30934	Lid for 14 and 16 cu. ft. trucks		9		30⅛		44⅛	127.55
7A-30935	Lid for 20 cu. ft. trucks		9		34⅛		48⅛	137.40

Note: No. 26445 does not have steel handle.



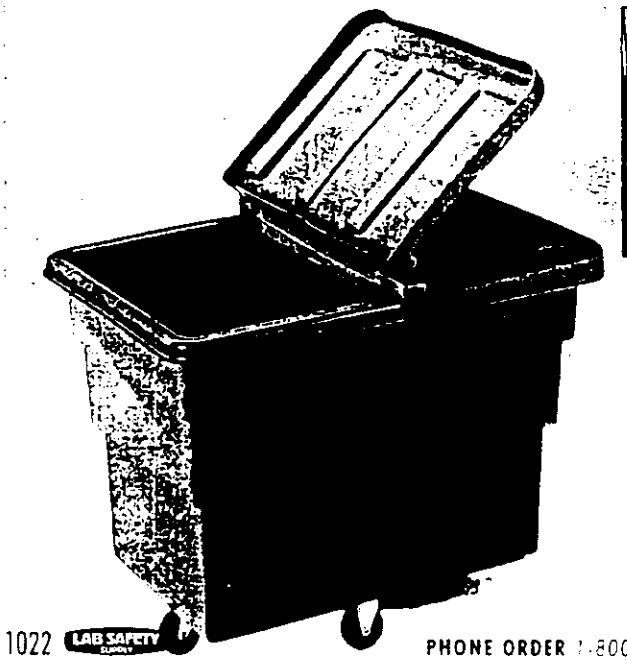
Basket Trucks

- Double-reinforced walls
- Tough, tightly woven polyester substrate
- Coated inside and out with self-bonding royal vinyl for maximum puncture, abrasion and chemical resistance

Heavy vinyl top crown, all-steel welded frame, extra coverage at all wear points—this truck is ready for many years of rugged service. Moves easily about on swiveling, 3" corner casters attached to a hardwood base. Optional pre-fitted *Vinyl Cover* with elastic hem available in black only.

Please Specify a Color: B (blue), G (green), GR (gray), R (red), W (white), Y (yellow).

No.	Capacity	Overall Height (in.)	Dim. (in.) L	x	W	x	D	Shipping Wt. (lbs.)	Each
7A-26993	10-bushel	31	36		24		25	33	136.90
7A-26994	12-bushel	33½	36		26		27½	38	149.60
7A-26995	16-bushel	36	40		28		30	50	188.65
7A-26996	18-bushel	36	42		30		30	56	200.25
7A-26997	20-bushel	36	48		32		30	64	210.30
7A-26998	Vinyl Cover for No. 26993							4	19.45
7A-31327-12	Vinyl Cover for No. 26994							4	20.90
7A-31327-16	Vinyl Cover for No. 26995							4	20.90
7A-31328-18	Vinyl Cover for No. 26996							5	24.05
7A-31328-20	Vinyl Cover for No. 26997							5	24.05



Rubbermaid®

Large-Capacity Utility Trucks

- Sturdy polyethylene resists cracking and denting
- Molded-in side ribs add extra strength

The ideal truck for transporting awkward or bulky items. One-piece, smooth-surface design offers easy cleaning; two fixed and two swivel casters (placed in diamond formation) provide fast, easy mobility. *No. 30447* includes a steel support ring to prevent bowing and bulging with full loads. Gray. Add a hinged *Lid* to keep contents safely inside and present a more pleasing appearance. In stock.

No.	Description	Wt. Capacity (lbs.)	Size (in.) H	x	W	x	D	Weight (lbs.)	Each
7A-30444	12-Bushel Utility Truck	600	34		44½		31⅛	44	298.05
7A-30445	12-Bushel Utility Truck	800	34		44½		31⅛	48	339.85
7A-30446	20-Bushel Utility Truck	800	36		53		39	77	416.00
7A-30447	20-Bushel Utility Truck	1000	36		53		39	84	457.95
7A-30448	Lid for 12-Bushel Truck	–	3⅜		45⅜		31⅛	16	128.75
7A-30449	Lid for 20-Bushel Truck	–	3⅜		53⅜		39⅛	19	171.65

FUNNELS

Specifications

POLY-DRUM FUNNEL 55/30™

Product No.	3001
Weight	6 lbs. / 3 kg
Capacity	6 gallons / 23 liters

FUNNEL 55/30™ COVER

Product No.	3056
Weight	2 lbs. / 1 kg

SAFETY FUNNEL 55/30™

Product No.	3018
Weight	6 lbs. / 3 kg

*Includes flame arrestor & POLY-DRUM FUNNEL 55/30

POLY-DRUM FUNNEL 16/5™

Product No.	3003
Weight	3 lbs. / 1.5 kg
Capacity	2¼ gallons / 9 liters

FUNNEL 16/5™ COVER

Product No.	3057
Weight	1½ lbs. / 1 kg

POLY-FUNNEL™ TALL

Product No.	3002
Weight	6 lbs. / 3 kg

POLY-FUNNEL™ 55

Product No.	3000
Weight	5 lbs. / 2 kg

POLY-FUNNEL™ 55 COVER

Product No.	3050
Weight	2½ lbs. / 1 kg

SAFETY FUNNEL™

Product No.	3090
Weight	5 lbs. / 2 kg

*Includes flame arrestor & POLY-FUNNEL 55

OPEN-HEAD FUNNEL™

Product No.	3045
Weight	10 lbs. / 5 kg

POLY-PAIL FUNNEL™

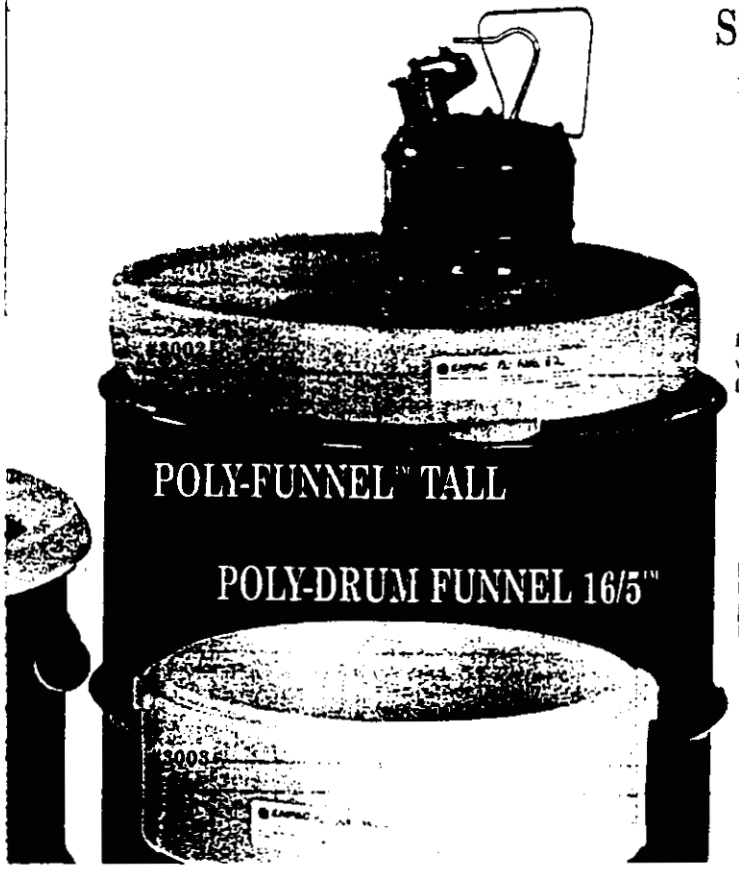
Product No.	3005
Weight	2 lbs. / 1 kg

POLY-PAIL COVER™

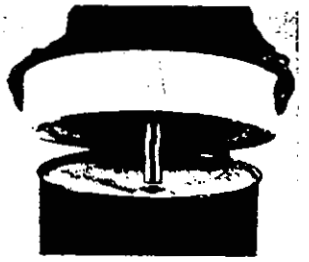
Product No.	3051
Weight	1 lb. / .5 kg

DRUM TOPPER™

Product No.	3065
Weight	2.5 lbs. / 2 kg

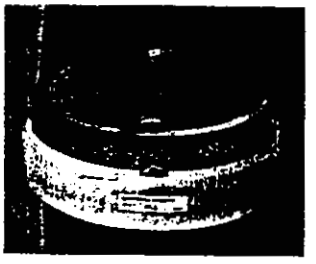


Safety Funnel™ 55/30



POLY-DRUM FUNNEL 55/30 with flame arrestor. Ideal for flamable liquids. #3018

Drain Drums!



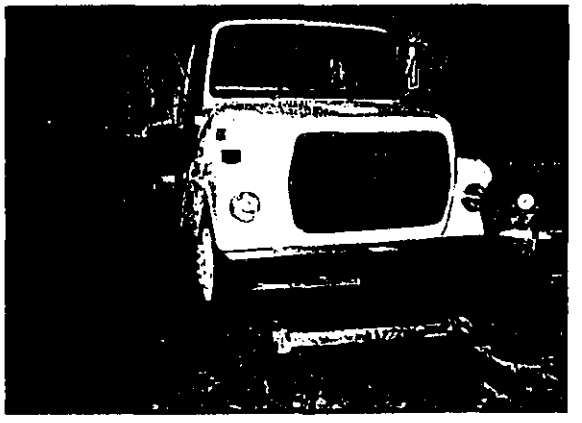
Spent drum contents drain easily with POLY-DRUM FUNNEL 55/30, saving time and materials. #3001

ENPAC CORPORATION

DESCRIPTION

The knock down portable berm ("berm") consists of a liner and berm, that is formed from closed and open cell foam (for a 4" berm). The foam has been chosen for its low temperature properties and its resiliency. The liner material has been chosen for its extremely strong properties of resisting chemicals such as crude, diesel, methanol, and glycol. The liner material has also been used extensively in the Arctic and is suitable for temperatures as low as -65° F.

Berms were designed by CCI as a quick, temporary installation for the prevention of spills. The size of the containment area can be customized to fit any need. Suitable applications stem anywhere from drip pans for use under equipment to containment of spills during fuel transfers. They are also used extensively to store chemicals in.



OPTIONS

The material which makes up these berms is very smooth. Thus, if personnel are going to stand in or on the berms, we offer some additional features that can be added to our berms. Ruftop is an overlay we can add that is placed on the liner to form a slip resistant work surface and provide protection for the material against heavy traffic. Although the liner material is tough this ruftop helps prevent sharp objects from tearing down through the liner. The working overlay is a flexable cold weather matting that will offer a good slip resistant surface. When working in areas of snow or ice we offer sets of cleats that are welded to the bottom of the berm. These additions will make the berms safer when they are placed on snow or ice.

SIZES

In addition to the 4" foam berm we offer a 2" sand filled berm. Our standard 2" berm is the 18" x 18" x 2" drip pan. These berms are made from the same liner material and are designed to hold a 18" x 18" pad of absorbent material. The 2" sand filled berm allows for the containment of small spills (approximately 2.5 gallons) and it weighs 9 lbs.. The drip pan can be folded into a compact size and is handy for storing in a truck or heavy equipment cab. Different sizes can be manufactured at purchasers request.

PRICE EIST
PRICE LIST

4" FOAM FILLED BERM

Sizes	Price (bare)	Price (w/cleats)	Price (w/cleats & ruftop)
2' x 2' x 4"	$168.00		
3' x 3' x 4"	$270.00	$285.00	$305.00
3' x 4' x 4"	$283.00	$298.00	$315.00
4' x 4' x 4"	$292.00	$305.00	$321.00
4' x 5' x 4"	$319.00	$327.00	$355.00
4' x 6' x 4"	$340.00	$354.00	$416.00
4' x 8' x 4"	$389.00	$402.00	$465.00

2" SAND FILLED BERM

Sizes	Price (1-5)	Price (5+)
18" x 18" x 2"	$59.50	$59.50
30" x 42" x 2"	$98.00	$98.00
30" x 84" x 2"	$183.00	$166.00
40" x 40" x 2"	$147.00	$133.00
40" x 74" x 2"	$187.00	$170.00
40" x 96" x 2"	$222.00	$202.00
3' x 3 x 2"	$126.00	$116.00
3' x 6' x 2"	$175.00	$159.00
4' x 4' x 2"	$171.00	$156.00
4' x 6' x 2"	$217.00	$198.00
4' x 8' x 2"	$253.00	$230.00

Quotes are avalable on any size berms

We WILL design to fit your needs

If you have any questions or wish to place an order please call

(907)-452-7043

or fax an order to

(907)-452-8310

1/26/97

Call for Current Pricing

NuERA Technologies, Inc.
Steven R. Ransom
Profitable Waste Management
- Waste Oil Furnaces
- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs
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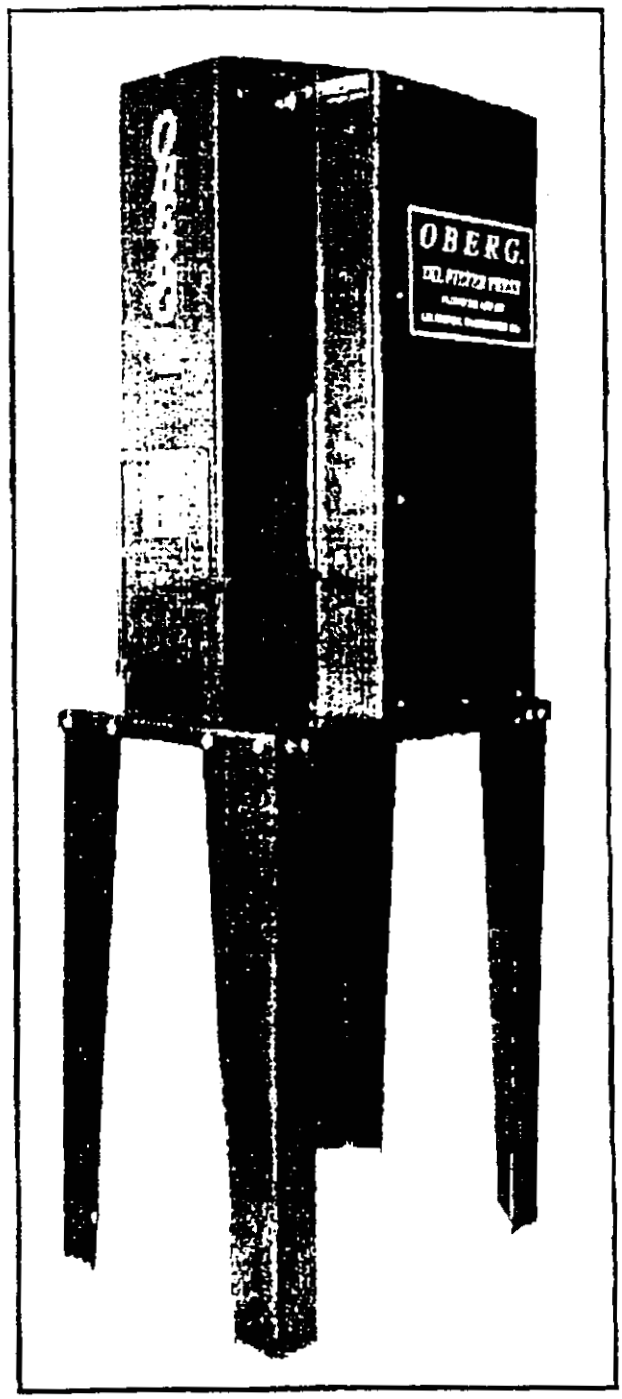
P.O. Box 5357
Kent, WA 98064
(206) 630-6382 / 639-5630
ALASKA OFFICE
P.O. Box 112352
Anchorage, AK 99511-2352
(907) 345-6411

OBERG™

America's #1 Quality Filter Press



Models For Automotive, Heavy Truck And Industrial Filters

OBERG International Inc.

NuERA TECHNOLOGIES
P.O. Box 112032
Anchorage, AK 99511-2032
(907) 345-6411
800-347-9575

Manufacturer of Quality Waste Reduction Equipment

OBERG OIL FILTER PRESS
USER PRICE SHEET

OBERG PART #	PRODUCT DESCRIPTION	USER PRICE	SHIPPING WEIGHT
P100WM	**FILTER PRESS** Automotive and Light Industrial Filter Press Mounts To Wall	1,695.00	360 lbs
P200L	**FILTER PRESS** H.D. Truck Filter Press (Note: Model P-200 Will Also Crush Multiple Automotive And Light Industrial Filters) With Legs To House One 55 Gallon Drum	3,880.00	615 lbs
P300	**FILTER PRESS** H.D. Industrial Filter Press (Crushes Filters Up To 20" Tall) (Also Crushes 5 Gallon Size Cans) With Legs To House Two 55 Gallon Drums	5,495.00	1380 lbs
P350	**FILTER PRESS** H.D. Industrial Filter Press (Crushes Railroad Type Filters Up To 40" Tall) (Also Crushes Multiple 5 Gallon Size Cans) Includes Bins For Collection Of Filters And Waste Oil	14,950.00	3000 lbs

SHIPMENTS: F.O.B. ARLINGTON, WASHINGTON
TERMS: 2%10 NET30

Prices effective September 1, 1995

NuERA Technologies, Inc.

NW REGIONAL OFFICE
P.O. Box 5357
Kent, WA 98064
(206) 639-3630
FAX 206-639-3622

ALASKA OFFICE
P.O. Box 112332
Anchorage AK 99511
(907) 345-6411

DATE: 7/29/96

FAX TRANSMITTAL TO: Tom Fisher, USKH

FAX # 907/452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 1 PAGES

MESSAGE:

REF: Bid specs: Kerkules oil filter crusher (manufacturer's written bid sheet not located)

Sample spec for Model OFC-4

Capable of crushing filters 20" high by 9" diameter, minimum crushing pressure 17.5 tons, maximum 55 second cycle time, air operated; supplied with air filter-regulator & gauge, and timer.

NuERA Technologies, Inc. Steven R. Ransom

Profitable Waste Management

- Waste Oil Furnaces
- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs

800-347 9675

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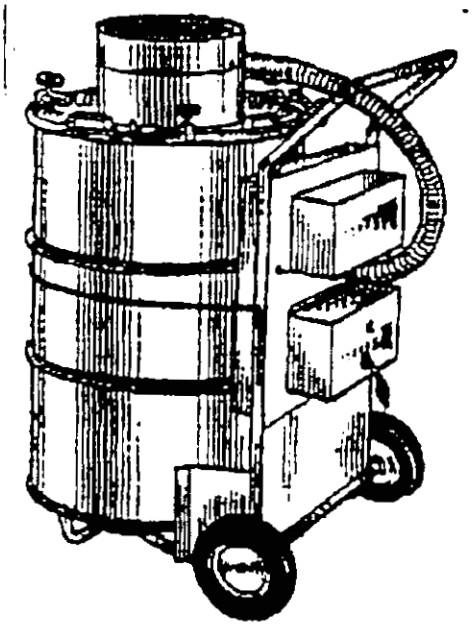
ALASKA OFFICE
P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411

ELASTEC INC

POLLUTION CONTROL SYSTEMS

SmartAsh Power to Burn

This innovative combustion system meets EPA requirements for burning non-hazardous refuse.



SmartAsh uses no fuel. Simply load a 55 gallon, open head, steel drum; light it and clamp on the lid.

Two 120v electric high-velocity blowers create a cyclone of intense heat. Combustion is so complete the volume of materials is reduced to an average of 3% ash. Portable and convenient, SmartAsh rolls out of sight when the job is done.

The air powered SmartAsh reduces disposal cost while eliminting possible long term environmental liabilities.

SmartAsh gives you the power to burn!

REPORTED FUELS:

Absorbent Materials
(Natural & Synthetics)
Classified Papers
Office Waste
Filters
Packing Materials
Clothing

Specifications

Construction:
*Stainless Steel Lid
*Plated Tubular Steel Frame
*2-Blowers, Axial Vane 120 V Standard
or 220 V optional
*Requires: 55 Gallon Steel Open Head Drum

Height: 43"
Floor Space: 32" x 32"
Weight: 75 lbs. Without Drum
116 lbs. With Drum
Burn Rate: 50 LBS/HR.

NuERA Corporation
P.O. Box 5357
KENT, WASHINGTON 98064-5357
(206) 639-3630
800-347-9575

Product #100

Attn: Tom. 5 of 5

List of burnable's for Smart Ash

1.) Absorbent types
- a.) Cellulose base types
- b.) Cotton
- c.) Polypropylene & Cotton mix
- d.) Corn cob
- e.) Saw dust
- f.) Peat moss

2.) Hydrocarbons
- a.) All types of crude's
- b.) Waste oils
- c.) Used motor oils
- d.) Transmission oils all types and weights
- e.) Lubricating greases
- f.) Hydraulic oils
- g.) Diesel fuels #1 and #2
- h.) Kerosene's
- I.) Jet fuels (flash point above 100 degrees Fahrenheit.)

All **liquids must** be absorbed in a burnable absorbent, to be incinerated.

3.) Filters
- a.) Spin on and cartridge oil filters from cars and trucks, heavy equipment
- b.) Air filters of all types, car, truck, industrial types
- c.) Poly & Fiberglass filters
- d.) Natural Gas pipeline filters (glycol filters)

4.) Paper Products
- a.) Newspapers
- b.) Office wastes
- c.) Cardboards
- d.) Fast food paper wastes
- e.) Computer papers
- f.) Sensitive documents

5.) Wood products
- a.) Saw dust
- b.) Scrap at construction sites
- c.) Tree limbs & leaves
- d.) Shipping Pallets
- e.) Any type of wood products will fit this category

6.) Plastic's

This unit will incinerate a wide variety of plastic's. The volatile emission's emitted by these types of material are not acceptable in the permitting requirements.

7.) Miscellaneous
- a.) Clothing
- b.) Gloves
- c.) Oily rags
- d.) Packaging material

Hazard Communication 1910.12004

Every workplace exposure that an employee experiences is the responsibility of the employer. The worker has the right to know what he is being exposed to. You must placard to make the employee aware of this exposure. Under Hazard Communication, the employer must ensure that every container of hazardous chemicals in the workplace, where there is the potential of exposure, is labeled, tagged, or marked.

Liquefied Hydrogen, Flammable Gas 1910.103(c)(2)(i)

Hydrogen storage sites must be placarded as follows: LIQUEFIED HYDROGEN – FLAMMABLE GAS – NO SMOKING – NO OPEN FLAMES.

No Unauthorized Personnel 1910.103(c)(2)(i)

Hydrogen storage sites have to be fenced and posted to prevent entrance by unauthorized personnel.

Hydrogen Gas Storage Areas 1910.103(b)(1)(v)

Hydrogen gas storage locations must be permanently placarded as follows: HYDROGEN – FLAMMABLE GAS – NO SMOKING – NO OPEN FLAMES, or the equivalent.

Non-potable Water 1926.51(b)

Outlets for non-potable water must be identified with signs meeting the requirements of Subpart G of Part 1926 (Signs, Signals and Barricades) to clearly indicate that the water should not be used for drinking, washing, or cooking purposes.

CAUTION

ACID

FG - 10 x 14 - 69371
AL - 7 x 10 - 40826
AL - 10 x 14 - 40827
PL - 7 x 10 - 22262
PL - 10 x 14 - 22263
SS - 7 x 10 - 84285
SS - 10 x 14 - 84286

CAUTION

CARBON MONOXIDE MAY BE PRESENT

AL - 10 x 14 - 43496

CAUTION

CHEMICAL LINES OVERHEAD

FG - 10 x 14 - 76073
AL - 7 x 10 - 40828
AL - 10 x 14 - 40829
PL - 7 x 10 - 22264
PL - 10 x 14 - 22265
SS - 7 x 10 - 84289
SS - 10 x 14 - 84290

CAUTION

CHLORINE AREA

FG - 10 x 14 - 69042
AL - 7 x 10 - 40830
AL - 10 x 14 - 40831
PL - 7 x 10 - 22266
PL - 10 x 14 - 22267
SS - 7 x 10 - 84291
SS - 10 x 14 - 84292

CAUTION

EYE AND GLOVE PROTECTION MUST BE WORN WHEN HANDLING CHEMICALS

FG - 10 x 14 - 69228
AL - 7 x 10 - 40840
AL - 10 x 14 - 40841
PL - 7 x 10 - 22276
PL - 10 x 14 - 22277
SS - 7 x 10 - 84301
SS - 10 x 14 - 84302

CAUTION

POSSIBLE HYDROGEN SULFIDE GAS PRESENT

FG - 10 x 14 - 72573
AL - 7 x 10 - 40850
AL - 10 x 14 - 40851
PL - 7 x 10 - 22286
PL - 10 x 14 - 22287
SS - 7 x 10 - 84317
SS - 10 x 14 - 84318

CAUTION

COMPRESSED AIR

FG - 10 x 14 - 69051
AL - 7 x 10 - 40832
AL - 10 x 14 - 40833
PL - 7 x 10 - 22268
PL - 10 x 14 - 22269
SS - 7 x 10 - 84293
SS - 10 x 14 - 84294

CAUTION

HAZARDOUS WASTE STORAGE AREA UNAUTHORIZED PERSONS KEEP OUT

FG - 10 x 14 - 70374
AL - 7 x 10 - 41273
AL - 10 x 14 - 41274
PL - 7 x 10 - 22709
PL - 10 x 14 - 22710
SS - 7 x 10 - 85409
SS - 10 x 14 - 85410

CAUTION

PREVENT STATIC SPARK DISCHARGE USE GROUNDING DEVICES

FG - 10 x 14 - 70488
AL - 7 x 10 - 40852
AL - 10 x 14 - 40853
PL - 7 x 10 - 22288
PL - 10 x 14 - 22289
SS - 7 x 10 - 84319
SS - 10 x 14 - 84320

CAUTION

CONTAINS HAZARDOUS MATERIAL SEE MSDS FILE

FG - 10 x 14 - 70256
AL - 7 x 10 - 40834
AL - 10 x 14 - 40835
PL - 7 x 10 - 22270
PL - 10 x 14 - 22271
SS - 7 x 10 - 84295
SS - 10 x 14 - 84296

CAUTION

HIGH PRESSURE PIPELINE

FG - 10 x 14 - 72495
AL - 7 x 10 - 41275
AL - 10 x 14 - 41276
PL - 7 x 10 - 22711
PL - 10 x 14 - 22712
SS - 7 x 10 - 85411
SS - 10 x 14 - 85412

CAUTION

TOXIC/HAZARDOUS CHEMICALS ARE USED IN THIS WORKPLACE SAFETY DATA SHEETS ARE AVAILABLE IN THE SUPERVISOR'S OFFICE

FG - 10 x 14 - 70559
AL - 7 x 10 - 40854
AL - 10 x 14 - 40855
PL - 7 x 10 - 22290
PL - 10 x 14 - 22291
SS - 7 x 10 - 84321
SS - 10 x 14 - 84322

CAUTION

CORROSIVE MATERIALS WEAR REQUIRED PROTECTION

FG - 7 x 10 - 47079
FG - 10 x 14 - 47117
AL - 7 x 10 - 40836
AL - 10 x 14 - 40837
PL - 7 x 10 - 22272
PL - 10 x 14 - 22273
SS - 7 x 10 - 84297
SS - 10 x 14 - 84298

CAUTION

NON-POTABLE WATER DO NOT DRINK

FG - 10 x 14 - 69408
AL - 7 x 10 - 40846
AL - 10 x 14 - 40847
PL - 7 x 10 - 22282
PL - 10 x 14 - 22283
SS - 7 x 10 - 84313
SS - 10 x 14 - 84314

CAUTION

WELDING FUMES MAY BE PRESENT

AL - 10 x 14 - 43499

CAUTION

ENTRY PROHIBITED WITHOUT PERMIT TEST FOR O2 DEFICIENCY, H2S AND COMBUSTIBLE VAPORS

FG - 14 x 20 - 69216
AL - 7 x 10 - 40631
AL - 10 x 14 - 40632
PL - 7 x 10 - 22067
PL - 10 x 14 - 22068
SS - 7 x 10 - 84018
SS - 10 x 14 - 84019

CAUTION

PERSONAL PROTECTIVE CLOTHING IS TO BE WORN AT ALL TIMES WHEN HANDLING CHEMICALS

FG - 10 x 14 - 70474
AL - 7 x 10 - 40848
AL - 10 x 14 - 40849
PL - 7 x 10 - 22284
PL - 10 x 14 - 22285
SS - 7 x 10 - 84315
SS - 10 x 14 - 84316

DANGER

ACETYLENE

FG - 7 x 10 - 70206
FG - 10 x 14 - 70207
AL - 7 x 10 - 40856
AL - 10 x 14 - 40857
PL - 7 x 10 - 22292
PL - 10 x 14 - 22293
SS - 7 x 10 - 84323
SS - 10 x 14 - 84324

CHEMICAL HAZARD

NOTICE
DO NOT DUMP CHEMICALS DOWN THIS DRAIN

FG	10 x 14	70270
AL	7 x 10	40919
AL	10 x 14	40920
PL	7 x 10	22355
PL	10 x 14	22356
SS	7 x 10	84463
SS	10 x 14	84464

NOTICE
NON-POTABLE WATER
NOT TO BE USED FOR DRINKING, WASHING OR COOKING PURPOSES

FG	10 x 14	69394
AL	7 x 10	40925
AL	10 x 14	40926
PL	7 x 10	22361
PL	10 x 14	22362
SS	7 x 10	84469
SS	10 x 14	84470

WARNING

AL	10 x 14	43503

WARNING

FG	10 x 14	69615
AL	7 x 10	40941
AL	10 x 14	40942
PL	7 x 10	22377
PL	10 x 14	22378
SS	7 x 10	84491
SS	10 x 14	84492

CORROSIVE LIQUIDS
USE PERSONAL PROTECTIVE EQUIP.

AL	7 x 10	40946
PL	7 x 10	22382
SS	3½ x 10	84499
SS	7 x 10	84500

HYDROGEN

SS	2¼ x 4½	43989

OXYGEN

SS	2¼ x 4½	43987

NOTICE
MSDS AND THE WRITTEN HAZARDOUS COMMUNICATION PROGRAM FOR THIS WORK PLACE IS LOCATED IN FOREMAN'S OFFICE

FG	10 x 14	70430
AL	7 x 10	40921
AL	10 x 14	40922
PL	7 x 10	22357
PL	10 x 14	22358
SS	7 x 10	84465
SS	10 x 14	84466

NOTICE
"RIGHT TO KNOW" INFORMATION AVAILABLE IN THIS OFFICE

FG	10 x 14	70513
AL	7 x 10	40929
AL	10 x 14	40930
PL	7 x 10	22365
PL	10 x 14	22366
SS	7 x 10	84473
SS	10 x 14	84474

WARNING

FG	10 x 14	69573
AL	7 x 10	40935
AL	10 x 14	40936
PL	7 x 10	22371
PL	10 x 14	22372
SS	7 x 10	84483
SS	10 x 14	84484

ACETYLENE

SS	2¼ x 4½	43988

DANGER—ACIDS
WEAR GOGGLES
AVOID FUMES AND SKIN CONTACT
WASH WITH WATER IMMEDIATELY

FG	10 x 14	72434
AL	7 x 10	43321
PL	7 x 10	25744
SS	7 x 10	85562
SS	10 x 14	85563

OXYGEN
NO SMOKING
NO OPEN FLAMES

FG	10 x 14	70471
AL	7 x 10	42715
PL	7 x 10	25138
SS	7 x 10	88455
SS	10 x 14	88456

NOTICE
NON-POTABLE WATER

FG	10 x 14	69407
AL	7 x 10	40923
AL	10 x 14	40924
PL	7 x 10	22359
PL	10 x 14	22360
SS	7 x 10	84467
SS	10 x 14	84468

SAFETY FIRST
IF YOU GET CHEMICALS ON YOUR BODY OR EYES WASH THOROUGHLY WITH PLENTY OF WATER

FG	14 x 20	74616
AL	7 x 10	40931
AL	10 x 14	40932
PL	7 x 10	22367
PL	10 x 14	22368
SS	7 x 10	84475
SS	10 x 14	84476

WARNING
PROPANE

FG	10 x 14	69604
AL	7 x 10	40937
AL	10 x 14	40938
PL	7 x 10	22373
PL	10 x 14	22374
SS	7 x 10	84487
SS	10 x 14	84488

ACETYLENE
NO SMOKING
NO OPEN FLAMES

FG	10 x 14	69370
AL	7 x 10	40943
PL	7 x 10	22379
SS	7 x 10	84493
SS	10 x 14	84494

DIRTY REFRIGERANT
DO NOT USE WITHOUT RECYCLING

SS	7 x 10	43984

SPRAY PAINT BOOTH
PAINT FUMES MAY BE PRESENT

AL	10 x 14	43502

NOTICE
NON-POTABLE WATER
NOT FOR DRINKING OR COOKING USE

FG	7 x 10	72546
AL	7 x 10	40927
AL	10 x 14	40928
PL	7 x 10	22363
PL	10 x 14	22364
SS	7 x 10	84471
SS	10 x 14	84472

SAFETY FIRST
WEAR FACESHIELDS, RUBBER GLOVES AND APRONS WHEN WORKING WITH ACIDS

FG	14 x 20	74464
AL	7 x 10	40933
AL	10 x 14	40934
PL	7 x 10	22369
PL	10 x 14	22370
SS	7 x 10	84477
SS	10 x 14	84478

WARNING

FG	14 x 20	69610
AL	7 x 10	40939
AL	10 x 14	40940
PL	7 x 10	22375
PL	10 x 14	22376
SS	7 x 10	84489
SS	10 x 14	84490

CHEMICAL
GOGGLES REQUIRED

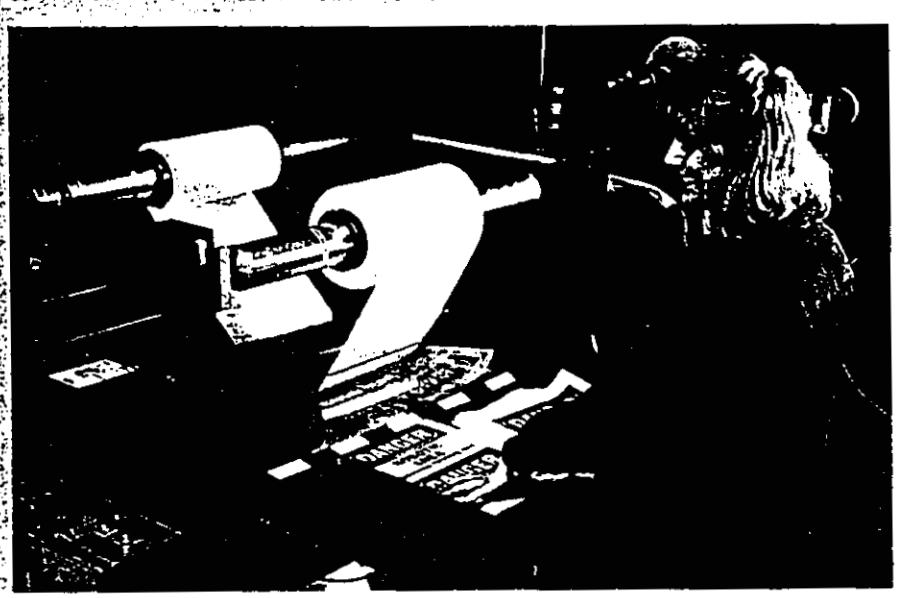
FG	10 x 14	73033
AL	7 x 10	40944
AL	10 x 14	40945
PL	7 x 10	22380
PL	10 x 14	22381
SS	7 x 10	84497
SS	10 x 14	84498

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CALL DAY OR NIGHT

FG	14 x 20	69256
AL	7 x 10	40947
AL	10 x 14	40948
PL	7 x 10	22383
PL	10 x 14	22384
SS	7 x 10	84505
SS	10 x 14	84506

USED OIL

SS	7 x 10	43983



GAS
NO SMOKING, MATCHES OR LIGHTS

FG	10 x 14	69261
AL	7 x 10	40949
PL	7 x 10	22385
SS	7 x 10	84507
SS	10 x 14	84508

WARNING
IF YOU COME IN CONTACT WITH CORROSIVE CHEMICALS GET UNDER A SHOWER IMMEDIATELY —SECONDS COUNT— LARGE VOLUMES OF WATER ARE NECESSARY

FG	14 x 20	72982
AL	7 x 10	40950
PL	7 x 10	22386
SS	7 x 10	84511
SS	10 x 14	84512

SATISFACTION GUARANTEED

A special overlaminating process applied here by Katy Krostag, Graphic Artist, makes every Brady self-sticking sign even more durable.

Find it fast! See the Safety Sign Locator, pages 6-13.

RECYCLE & ENVIRONMENT

NOTICE
PLEASE TURN OUT LIGHTS WHEN NOT IN USE

FG	10 x 14	69437	
AL	7 x 10	41007	
AL	10 x 14	41008	
PL	7 x 10	22443	
PL	10 x 14	22444	
SS	7 x 10	84583	
SS	10 x 14	84584	

NOTICE
SAVE ENERGY
CLOSE DOORS WHEN NOT IN USE

FG	10 x 14	69483	
AL	7 x 10	41009	
AL	10 x 14	41010	
PL	7 x 10	22445	
PL	10 x 14	22446	
SS	7 x 10	84585	
SS	10 x 14	84586	

THINK
CONSERVE ENERGY

FG	10 x 14	69056	
AL	7 x 10	41011	
AL	10 x 14	41012	
PL	7 x 10	22447	
PL	10 x 14	22448	
SS	7 x 10	84587	
SS	10 x 14	84588	

THINK
CONSERVE WATER

FG	10 x 14	69060	
AL	7 x 10	41013	
AL	10 x 14	41014	
PL	7 x 10	22449	
PL	10 x 14	22450	
SS	7 x 10	84589	
SS	10 x 14	84590	

FG	7 x 10	70623	
FG	10 x 14	70624	
AL	7 x 10	41968	
AL	10 x 14	41969	
PL	7 x 10	25943	
PL	10 x 14	25944	
SS	7 x 10	86023	
SS	10 x 14	86024	

ALUMINUM CANS ONLY

FG	7 x 10	70627	
FG	10 x 14	70628	
AL	7 x 10	41972	
AL	10 x 14	41973	
PL	7 x 10	25947	
PL	10 x 14	25948	
SS	7 x 10	86027	
SS	10 x 14	86028	


CLOSE FAUCET TIGHTLY
4 per card
B-500 2¼ x 2¼ 76289

4 per card
B-500 2¼ x 2¼ 76288

4 per card
B-500 2¼ x 2¼ 76287

4 per card
B-500 2¼ x 2¼ 76285

FG	12 x 12	76879	
AL	7 x 10	41015	
PL	7 x 10	22451	
SS	10 x 14	84596	

GLASS ONLY

FG	7 x 10	70625	
FG	10 x 14	70626	
AL	7 x 10	41970	
AL	10 x 14	41971	
PL	7 x 10	25945	
PL	10 x 14	25946	
SS	7 x 10	86025	
SS	10 x 14	86026	

HELP SAVE OUR ENVIRONMENT
RECYCLE

FG	10 x 14	69014	
AL	7 x 10	41016	
PL	7 x 10	22452	
SS	7 x 10	84598	
SS	10 x 14	84599	

Keep Windows CLOSED Air Conditioned
4 per card
B-500 2¼ x 2¼ 76875

NON RECYCLABLE WASTE

FG	7 x 10	70621	
FG	10 x 14	70622	
AL	7 x 10	41966	
AL	10 x 14	41967	
PL	7 x 10	25941	
PL	10 x 14	25942	
SS	7 x 10	86021	
SS	10 x 14	86022	

PAPER ONLY

FG	7 x 10	70629	
FG	10 x 14	70630	
AL	7 x 10	41974	
AL	10 x 14	41975	
PL	7 x 10	25949	
PL	10 x 14	25950	
SS	7 x 10	86029	
SS	10 x 14	86030	

RECYCLABLE
ALUMINUM CANS ONLY

FG	7 x 10	70613	
FG	10 x 14	70614	
AL	7 x 10	41958	
AL	10 x 14	41959	
PL	7 x 10	25933	
PL	10 x 14	25934	
SS	7 x 10	86013	
SS	10 x 14	86014	

RECYCLABLE
BOTTLES ONLY

FG	7 x 10	70605	
FG	10 x 14	70606	
AL	7 x 10	41950	
AL	10 x 14	41951	
PL	7 x 10	25925	
PL	10 x 14	25926	
SS	7 x 10	86005	
SS	10 x 14	86006	

RECYCLABLE
CANS ONLY

FG	7 x 10	70611	
FG	10 x 14	70612	
AL	7 x 10	41956	
AL	10 x 14	41957	
PL	7 x 10	25931	
PL	10 x 14	25932	
SS	7 x 10	86011	
SS	10 x 14	86012	

RECYCLABLE
METALS ONLY

FG	7 x 10	70617	
FG	10 x 14	70618	
AL	7 x 10	41962	
AL	10 x 14	41963	
PL	7 x 10	25937	
PL	10 x 14	25938	
SS	7 x 10	86017	
SS	10 x 14	86018	

RECYCLABLE
NEWSPRINT ONLY

FG	7 x 10	70619	
FG	10 x 14	70620	
AL	7 x 10	41964	
AL	10 x 14	41965	
PL	7 x 10	25939	
PL	10 x 14	25940	
SS	7 x 10	86019	
SS	10 x 14	86020	

RECYCLABLE
PAPER ONLY

FG	7 x 10	70609	
FG	10 x 14	70610	
AL	7 x 10	41954	
AL	10 x 14	41955	
PL	7 x 10	25929	
PL	10 x 14	25930	
SS	7 x 10	86009	
SS	10 x 14	86010	

RECYCLABLE
PLASTIC ONLY

FG	7 x 10	70607	
FG	10 x 14	70608	
AL	7 x 10	41952	
AL	10 x 14	41953	
PL	7 x 10	25927	
PL	10 x 14	25928	
SS	7 x 10	86007	
SS	10 x 14	86008	

RECYCLABLE
WASTE ONLY

FG	7 x 10	70615	
FG	10 x 14	70616	
AL	7 x 10	41960	
AL	10 x 14	41961	
PL	7 x 10	25935	
PL	10 x 14	25936	
SS	7 x 10	86015	
SS	10 x 14	86016	

RECYCLABLE
SAVE OUR RESOURCES
ALUMINUM

SS	10 x 14	84601	

RECYCLABLE
SAVE OUR RESOURCES
CARDBOARD

SS	10 x 14	84602	

RECYCLABLE
SAVE OUR RESOURCES
GLASS

SS	10 x 14	84603	

RECYCLABLE
SAVE OUR RESOURCES
PAPER

SS	10 x 14	84604	

RECYCLABLE
SAVE OUR RESOURCES
PLASTIC

SS	10 x 14	84605	

SAVE ENERGY
B-500 1 x 2¼

SAVE WATER
B-500 1 x 2¼

Turn it down when you're not around!
B-500 1 x 2¼

TURN ME OFF
B-500 3 x 2¼

Turn off Equipment When Not In Use
SAVE ENERGY
B-500 2¼ x 2¼

TURN OFF LIGHTS CONSERVE ENERGY
B-500 1 x 2¼

TURN OFF WHEN NOT IN USE
B-500 1 x 2¼

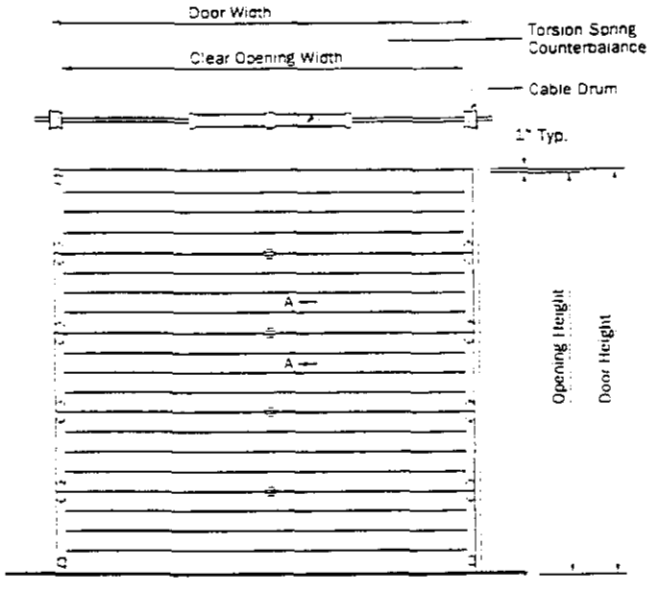
WHEN IN DOUBT
TURN ME OUT

FG	12 x 12	76882	
	B-500 2¼ x 2¼	76286	

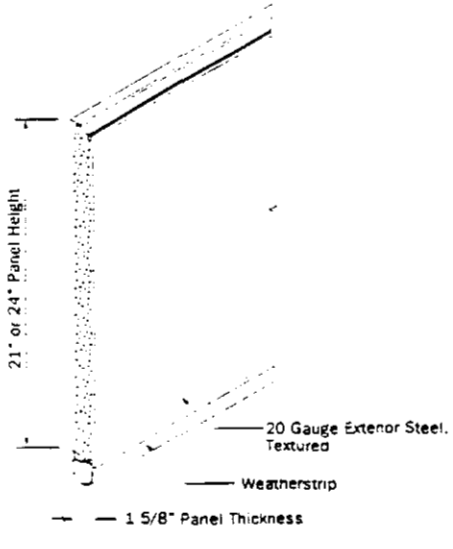
595 Series
Thermacore® Insulated Steel Doors

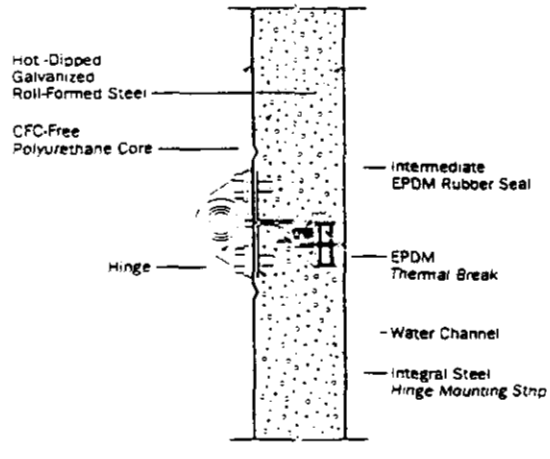
Interior Elevation

For clearance details on electrically operated doors, see Motor Operator detail pages at back of this section.



Panel Detail

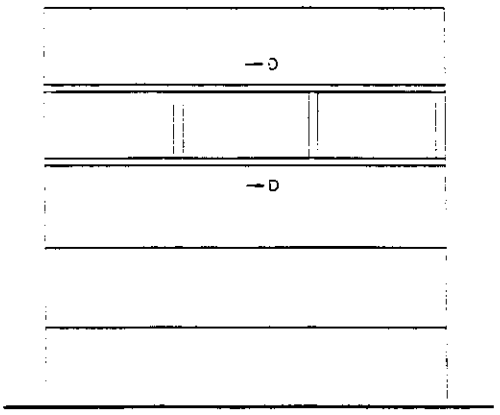


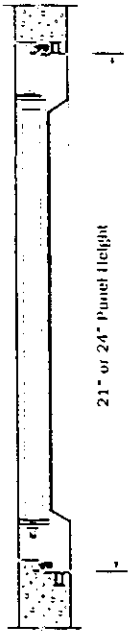


Section A-A

Aluminum Full View Glazing Section

Exterior Elevation





Section D-D

ALASKA WINDOW manufactures a Scandinavian designed PVC window system which has excellent cold weather characteristics. These units are extremely well suited for cold and rough use applications. The window has a 1 3/8 inch glazing pocket which allows the use of triple pane glass with 1/2 inch air spaces between the panes or "HEAT MIRROR" with two 9/16 air spaces. They will not freeze shut under any condition, which makes them the most desirable **EGRESS** window available.

Two separate **EPDM** weatherstrips are used in the operating windows which significantly reduces air infiltration. This weatherstripping will not become brittle at temperatures of -70 degrees F.

Maintenance is very low for the following reasons:

1. The sash is fully adjustable. It can be adjusted vertically as well as horizontally at the top and the bottom. The sash also is adjustable for vertical movement. The compression on the weather seals can be increased or decreased.

2. New weather seals can be installed by the homeowner, inexpensively and without the use of tools.

3. In the event of broken glass, a new insulated unit can be installed by the homeowner without the use of special tools or special skills. (The type of glass and the size can be found under the left glazing bead.)

4. Retrofitting and new construction are made easier because windows are available in any size and *almost* any shape. Complete and simple installation instructions accompany each window.

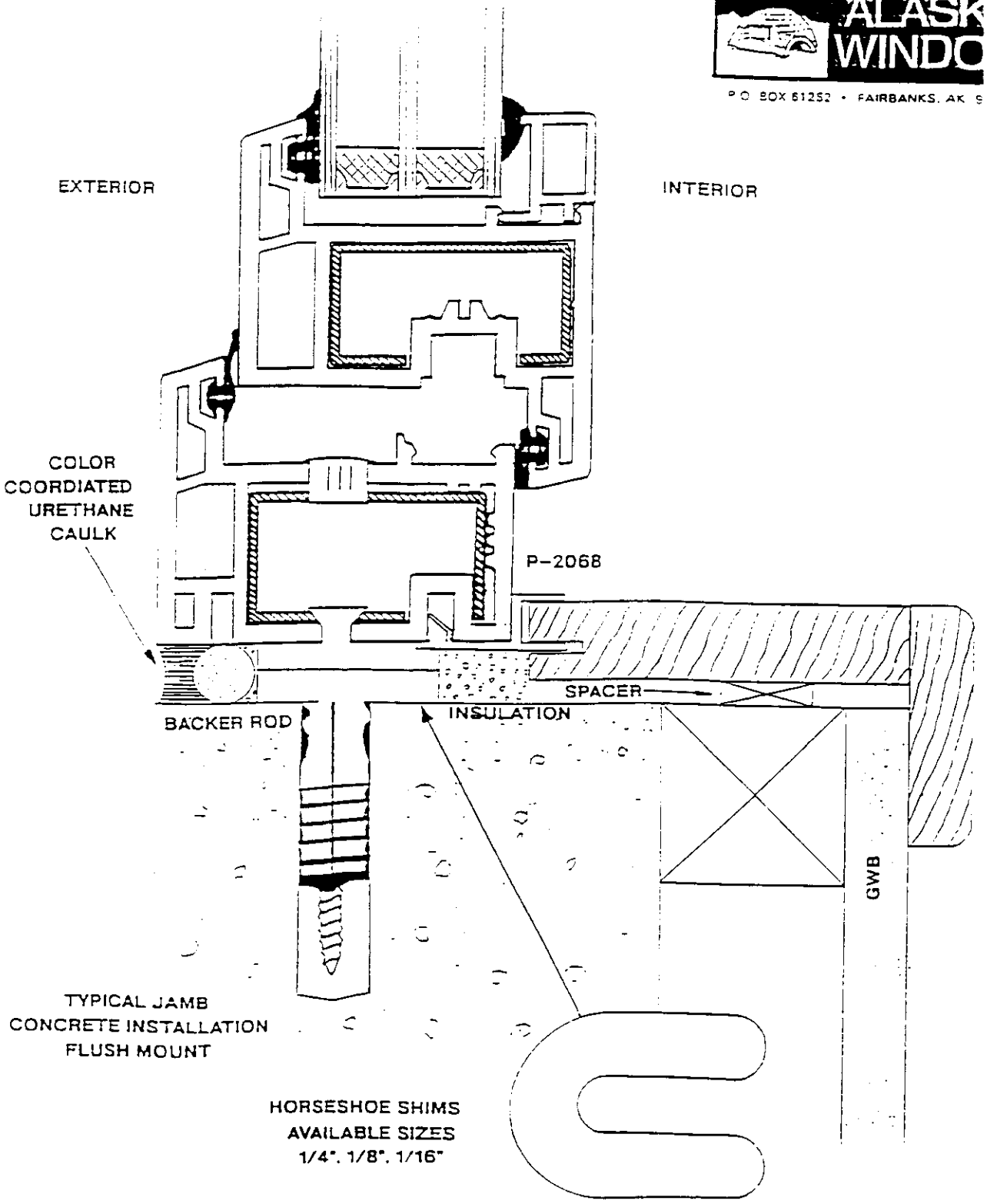
5. The windows will last as long as the building they are installed in and there is no painting or preservation of any kind required.

The **ALASKA WINDOW COMPANY** is located at Mile 353.6 on the George Parks Highway, between Fairbanks and Ester. To arrange a tour of the factory please call Monday through Friday, 8:00 AM to 5:00 PM

ALASKA WINDOW Co. is a privately financed Alaskan owned and operated business.

(AW#2)

ALASK
WINDO
P O BOX 61252 • FAIRBANKS, AK 9



GE Lighting Systems

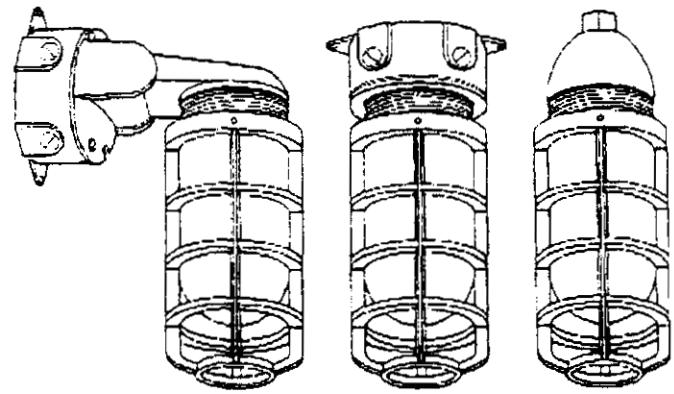
H7 ENCLOSED AND GASKETED LUMINAIRE

APPLICATIONS

Indoor or outdoor non-hazardous locations where lamp protection from rain and the elements is needed

SPECIFICATION FEATURES

- UL Listed SUITABLE FOR WET LOCATIONS
- Standard construction is IP55
- Low copper aluminum alloy housing with gray paint finish
- Incandescent model up to 150 watts (A-21)
- Fluorescent model uses 13 watt biaxial lamp
- Luminaires are single packed and shipped in one carton



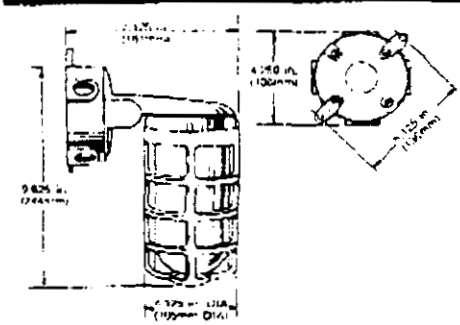
Wall Bracket Mounted | Ceiling Mounted | Pendant Mounted

ORDERING NUMBER LOGIC

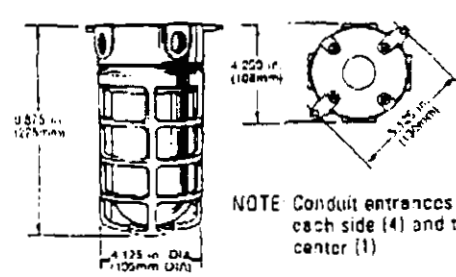
UL LISTED

H7	1	13B	3C	DD
PRODUCT I.D. XX	VOLTAGE X	LAMP TYPE XXX	MOUNTING XX	OPTIONS XX
H7 = An Enclosed and Gasketed Luminaire	1 = 120 X = 250 volt maximum	13B = 13 watt Biaxial Fluorescent 120 volt (Standard: Lamp included) 15F = 150 watt Medium Base Incandescent A-21 Built 250 volt max (Standard: Lamp not included)	3C = 3/4-in. Ceiling 3P = 3/4-in. Pendant 3W = 3/4-in. Wall	DD = Clear Globe with Guard

DIMENSIONS

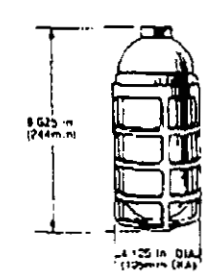


WALL MOUNTED



NOTE: Conduit entrances on each side (4) and top center (1)

CEILING MOUNTED



PENDANT MOUNTED

DATA

NOTE: Operating amperes is 0.3 for 13 watt fluorescent

Approximate Net Weight:		
Pendant with Guard	2.75 lbs	(1.25 kgs)
Ceiling with Guard	2.75 lbs	(1.25 kgs)
Wall Bracket with Guard	3.30 lbs	(1.50 kgs)

[illegible] unless otherwise noted.

REFERENCES

See Page 2900 for start of Accessories

APPENDIX H

Tatitlek EVOS Station Preliminary Design
March 7, 1997

Tatitlek EVOS Station
Preliminary Design

Prepared for
Prince William Sound Economic Development Council

March 7, 1997

Stephl Engineers
2525 Blueberry, Suite 203
Anchorage, Alaska 99503
(907) 274-7170

In association with
USKH

CONTENTS

Section 1
Purpose of Preliminary Design Memorandum

The purpose of this submittal is to present the proposed preliminary design of the Environmental Operation Stations (EVOS Stations) project. This memorandum will be reviewed and evaluated by members of the Sound Waste Management Plan (SWMP) Committee.

A SWMP Committee meeting was held on January 28, 1997, in Anchorage, to discuss the conceptual design, make changes and answer questions about the proposed projects.

A second SWMP Committee meeting will be held during March. The purpose of this meeting is to receive input from the stakeholders before proceeding with the final design and construction of the facilities.

This project is being designed by Stephl Engineers in association with USKH. Stephl Engineers is under contract to the Prince William Sound Economic Development Council, Inc. (PWSEDC), the organization managing the project. The Alaska Department of Environmental Conservation (ADEC) is the lead state agency administering the project.

Section 2
Project Description

The EVOS Station design has been modified, based on what we learned during the conceptual design, and from input received during the first Sound Waste Management Plan (SWMP) meeting held in January. The purpose of the modifications is to better meet the goals of the community as well as maintaining the project within the available funding limit.

The project will still accomplish the overall goal of preventing marine pollution that is generated from the five Prince William Sound communities.

The purpose of the EVOS Station in Tatitlek is to handle used oil and provide storage for recycled materials.

The recommended first priority is to have the new EVOS Station building installed. It is proposed that a prefabricated 10 foot wide by 24 foot long steel building designed to store oil and recyclable hazardous materials be purchased and installed in the community. This structure is available for purchase as a single piece of equipment and is totally self-contained. The steel building comes with containment sumps and is approved for storage of oily and recyclable wastes. The building will sit on a gravel pad constructed at a site selected by the community. The EVOS Station will not be connected to the water and sewer system. Electricity will be connected to the building. The following figure shows the proposed building and gravel pad.

The construction work for the gravel pad and installation of the building would be performed by local labor under the supervision of the PWSEDC. The second highest priority is to collect used oil. To meet this need, a 500 gallon oil storage tank, oil/water separator, mobile oil pump and miscellaneous containers and equipment will be purchased. In addition, an operation and maintenance manual and staff training will be provided. This equipment will be purchased directly from equipment suppliers by the PWSEDC.

The third highest priority is to burn used oil. This equipment includes a 125,000 BTU used oil heater and a oil filtration system. In this case, the equipment would be purchased and delivered to the community by PWSEDC. The community would be responsible for installing the heater in a building of their choice.

The fourth highest priority is to pump and handle oily bilge water. This equipment includes a pump, tank and miscellaneous piping and controls. If there are sufficient funds remaining, an oil filter crusher and oily material burner may be purchased.

Equipment purchased for the buildings would be installed with local labor. Equipment would be purchased directly from suppliers. PWSEDC will coordinate getting the equipment to the sites.

Section 3
Equipment

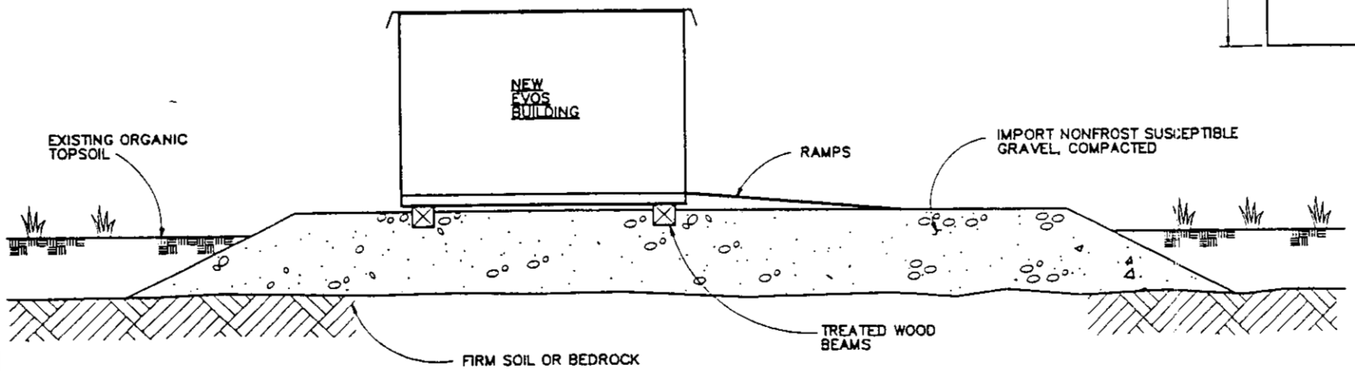
Equipment will be purchased by PWSEDC after contractor bids are received for the EVOS Station building and the amount of remaining funds are better known. The equipment requested by Tatitlek is listed below in order of priority.

Priority	Item
1	500 gallon oil storage tank
2	oily water separator
3	mobile pump and hoses
4	miscellaneous equipment
5	O&M manual and training
6	125,000 BTU heater
7	portable bilge water pump and tank
8	oil filter crusher
9	oily material burner

A brief description of the equipment is provided below. Manufacturer cut sheets are provided in this memorandum.

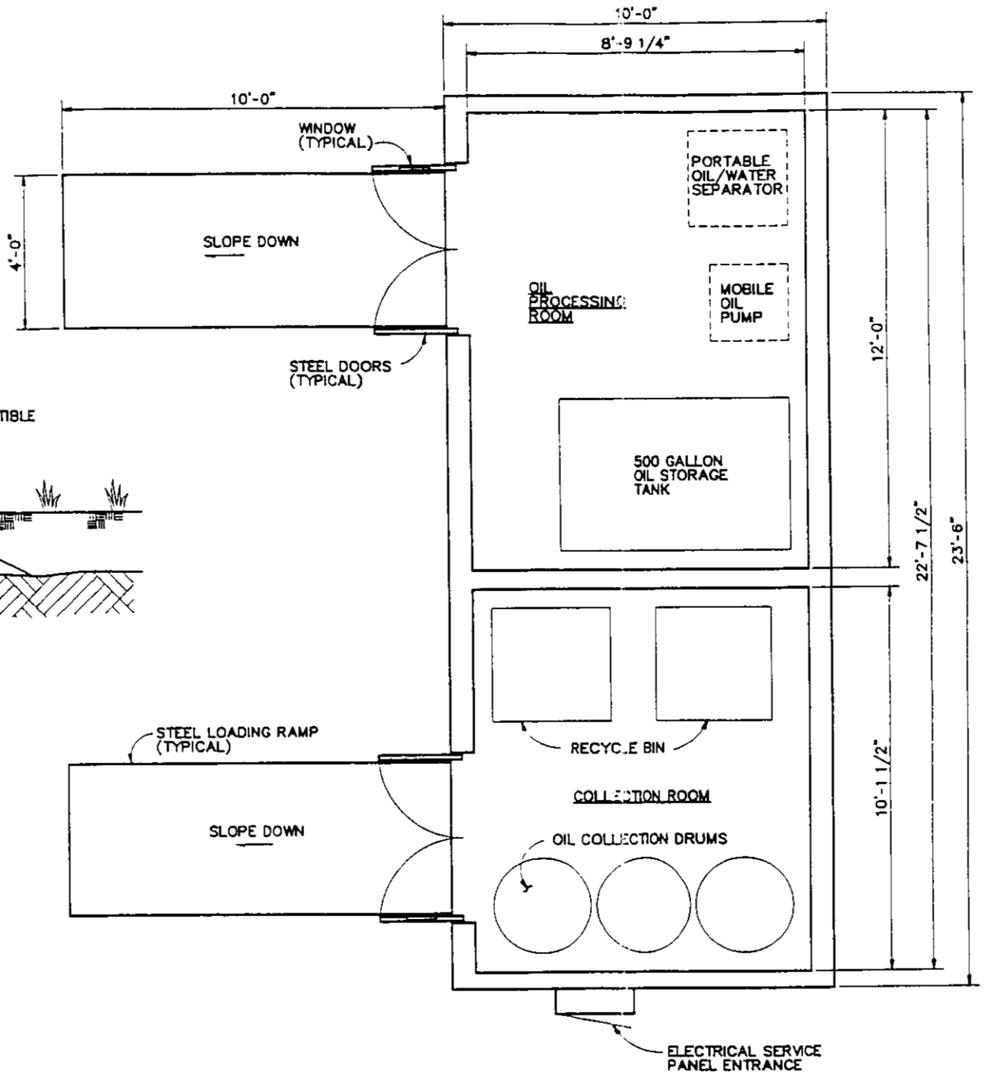
The 500 gallon oil storage tank will be a single containment circular steel tank mounted on skids. It will include a manhole, and appropriate fittings and valves.

The oily water separator will be an OilTrap MA 4000 portable unit capable of treating liquid to less than 1 ppm hydrocarbons at a 2 to 3 gpm flow rate. It will be mounted wheels. Clean liquid from the separator will be discharged directly into a sewer manhole.



TYPICAL GRAVEL PAD

NTS



PREFABRICATED EVOS STATION BUILDING

1/4"=1'-0"

70%
SUBMITTAL
3/07/97

Date Stamped:

By	Revision	Date

STEPHL ENGINEERS
2525 Blueberry, Ste. 203
Anchorage, Alaska 99503
(907) 274-7170
(907) 277-4722 FAX

USKH
Architecture • Engineering
Land Surveying • Planning
2515 'A' Street
Anchorage, Alaska 99503
(907) 276-4246
(907) 258-4653 FAX

Project: ~~TANTLEY~~ & CHENEGA
~~CORDOVA~~
EVOS
STATION

PRINCE WILLIAM
SOUND ECONOMIC
DEVELOPMENT
COUNCIL

Project Mgr.	M.S.
Drawn	VND
Drawn	
Checked	
Date	3-07-97

Sheet Contents:

FLOOR PLAN

Sheet No.:

C1

STEPHL W.O. 9615
USKH W.O. 510604

PLOT SCALE:

FILE NAME:

The mobile pump and hoses are be needed to transfer oil products from the daily collection tanks. transfer clean oil for shipment to other oil heating units in the community, etc. This will be a gear pump that is driven by an explosion proof electric motor.

Miscellaneous equipment will include hoses and fittings to transfer and dispose of oil and bilge water.

O&M manual and training will include development of an O&M manual for equipment in the building and recommendations for handling and disposal of collected materials. Manufacturers equipment operation manuals will be included in the O&M manual. The extent of training has not been determined. One recommendation was to gather all the operators together and have a materials disposal specialist provide a training seminar.

A 125,000 BTU used oil heating unit will be purchased and supplied to the community. Tatitlek will be responsible for designing and installing the heater in a location selected by the community.

The portable bilge water pump and tank will be a unit containing a 75 gallon single wall steel tank and electric pump with a suction hose. This piece of equipment will be fabricated specifically for this purpose. It will be mounted on wheels and weigh less than 1000 pounds when loaded. The unit will be designed to be pulled behind an ATV or other piece of equipment. Operation of the unit be accomplished by placing the suction line into the bilge and manually turning on the suction pump. The user or operator will watch the level of liquid in the adjacent steel tank and turn off the pump when pumping is complete or when the skid mounted tank is full. The tank will have a level gauge or sight glasses installed to determine the liquid level. Permanent piping and valves installed between the tank and pump will allow the user to both fill and empty the tank with the pump as needed. The pump will be provided with an explosion proof electric motor to reduce the chance of fire if flammable or explosive products are pumped by accident. A diaphragm type pump is recommended. A typical 2-inch diameter pump is capable of pumping up to a 25 foot suction lift at 20 gpm or 33 gpm at a 15 foot lift.

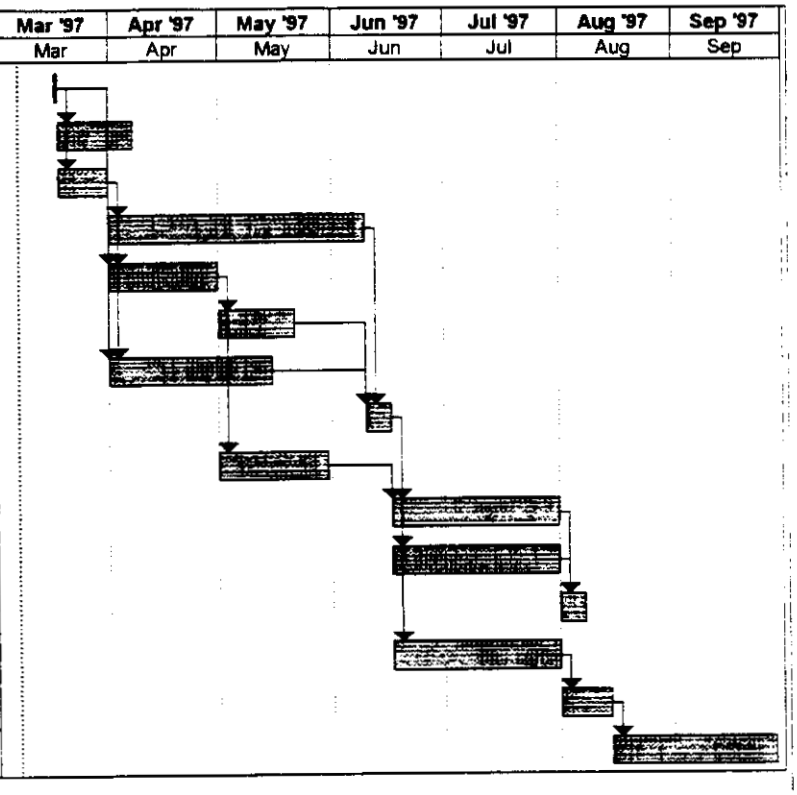
The oil filter crusher will be a Oberg model P100WM electric/hydraulic unit capable of crushing automotive and light industrial size filters. It mounts on the wall.

The oily material burner will be a SmartAsh model that is power by two 120V blowers. This unit fits on a 55 gallon drum.

Section 4
Project Schedule

The proposed schedule for this project is shown on the following bar chart.

ID	Task Name	Duration
1	Second SWMP Meeting	1d
2	ADEC Preliminary Review	21d
3	Site selection (assume 14 days)	14d
4	NEPA Environmental Assessmnt	70d
5	Final design	30d
6	ADEC, Fire Marshal Review	21d
7	Community Approval/Agreement	45d
8	ADEC Approval of Phase II	7d
9	Building Quotes	30d
10	Building Purchase and Ship	45d
11	Site Construction	45d
12	Building Install	7d
13	Equipment Purchase	45d
14	Equipment Install	14d
15	O&M Manuals and Training	45d



Project: Tatitlek and Chenega EVOS St
Date: Fri 3/7/97

Task
Progress
Milestone
Summary

Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

Section 5
Project Costs

35,500

There is ~~$188,500~~ in funding available from the project to construct the building, purchase equipment and complete the O&M manual and training.

Tatitlek EVOS Station Cost Estimate				
3/8/97 15:55				
				Extended
Description	Unit	Quantity	Unit Price	Total
Base Bid				
Mobilization/demobilization	LS	1	$2,000	$2,000
Site survey	EA	1	$3,500	$3,500
Foundation preparation	LS	1	$12,000	$12,000
Prefabricated 9' X 24' steel building	EA	1	$24,000	$24,000
Shipping for building	EA	1	$12,000	$12,000
Electrical service	LS	1	$1,500	$1,500
Contingency (20%)				$11,000
Subtotal				$66,000
Option 1 Oil Collection Equipment				
500 gallon storage tank, single wall	EA	1	$1,000	$1,000
Oily water separator	EA	1	$6,000	$6,000
Oil transfer pump, Dismas GP8-152	EA	1	$4,000	$4,000
Misc. containers, equipment, hoses	EA	1	$2,500	$2,500
O&M manual and training	EA	1	$5,000	$5,000
Contingency (20%)				$3,700
Subtotal				$22,200
Option 2 Used Oil Heater				
125,000 BTU heater	EA	1	$8,000	$8,000
Subtotal				$8,000
Option 3 Bilge Water Handling				
75 gallon portable bilge pump and tank	LS	1	$8,000	$8,000
Option 4 Equipment				
Oil filter crusher	EA	1	$2,000	$2,000
Oily material burner	EA	1	$4,000	$4,000
Subtotal				$6,000
TOTAL COST				$110,200

Section 6
Building Code Review and Issues

A building code review has been completed to determine the EVOS Stations building classification, safety requirements, ventilation requirements, fire detection and prevention requirements, access requirements, interior finish requirements, separation to adjacent structures, electrical equipment requirements, fire suppression needs, and any other special needs. This code review is based on the 1994 Uniform Building Code (UBC).

THERE ARE RESTRICTIONS ON CERTAIN TYPES OF WASTE HANDLING ACTIVITIES THAT CAN OCCUR IN THIS BUILDING.

The building will be designed to meet an F and S occupancy. The building will not been designed to meet the more costly Class I Division II requirements. To conform to the F and S occupancy, the user must be aware of the following limitations:

- Explosive materials [I A(gas) III.B(oil)] such as gasoline and paint thinners will be limited to a combined volume of 30 gallons to be approved for storage in the building.
- Quantities of materials shall not be in excess of those listed in U.B.C. Table 3-D and Table 3-E (see attached tables).
- Storage and use of flammable ad combustible liquids shall be in accordance with the 1994 Uniform Fire Code.

The following paragraphs contain a description of the various codes and rules that apply to the construction and operation of the EVOS Stations.

Occupancy classification: Table 3-A

F1 Refuse incineration Sec. 306
Quantity of used oil (III-B) is less than quantity allowed in Table 3-D (13,200 Gallons), therefore occupancy is not a H2 (hazardous) occupancy.

S1 Storage - combustible materials

Table 3-B Required Separation in Buildings of Mixed Occupancy (Hours)

F1 to S1 = N (no requirements for fire resistance)

Type of Construction: II-N Metal

Location on property: Table 5-A
F1 and S1; II N

Exterior walls, bearing = 1 hr < 20 ft.

TABLE 3-D—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS PRESENTING A PHYSICAL HAZARD
MAXIMUM QUANTITIES PER CONTROL AREA[1]
When two units are given, values within parentheses are in cubic feet (cu. ft.) or pounds (lbs.)

CONDITION		STORAGE[2]			USE[2]—CLOSED SYSTEMS			USE[2]—OPEN SYSTEMS	
Material	Class	Solid Lbs.[3] Cu. Ft.[3] × 0.4536 for kg × 0.0283 for m³	Liquid Gallons[3] (Lbs.) × 3.785 for L × 0.4536 for kg	Gas Cu. Ft. × 0.0283 for m³	Solid Lbs. (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons (Lbs.) × 3.785 for L × 0.4536 for kg	Gas Cu. Ft. × 0.0283 for m³	Solid Lbs. (Cu. Ft.) × 0.4536 for kg × 0.0283 for m³	Liquid Gallons (Lbs.) × 3.785 for L × 0.4536 for kg
1.1 Combustible liquid[4,5,6,7,8,9]	II	N.A.	120[10]	N.A.	N.A.	120	N.A.	N.A.	30
	III-A	N.A.	330[10]	N.A.	N.A.	330	N.A.	N.A.	80
	III-B	N.A.	13,200[10,11]	N.A.	N.A.	13,200[11]	N.A.	N.A.	3,300[11]
1.2 Combustible fiber (loose) (baled)		100) 1,000)	N.A. N.A.	N.A. N.A.	(100) (1,000)	N.A. N.A.	N.A. N.A.	(20) (200)	N.A. N.A.
1.3 Cryogenic, flammable or oxidizing		N.A.	45	N.A.	N.A.	45	N.A.	N.A.	10
2.1 Explosives[12]		[10,13]	(1)[10,13]	N.A.	[13]	(1/4)[13]	N.A.	[13]	(1/4)[13]
3.1 Flammable solid		[10]	N.A.	N.A.	[13]	N.A.	N.A.	[13]	N.A.
3.2 Flammable gas (gaseous) (liquefied)		N.A. N.A.	N.A. 15[6,10]	750[6,10] N.A.	N.A. N.A.	N.A. 15[6,10]	750[6,10] N.A.	N.A. N.A.	N.A. N.A.
3.3 Flammable liquid[4,5,6,7,8,9]	I-A	N.A.	30[10]	N.A.	N.A.	30	N.A.	N.A.	10
	I-B	N.A.	60[10]	N.A.	N.A.	60	N.A.	N.A.	15
	I-C	N.A.	90[10]	N.A.	N.A.	90	N.A.	N.A.	20
Combination I-A, I-B, I-C[15]		N.A.	120[10]	N.A.	N.A.	120	N.A.	N.A.	30
4.1 Organic peroxide, unclassified detonatable		[10,12]	(1)[10,12]	N.A.	[12]	(1/4)[12]	N.A.	[12]	(1/4)[12]
4.2 Organic peroxide	I	[10]	(5)[6,10]	N.A.	[6]	(1)[6]	N.A.	[6]	(1)[6]
	II	50[6,10]	(50)[6,10]	N.A.	50[6]	(50)[6]	N.A.	10[6]	(10)[6]
	III	125[6,10]	(125)[6,10]	N.A.	125[6]	(125)[6]	N.A.	25[6]	(25)[6]
	IV	500[6,10]	(500)[6,10]	N.A.	500[6]	(500)[6]	N.A.	100[6]	(100)[6]
	V	N.L.	N.L.	N.A.	N.L.	N.L.	N.A.	N.L.	N.L.
4.3 Oxidizer	4	[10,12]	(1)[10,12]	N.A.	[12]	(1/4)[12]	N.A.	[12]	(1/4)[12]
	3[16]	[10,10]	(10)[6,10]	N.A.	[6]	(2)[6]	N.A.	[6]	(2)[6]
	2	250[6,10]	(250)[6,10]	N.A.	250[6]	(250)[6]	N.A.	50[6]	(50)[6]
	1	4,000[6,10]	(4,000)[6,10]	N.A.	4,000[6]	4,000)[6]	N.A.	1,000[6]	(1,000)[6]
4.4 Oxidizer—gas (gaseous)[6,10] (liquefied)[6,10]		N.A. N.A.	N.A. 15	1,500 N.A.	N.A. N.A.	N.A. 15	1,500 N.A.	N.A. N.A.	N.A. N.A.
5.1 Pyrophoric		[10,12]	(4)[10,12]	50[10,12]	[12]	(1)[12]	10[10,12]	0	0
6.1 Unstable (reactive)	4	[10,12]	(1)[10,12]	10[10,12]	[12]	(1/4)[12]	2[10,12]	[12]	(1/4)[12]
	3	5[6,10]	(5)[6,10]	50[6,10]	[6]	(1)[6]	10[6,10]	[6]	(1)[6]
	2	50[6,10]	(50)[6,10]	250[6,10]	50[6]	(50)[6]	250[6,10]	10[6]	(10)[6]
	1	N.L.	N.L.	750[6,10]	N.L.	N.L.	N.L.	N.L.	N.L.
7.1 Water reactive	3	[6,10]	(5)[6,10]	N.A.	[6]	(5)[6]	N.A.	[6]	(1)[6]
	2	50[6,10]	(50)[6,10]	N.A.	50[6]	(50)[6]	N.A.	10[6]	(10)[6]
	1	125[10,11]	(125)[10,11]	N.A.	125[11]	(125)[11]	N.A.	25[11]	(25)[11]

N.A.—Not applicable. N.L.—Not limited.

[1]Control areas shall be separated from each other by not less than a one-hour fire-resistive occupancy separation. The number of control areas within a building used for retail or wholesale sales shall not exceed two. The number of control areas in buildings with other uses shall not exceed four. See Section 204.

[2]The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

[3]The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials within a single control area of Group M Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

[4]The quantities of alcoholic beverages in retail sales uses are unlimited provided the liquids are packaged in individual containers not exceeding four liters. The quantities of medicines, foodstuffs and cosmetics containing not more than 50 percent of volume of water-miscible liquids and with the remainder of the solutions not being flammable in retail sales or storage occupancies are unlimited when packaged in individual containers not exceeding four liters.

[5]For aerosols, see the Fire Code.

[6]Quantities may be increased 100 percent in sprinklered buildings. When Footnote 10 also applies, the increase for both footnotes may be applied.

[7]For storage and use of flammable and combustible liquids in Groups A, B, E, F, H, I, M, R, S and U Occupancies, see Sections 303.8, 304.8, 305.8, 306.8, 307.1.3 through 307.1.5, 308.8, 309.8, 310.12, 311.8 and 312.4.

[8]For wholesale and retail sales use, also see the Fire Code.

[9]Spray application of any quantity of flammable or combustible liquids shall be conducted as set forth in the Fire Code.

[10]Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the Fire Code. When Footnote 6 also applies, the increase for both footnotes may be applied.

[11]The quantities permitted in a sprinklered building are not limited.

[12]Permitted in sprinklered buildings only. None is allowed in unsprinklered buildings.

[13]One pound of black sporting powder and 20 pounds (9 kg) of smokeless powder are permitted in sprinklered or unsprinklered buildings.

[14]See definitions of Divisions 2 and 3 in Section 307.1.

[15]Containing not more than the exempt amounts of Class I-A, Class I-B or Class I-C flammable liquids.

[16]A maximum quantity of 200 pounds (90.7 kg) of solid or 20 gallons (75.7 L) of liquid Class 3 oxidizers may be permitted in Groups I, R and U Occupancies when such materials are necessary for maintenance purposes or operation of equipment as set forth in the Fire Code.

TABLE 3-E—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS PRESENTING A HEALTH HAZARD MAXIMUM QUANTITIES PER CONTROL AREA[1,2]

When two units are given, values within parentheses are in pounds (lbs.)

MATERIAL	STORAGE[3]			USE[3]—CLOSED SYSTEMS			USE[3]—OPEN SYSTEMS	
	Solid Lbs.[4,5,6]	Liquid Gallons[4,5,6] (Lbs.)	Gas Cu. Ft.[5]	Solid Lbs.[4,5]	Liquid Gallons[4,5] (Lbs.)	Gas Cu. Ft.[5]	Solid Lbs.[4,5]	Liquid Gallons[4,5] (Lbs.)
	× 0.4536 for kg	× 3.785 for L × 0.4536 for kg	× 0.028 for m^3	× 0.4536 for kg	× 3.785 for L × 0.4536 for kg	× 0.028 for m^3	× 0.4536 for kg	× 3.785 for L × 0.4536 for kg
1. Corrosives	5,000	500	810^6	5,000	500	810^6	1,000	100
2. Highly toxics[7]	1	(1)	20^8	1	(1)	20^8	1/4	(1/4)
3. Irritants[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
4. Sensitizers[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
5. Other health hazards[9]	5,000	500	810^6	5,000	500	810^6	1,000	100
6. Toxics[7]	500	(500)	810^6	500	(500)	810^8	125	(125)

[1]Control areas shall be separated from each other by not less than a one-hour fire-resistive occupancy separation. The number of control areas within a building used for retail or wholesale sales shall not exceed two. The number of control areas in buildings with other uses shall not exceed four. See Section 204.

[2]The quantities of medicines, foodstuffs and cosmetics, containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, in retail sales uses are unlimited when packaged in individual containers not exceeding 4 liters.

[3]The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

[4]The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid health hazard materials within a single control area of Group M Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

[5]Quantities may be increased 100 percent in sprinklered buildings. When Footnote 6 also applies, the increase for both footnotes may be applied.

[6]Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the Fire Code. When Footnote 5 also applies, the increase for both footnotes may be applied.

[7]For special provisions, see the Fire Code.

[8]Permitted only when stored in approved exhausted gas cabinets, exhausted enclosures or fume hoods.

[9]Irritants, sensitizers and other health hazards do not include commonly used building materials and consumer products which are not otherwise regulated by this code.

Exterior walls, nonbearing = 1 hr < 20 ft.

Openings: Not permitted < 5 ft.
Protected < 10 ft.

Allowable Floor Areas: Table 5-B

F-1, S-1, II-N = 12,000 square feet.

Actual Floor Area: 216 square feet.

The actual area is less than the allowable area and therefore the building complies.
Area increases are not required and neither are area separation walls.

Allowable Height and number of stories: Table 5-B

F-1, S-1 II N Max height = 2 stories 55 ft.

The building complies.

Review the building for conformity with the occupancy requirements.

302.5 Heating Equipment Room Occupancy Separation. In Groups A; B; E; F; I; M; R, Division 1; and S Occupancies, rooms containing a boiler, central heating plant or hot-water supply boiler shall be separated from the rest of the building by not less than a one-hour occupancy separation.

EXCEPTIONS: In Groups A, B, F, I, M and S Occupancies, boilers, central heating plants or hot water supply boilers where the largest piece of fuel equipment does not exceed 400,000 Btu per hour (117.2kW) input.

NOTE: Heating equipment is less than 400,000 BTU per hour, therefore separation is not required.

Section 306, F occupancies (F1). #35 Refuse Incineration

306.5 Light, Ventilation and Sanitation. In Group F Occupancies, light, ventilation and sanitation shall be as specified in Chapter 12 and 29. At least 6 continuous air changes per hour will be required.

306.8 Special Hazards. For special hazards of Group F Occupancies, see Section 304.8

304.8 Special Hazards. Chimneys and heating apparatus shall conform to the requirements of Chapter 31 of this code and the Mechanical Code.

Storage and use of flammable and combustible liquids shall be in accordance with the Fire Code.

Devices generating aglow, spark or flame capable of igniting flammable vapors shall be installed such that sources of ignition are at least 18 inches (457 mm) above the floor of any room in which Class I flammable liquids or flammable gases are used or stored.

Section 311 - Group S Occupancies (S1)

311.5 Light, Ventilation and Sanitation. In Group S Occupancies, light, ventilation and sanitation shall be as contained in Chapters 12 and 29.

311.8 Special Hazards. For special hazards of Group S Occupancies, see Section 304.8 Storage and use of flammable and combustible liquids shall be in accordance with the Fire Code.

Section 7
Permits Required Prior to Beginning Construction

Approval is needed from a number of different local, state and federal agencies before construction can begin on the new building.

Local Permits

A City of Valdez building permit will be required. Final plans of the Valdez EVOS building will be submitted to the City's building department for review. It is assumed that the City will not charge a review fee for this project.

State Permits

A Coastal Questionnaire will be filled out and submitted to the Department of Governmental Coordination (DGC).

An approval of the plans will be required from the ADEC. The preliminary design will be submitted to the Valdez office of ADEC for review and a follow up meeting will be held with the Department representative to discuss any critical issues identified in the preliminary design. After the plans are revised, the final design will be submitted to the agency along with a request for an "approval to construct" the facilities. At completion of the construction, asbuilts and other necessary forms will be submitted to ADEC and a request for an "approval to operate" the facilities will be requested.

Final plans and specifications of the EVOS Station will be submitted to the State of Alaska Fire Marshall's office for review and approval.

Federal Permits

To meet the requirements for EVOS funded projects, a document will be prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project.

An Environmental Assessment (EA) will be completed and published for comment by the public for 30 days. Comments received will be incorporated into the final EA. Assuming there are no significant impacts identified, it is anticipated the USFS will approve the EA.

Section 8
Community Authorization and Acceptance of Project

Before construction of the EVOS Stations can proceed, Valdez will be required to authorize and accept responsibility for operation of the proposed facilities. Phase II construction will be approved by EVOS and ADEC, after the appropriate legally binding notarized Letter of Agreement with Valdez is received. This agreement must be signed by an executive officer of the community who is legally entitled to obligate the community and the Executive Director of the PWSEDC. The letter of agreement must contain, but is not limited to, agreement that:

A.) The community will obtain all titles, easements, and permits necessary to provide clear title and authority to construct and maintain the proposed project.

B.) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management, and maintenance of the EVOS facility after construction has been completed. Accidental discharge of waste products from the facilities, after final transfer to the community had been affected, is the sole responsibility of the community where the accident occurs. In the event of an accident, PWSEDC, its agents, subcontractors, and consultants will be held harmless for resultant damages.

C.) The PWSEDC and its subcontractors may enter upon the community's property and construct the project.

D.) The location, construction, and management of these buildings will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream, or body of water.

E.) The PWSEDC and the community will hold harmless, the ADEC and the EVOS Trustee Council, its officers, agents, and employees from liability of any kind, including costs and expenses, for or on account of any and all suits or damages of any nature, sustained by any person, persons or property, by virtue of performance of the PWSEDC or community acting in place of or for PWSEDC for this project.

Section 9
Questions

Your community's assistance with the following questions is requested.

1. Identify a site for the new building. Ideally it should be located near a sewer manhole and near the boat harbor.
2. If a site is selected, identify the legal owner and legal description.
3. Who is going to operate the new building and equipment?
4. Who is the governing board in the community that will approve the community acceptance agreement?
5. Is gravel available for the site fill, who owns it and what is the cost?
6. Is there heavy equipment in the community at this time that can be used to construct the gravel pad and help place the prefabricated building?

Section 10
Equipment Cut Sheets

The following pages contain manufacturer's cuts of equipment for the EVOS Station.

Dismas Pumps

Monday, February 03, 1997

GEAR PUMP
OIL
TRANSFER

Matt Stephl
Stephl Engineering
2525 Blueberry, Ste #203
Anchorage, AK 99503

Dear Matt Stephl

Reference: **Dismas Pumps** - High-Volume Pump Systems

Thank you for your interest in Dismas Pumps extensive line of positive displacement, gear driven transfer pumps. Requested information is enclosed.

DISMAS PUMPS PROVIDES:

- Explosion Proof Pumping System for operating in hazardous environments.
- All Dismas pumps can be operated dry with no damage and are self-priming.
- 12 and 24 volt DC pumps that will pump 40 WT oil at 40 F up to 40 GPM & diesel up to 70 GPM.
- Lightweight 110/220 volt AC pumps that will transfer heavy viscous materials such as motor oils & gear lubes. UL & CSA listed motors.

These innovative pumps are currently transferring fluids for hundreds of satisfied customers from commercial and industrial to bulk oil distributors for Pennzoil, Exxon, Chevron, Unocal and Texaco.

To place your order, Fax your credit application along with your confirming Purchase Order to Fax # 406-245-5606 or call (800) 874-8976.

Sincerely,

CAROL STIGEN
Dismas Pumps

P.O. Box 80008, Billings, MT 59108-0008 1110 Maggie Lane, Billings, MT 59101 406-259-8282 800-874-8976 Fax 406-245-5606

Dismas Pumps

EFFECTIVE
MAR.1,1996

PRICE LIST

DISMAS PRODUCT NO.	DESCRIPTION	LIST PRICE
#1001	GP8-HP-100: HAND OPERATED PUMP, BI-DIRECTIONAL	$225.00
#4001	GP8-DC-050-EP: 12 VOLT, 60 AMPS, 1.0 HP	$1,345.00
#4021	GP8-DC-050-EP: 24 VOLT, 30 AMPS, 1.0 HP	
#4002	GP8-DC-050-EP-BP: 12 VOLT, 60 AMPS, 1.0 HP	$1,645.00
#4022	GP8-DC-050-EP-BP: 24 VOLT, 30 AMPS, 1.0 HP	
#4501	GP8-DC-100: 12 VOLT, 100 AMPS, 1 HP	$1,541.00
#4521	GP8-DC-100: 24 VOLT, 50 AMPS, 1 HP	
#4502	GP8-DC-100-BP: 12 VOLT, 100 AMPS, 1HP	$1,840.00
#4522	GP8-DC-100-BP: 24 VOLT, 50 AMPS, 1HP	
#4601	GP8-DC-100-EP: 12 VOLT, 100 AMPS, 1HP	$1,690.00
#4621	GP8-DC-100-EP: 24 VOLT, 50 AMPS, 1HP	
#4602	GP8-DC-100-EP-BP: 12 VOLT, 100 AMPS, 1HP	$1,975.00
#4622	GP8-DC-100-EP-BP: 24 VOLT, 50 AMPS, 1HP	
#2001	GP8-AC-100: 110/230 VOLT AC, 1 1/2 HP, 2.5:1 RATIO	$1,515.00
#2002	GP8-AC-102: 110/230 VOLT AC, 1 1/2 HP, 2:1 RATIO	
#2003	GP8-AC-103: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	
#2101	GP8-AC-100-BP: W/BY-PASS	$1,815.00
#2102	GP8-AC-102-BP: W/BY-PASS	
#2103	GP8-AC-103-BP: W/BY-PASS	
#2501	GP8-AC-150: 110/230 VOLT AC, 1 1/2 HP, 2.5:1 RATIO	$2,190.00
#2502	GP8-AC-152: 110/230 VOLT AC, 1 1/2 HP, 2:1 RATIO	
#2503	GP8-AC-153: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	
#2521	GP8-AC-150: W/DRIP CONTAINMENT TANK	$2,270.00
#2522	GP8-AC-152: W/DRIP CONTAINMENT TANK	
#2523	GP8-AC-153: W/DRIP CONTAINMENT TANK	
#2601	GP8-AC-150-BP: W/SWIVEL 90 ELBOWS	$2,375.00
#2602	GP8-AC-152-BP: W/SWIVEL 90 ELBOWS	
#2603	GP8-AC-153-BP: W/SWIVEL 90 ELBOWS	
#2621	GP8-AC-150-BP: W SWIVEL ELBOWS, TANK	$2,660.00
#2622	GP8-AC-152-BP: W/SWIVEL ELBOWS, TANK	
#2623	GP8-AC-153-BP: W/SWIVEL ELBOWS, TANK	
#2641	GP8-AC-150-BP: W/SWIVEL ELBOWS, TANK, [illegible]	$3,140.00
#2642	GP8-AC-152-BP: W/SWIVEL ELBOWS, TANK, [illegible]	
#2643	GP8-AC-153-BP: W SWIVEL ELBOWS, TANK, [illegible]	

P.O. Box 80008 B[illegible] VT 05[illegible]-1008 [illegible] 802-[illegible]-6080 800-874-8[illegible] Fax 802-[illegible]

DISMAS PRODUCT NO.	DESCRIPTION	PAGE 2 LIST-96
#3001	GP8-AC-100-EP:EXPLOSION-PROOF AC,1.5 HP,2.5:1 RATIO	$1,810.00
#3002	GP8-AC-102-EP:EXPLOSION-PROOF AC,1.5 HP,2:1 RATIO	
#3003	GP8-AC-103-EP:EXPLOSION-PROOF AC,1.5 HP,3:1 RATIO	
#3101	GP8-AC-100-EP-BP: W BY-PASS	$2,110.00
#3102	GP8-AC-102-EP-BP: W BY-PASS	
#3103	GP8-AC-103-EP-BP: W BY-PAS	
#3501	GP8-AC-150-EP:EXPLOSION-PROOF AC,1.5HP,2.5:1 RATIO	$2,995.00
#3502	GP8-AC-152-EP:EXPLOSION-PROOF AC,1.5HP,2:1 RATIO	
#3503	GP8-AC-153-EP:EXPLOSION-PROOF AC,1.5HP,3:1 RATIO	
#3521	GP8-AC-150-EP: W/DRIP CONTAINMENT TANK	$3,190.00
#3522	GP8-AC-152-EP: W/DRIP CONTAINMENT TANK	
#3523	GP8-AC-153-EP: W/DRIP CONTAINMENT TANK	
#3601	GP8-AC-150-EP-BP: W/SWIVEL 90 ELBOWS	$3,325.00
#3602	GP8-AC-152-EP-BP: W/SWIVEL 90 ELBOWS	
#3603	GP8-AC-153-EP-BP: W/SWIVEL 90 ELBOWS	
#3621	GP8-AC-150-EP-BP: W/SWIVEL ELBOWS, TANK	$3,410.00
#3622	GP8-AC-152-EP-BP: W/SWIVEL ELBOWS, TANK	
#3623	GP8-AC-153-EP-BP: W/SWIVEL ELBOWS, TANK	
#3641	GP8-AC-150-EP-BP: W/SWIVEL ELBOWS,TANK, NOZZLE	$3,830.00
#3642	GP8-AC-152-EP-BP: W/SWIVEL ELBOWS,TANK, NOZZLE	
#3643	GP8-AC-153-EP-BP: W/SWIVEL ELBOWS,TANK, NOZZLE	
#2901	GP8-AC-200: 110/230 VOLT AC, 1 1/2 HP, 2.5:1 RATIO	$2,220.00
#2902	GP8-AC-202: 110/230 VOLT AC, 1 1/2 HP, 2:1 RATIO	
#2903	GP8-AC-203: 110/230 VOLT AC, 1 1/2 HP, 3:1 RATIO	
#2921	SAME AS #2901 W/DRIP CONTAINMENT TANK	$2,310.00
#2922	SAME AS #2902 W/DRIP CONTAINMENT TANK	
#2923	SAME AS #2903 W/DRIP CONTAINMENT TANK	
#2951	GP8-AC-200-BP: W/BY-PASS	$2,520.00
#2952	GP8-AC-202-BP: W/BY-PASS	
#2953	GP8-AC-203-BP: W/BY-PASS	
#2971	SAMES AS #2951 W/DRIP CONTAINMENT TANK	$2,610.00
#2972	SAMES AS #2952 W/DRIP CONTAINMENT TANK	
#2973	SAMES AS #2953 W/DRIP CONTAINMENT TANK	

NOTE: ALL DC & AC MOTORS ARE UL & CSA LISTED

TERMS & CONDITIONS:
TERMS ARE 2%-10,NET 30 DAYS, WITH APPROVED CREDIT
ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE
ALL PRICES ARE F.O.B. OUR WAREHOUSE + BILLINGS, MT
MINIMUM ORDER - $25.00

Dismas Pumps

ADVANCED TRANSFERRING TECHNOLOGY

NOTHING ELSE IN SHORT DISTANCE

FP_RP

Dismas Pumps

GP8 Mobile Pump Series

This series of general purpose AC-operated pumps can transfer high volumes of light to heavy viscous products with low energy requirements. These versatile pumps are cart-mounted for mobility and are designed to transfer light viscous products such as diesel fuel as well as heavier viscous products such as 250 wt. gear lube.

TYPICAL APPLICATIONS

The AC-150-BP typical applications include direct transfer from 55 gallon drums of light to heavy viscous products and from stationary containers such as totes, and above ground and below ground tanks. These products include diesel fuel, gear lubes, hydraulic oil, motor oil, lubrication oil, antifreeze and industrial products. The AC-150-EP-BP explosion-proof models transfer multi-viscosity liquids such as aviation fuel, paints, gasoline, home heating fuel, waste oil, lacquers and thinners and are operational in explosive atmospheres.

SPECIAL APPLICATIONS

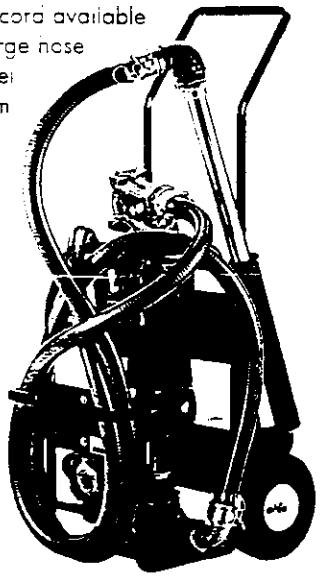
Special applications include auxiliary fire pump, emergency standby pump, factory processing tanks and fire retardant foam.

AC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Custom manufactured needle bearings with inner rings*
- *Viton seals (Optional Buna/nitrile available)*
- *Self priming*
- *Can be operated dry*
- *115/230 volts AC capabilities*
- *By pass*
- *Operational with manual and automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *Complete mobile pumping unit*
- *Designed for mobile transferring of your products*
- *UL and CSA listed motors*
- *Long life durability*
- *One year warranty*

Model AC-150-BP features:

- Pumps in either direction with optional forward/reverse switch
- On/off switch with 12' pigtail
- Can be operated with 100' of 12 gauge 3 conductor portable power cord
- Optional portable power cord available
- 10' of suction and discharge hose
- Complete with carbon steel suction tube and aluminum bung adapter
- Open flow down spout
- Model GP8-AC-150 for multipurpose transferal
- Model GP8-AC-152 for light viscous products, such as diesel fuels and antifreeze transferal
- Model GP8-AC-153 for heavy oils and gear lube transferal
- Optional discharge hose up to 40'



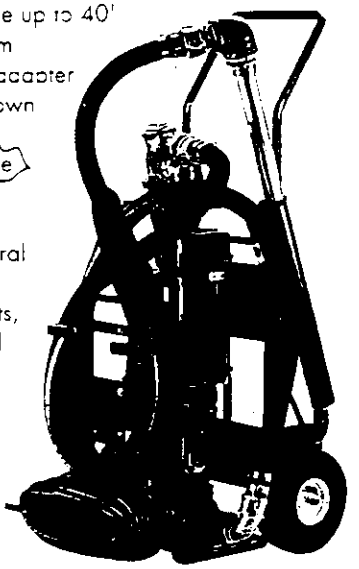
Dimensions

HEIGHT - 52" (Handle) WIDTH - 26" DEPTH - 24"

Model shown with by pass, 90° swivel elbows, manual shut off nozzle and containment tank.

Model AC-150-EP-BP features:

- Built in on/off switch
- Comes standard with 100' of 12 gauge 3 conductor portable power cord
- 10' of suction and discharge gasoline/oil hose
- Optional discharge hose up to 40'
- Complete with aluminum suction tube and bung adapter
- Aluminum open flow down spout
- Operational in explosive atmospheres
- Model GP8-AC-150-EP for multipurpose transferal
- Model GP8-AC-152-EP for light viscous products, such as gasoline, diesel fuels and antifreeze transferal
- Model GP8-AC-153-EP for heavy oils and gear lubes transferal



Dimensions HEIGHT - 52" (Handle) WIDTH - 26" DEPTH - 2[illegible]

Model shown with by pass, 90° swivel elbows, manual shut off nozzle and containment tank.

NOTHING ELSE IN SHORT DISTANCE

GP8 AC Stationary Pump Series

This series of AC-operated stationary general purpose pumps transfer high volumes of light to heavy viscous products with low energy requirements.

TYPICAL APPLICATIONS

Typical applications for this stationary mounted series include direct transfer of light to heavy viscous products from stationary containers, totes and tanks. These products include diesel fuel, gear lubes, hydraulic oil, motor oil, lubrication oil, antifreeze and industrial products. The AC-100-EP-BP explosion-proof model also transfers aviation fuel, paints, inks, gasoline, home heating fuel, waste oils, lacquers and thinners and operates in hazardous environments.

SPECIAL APPLICATIONS

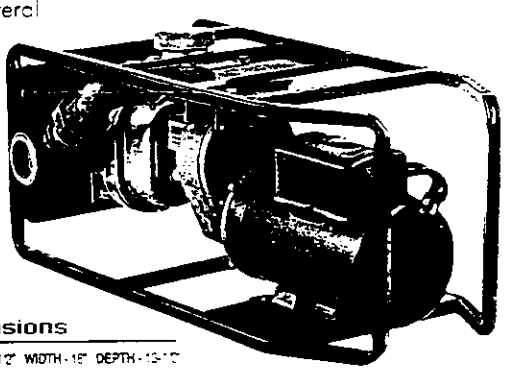
Special applications include auxiliary fire pump, emergency standby pump, factory processing tanks and fire retardant foam.

AC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Custom manufactured needle bearings with inner rings*
- *Viton seals*
- *Self priming*
- *Can be operated dry*
- *115/230 volts AC capabilities*
- *Can be operated with 100' of 12 gauge 3 conductor power cord*
- *Optional power cord available*
- *Designed for stationary transfer*
- *By pass*
- *Operational with manual or automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *UL and CSA listed motors*
- *Long life durability*
- *One year warranty*

Model AC-100-BP features:

- Pumps in either direction with optional forward/reverse switch
- On/off switch with 12" pigtail
- Buna/nitrile seals available
- Model GP8-AC-100 for multipurpose transfer
- Model GP8-AC-102 for light viscous products, such as diesel fuels and antifreeze transfer
- Model GP8-AC-103 for heavy oils and gear lube transfer



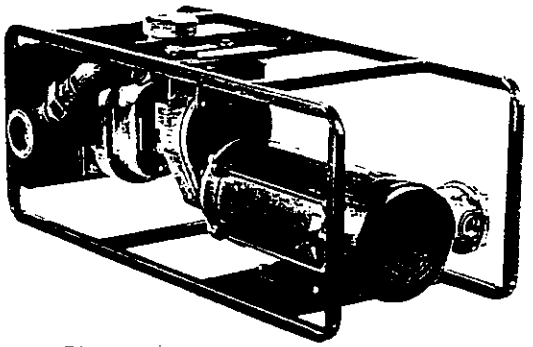
Dimensions

LENGTH - 29-1/2" WIDTH - 15" DEPTH - 13-1/2"

(Shown with By pass)

Model AC-100-EP-BP features:

- On/off switch
- Explosion proof junction box
- Operational in explosive atmospheres
- All purpose transferring of your products
- Buna/nitrile seals available
- Model GP8-AC-100-EP for multipurpose transfer
- Model GP8-AC-102-EP for light viscous products, such as gasoline, diesel fuels and antifreeze transfer
- Model GP8-AC-103-EP for heavy oils and gear lubes transfer



Dimensions

LENGTH - 32" WIDTH - 15" DEPTH - 13-1/2"

(Shown with By pass)

EP8 DC Stationary Pump Series

Dismas Pumps
TOLL FREE (800) 874-8976
FAX (406) 245-5606

This series of stationary mounted DC operated pumps offers high volume transfer of fluids with low energy requirements. Designed as a refueling pump, the explosion-proof model DC-050-EP-BP pumps diesel fuel, gasoline and other explosive products up to 60 gallons per minute. Model DC-100-EP-BP pumps gasoline, diesel fuel, motor oil, and gear lubes up to 70 gallons per minute. (Also available in the non-explosion proof model DC-100-BP.) *All models available in both 12 and 24 volt DC.

TYPICAL APPLICATIONS

Typical applications for this series include transferring products from stationary containers or delivery vehicles. DC-050-EP-BP transfers light viscous explosive products including water, aviation fuel, home heating fuel, solvents, diesel fuel, gasoline, antifreeze and thinners. In addition to the products above, the DC-100-EP-BP transfers light to heavy viscous products such as diesel fuel, motor oil, antifreeze, hydraulic oil, lubrication oil, gear lubes, waste oil, paints, lacquer and gasoline.

SPECIAL APPLICATIONS

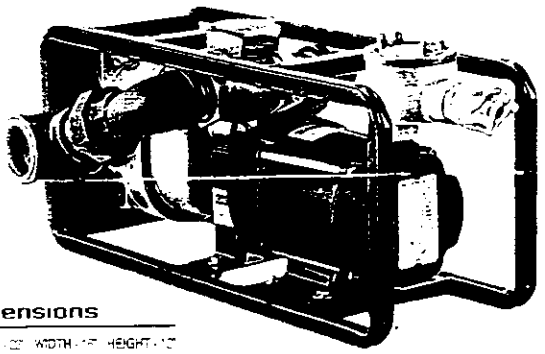
Special applications for this series include auxiliary fire pump, irrigation pump, shallow well pump and aircraft refueling.

DC COMPONENTS

- *Cast sinter bronze impellers*
- *Cast aluminum body*
- *Hardened alloy gears*
- *Stainless steel shafts*
- *Nitrite brass bushings (DC-050-EP-BP only)*
- *Viton seals*
- *Self priming*
- *Can be operated dry*
- *Pumps in either direction*
- *Flow pass*
- *Operational with manual or automatic shut off nozzles and flow meters*
- *Optional manual shut off nozzle available*
- *Long life durability*
- *One year warranty*
- *Custom manufactured needle bearings with inner rings (DC-100-BP and EP only)*

Model DC-050-EP-BP features:

- 12 volt 60 amps and 24 volt 30 amps DC operated
- UL and CSA approved class I, division 1, group D motors
- Commercial/industrial applications
- Buna/nitrile seals available
- Optional 4/2 power cord

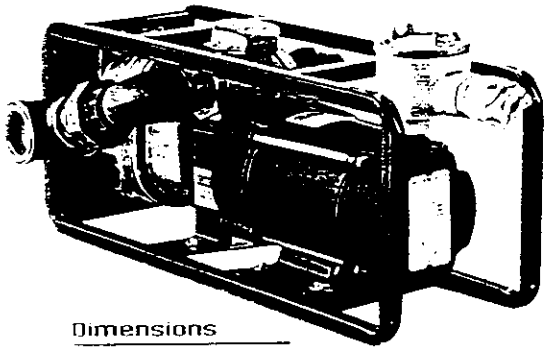


Dimensions

LENGTH 22" WIDTH 14" HEIGHT 17"
Shown with 8v assy.

Model DC-100-EP-BP features:

- 12 volt 100 amps and 24 volt 50 amps DC operated
- Operational in explosive environments
- Designed for refueling up to 70 gallons per minute of gasoline, diesel fuel or other explosive products
- Antifreeze transferal
- Hydraulic oils transferal
- Motor oils and gear lubes transferal
- Transferal of 40 wt. motor oil at 40°F up to 40 gallons per minute
- Industrial fluids such as paint and ink transferal
- UL and CSA approved class I, division 1, group D motors
- Buna/nitrile seals available
- Optional 4/2 power cord
- Non-explosion proof model available



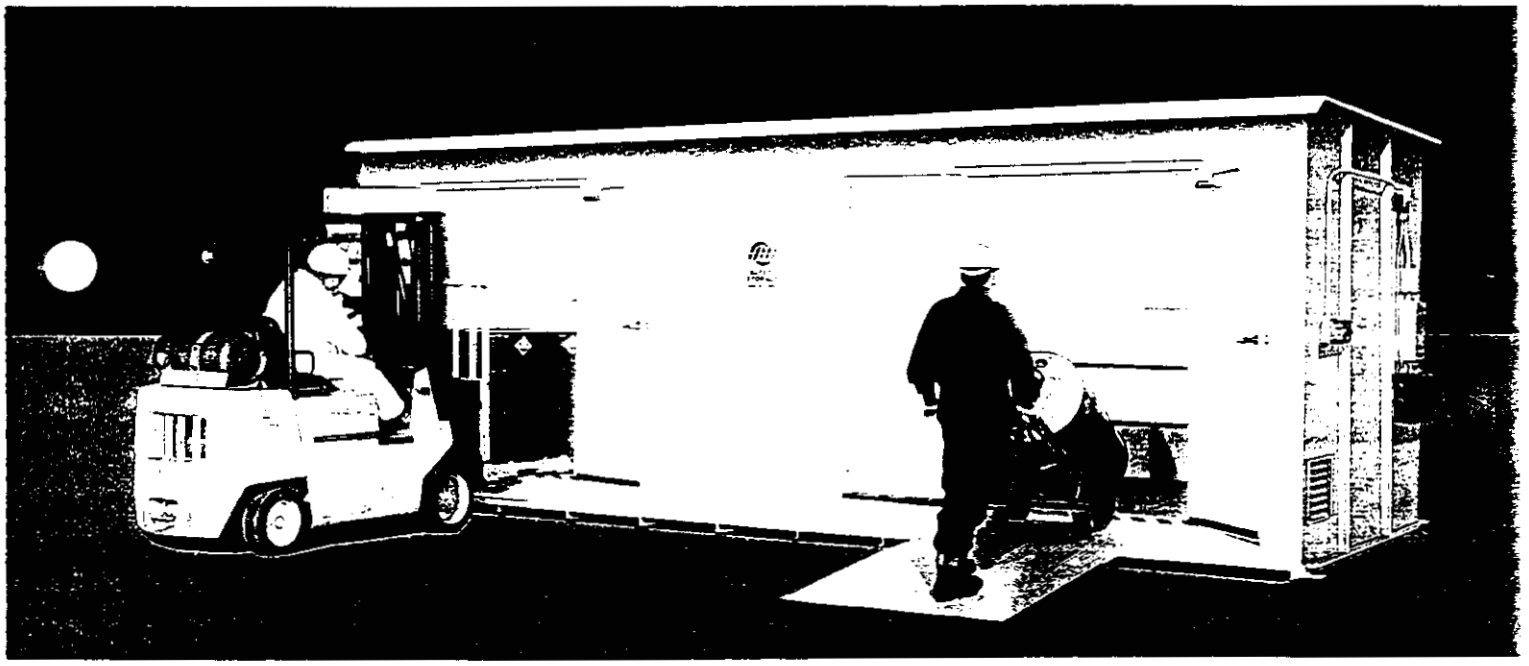
Dimensions

LENGTH 22" WIDTH 14" HEIGHT 17"
Shown with 8v assy.

NOTHING ELSE IN SHORT DISTANCE

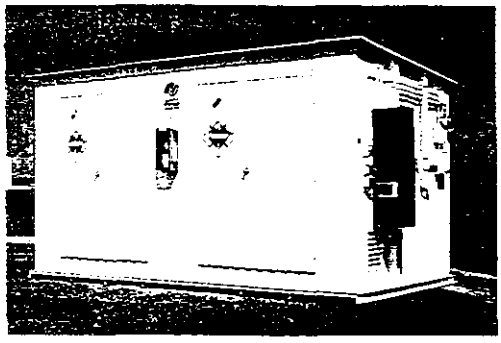
Factory Mutual System
Approved

Buildings and Secondary Containment Products for Chemicals and Hazardous Materials



Achieve Regulatory Compliance for Hazardous Material Storage

SAFETY STORAGE



Steel and 2-Hour Fire-Rated Prefabricated Storage Buildings

Safety Storage® prefabricated, weather-proof buildings offer a low cost solution to protect your facility from chemical hazards, provide secondary containment for soil and groundwater protection, minimize liability, meet fire safety needs, and safeguard personnel.

These relocatable, turnkey buildings are available in a wide choice of building sizes and storage capacities, at a potential cost savings over the cost of permanent structures. They are designed to Factory Mutual System standards and utilize UL listed components throughout.

Safety Storage buildings are designed to comply with all federal, state, and local regulations and can be pre-engineered to meet special structural, electrical, fire, and ventilation requirements.

Safety Storage is the nation's leading manufacturer of prefabricated chemical and hazardous material storage buildings. Custom engineering assistance and special application buildings are offered to meet specific requirements.

FEATURES

Steel Buildings

- Walls and sump walls constructed of heavy-gauge welded steel
- Roof/ceiling constructed of heavy-gauge steel
- Single-leaf doors
- Natural ventilation
- Static grounding system
- Hold-down brackets
- Hazard placards and labeling
- One-year limited warranty

FireShield Buildings

- UL Classified two-hour fire-rated, non-combustible construction
- Air inlet vents equipped with 1½ hour UL Classified fire dampers
- UL Classified three-hour fire-rated double doors with UL listed frame and hardware. Active door equipped with self door closer, security lock, and interior safety release

All Buildings

- Chemical resistant coated surfaces***
- Water sprinkler piping assembly
- Secondary containment sump, with steel floor grating
- Open-channel construction for visual inspection and crane/forklift openings
- Security locks with interior safety release

OPTIONS (partial list)

- Stainless steel lining***
- Lighting, heating, air conditioning, and refrigeration systems*
- Electromechanical exhaust ventilation system(s)*
- Dry chemical fire suppression system(s)
- Insulation
- Liquid level detectors*
- Interior wall(s) and shelving
- Chemical resistant sump liner
- Explosion relief construction
- Safety showers and eye wash units
- Sump overflow fitting(s) with cap
- Loading ramp(s)
- Fiberglass floor grating
- Epoxy coated plywood flooring

Explosion-proof and non-explosion proof available

***Stainless steel lining on interior walls and/or ceiling recommended when corrosive materials are dispensed inside of building.*

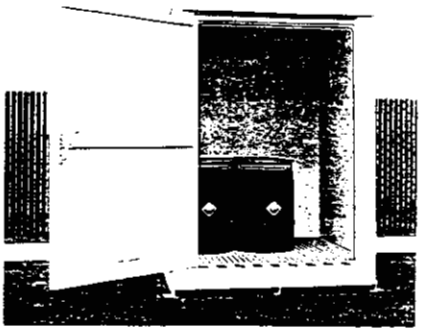
Model	Nominal Dimensions			Inside Dimensions			Tare Weight (Lbs.)	Door Openings		Designed Storage Capacity			Sump Capacity (Gallons)
	Length	Width	Height	Length	Width	Height		Height	Width	Weight (lbs.)**	Sq. Ft.	Drums**	
40	41'6"	11'6"	9'	40'8"	10'8¼"	7'3¼"	29,000	6'8"	4'6"	217,000	434	100	1815
32	33'6"	11'6"	9'	32'8"	10'8¼"	7'3¼"	23,325	6'8"	4'6"	174,250	348	85	1460
24	25'6"	11'6"	9'	24'8"	10'8¼"	7'3¼"	17,600	6'8"	4'6"	131,500	263	63	1100
22	23'6"	10'	9'	22'8"	8'8¼"	7'3¼"	16,750	6'8"	4'6"	99,000	198	46	830
15	16'6"	10'	9'	15'8"	8'8¼"	7'3¼"	8,775	6'8"	4'6"	67,000	134	32	560
7	9'	10'	9'	7'8"	8'8¼"	7'3¼"	5,250	6'8"	4'6"	34,750	69	16	290
40FS	41'6"	11'6"	9'	40'	10'	7'1"	44,000	6'7⅝"	4'10¾"	200,000	400	100	1675
32FS	33'6"	11'6"	9'	32'11⅛"	10'	7'1"	35,300	6'7⅝"	4'10¾"	160,000	320	80	1340
24FS	25'6"	11'6"	9'	23'11⅛"	10'	7'1"	26,575	6'7⅝"	4'10¾"	120,000	240	60	1000
22FS	23'6"	10'	9'	21'11⅛"	8'11¼"	7'1"	24,025	6'7⅝"	4'10¾"	99,000	173	44	760
15FS	16'6"	10'	9'	14'7⅞"	8'11¼"	7'1"	13,975	6'7⅝"	4'10¾"	69,250	113	23	520
7FS	9'	10'	9'	7'3⅛"	8'11¼"	7'1"	9,125	6'7⅝"	4'10¾"	29,500	59	12	250
6FS	7'6"	7'	9'6"	5'11¾"	5'3"	6'8"	3,500	6'7⅝"	4'10¾"	15,500	31	6	131
10FS	11'6"	7'	9'6"	9'6"	5'3"	6'8"	5,000	6'7⅝"	4'10¾"	22,000	44	11	210

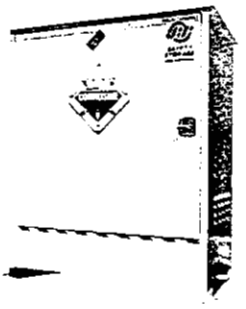
*Includes hold-down brackets **55 gallon drums ***With steel grating

Dimensions shown above are for planning purposes only. Exact dimensions provided by written quotation

Chemical Storage Lockers Models 10, 6 and 2

Lockers for the storage of chemicals and other hazardous materials in smaller quantities. These lockers are in full compliance with federal, state, and local regulations.





FEATURES

- Constructed of heavy-gauge welded steel
- Secondary containment sump with steel floor grating
- Chemical resistant coated surfaces
- Natural ventilation
- Security lock with interior safety release
- Static grounding system
- Forklift openings for ease of relocation
- Hold-down brackets
- Hazard placards and labeling
- One-year limited warranty

OPTIONS (partial list)

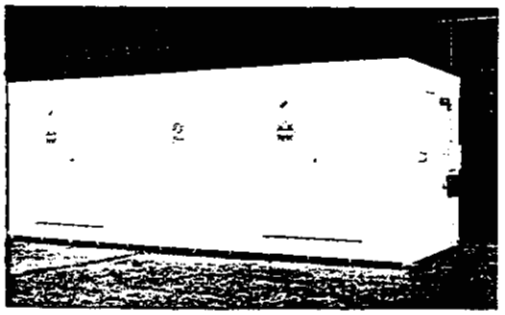
- Lighting*
- Electromechanical exhaust ventilation system (Models 10 and 6 only)*
- Dry chemical fire suppression system (Models 10 and 6 only)
- Safety shower and eye wash unit
- Chemical resistant sump liner
- Sump overflow fitting with cap
- Shelving

*Explosion-proof and intrinsically safe available.

Model	Nominal Dimensions			Inside Dimensions			Tare Weight (Lbs.)	Door Openings		Designed Storage Capacity			Sump Capacity (Gallons)
	Length*	Width	Height	Length	Width	Height		Height	Width	Wt. (lbs.)**	Sq. Ft.	Drums**	
10	[illegible]	6'6"	9'	[illegible]	5'9"	[illegible]	9,000	[illegible]	3'	29,500	59	14	220
6	[illegible]	6'6"	9'	6'1"	5'9"	[illegible]	6,800	[illegible]	4'3"	16,000	32	8	122
2	5'6"	3'	6'	4'9"	2'4"	4'7"	850	4'5"	44"	5,500	11	2	55

*Includes 10" drop-out brackets. **55 gallon drums. ***4" in steel grating.
Others not shown above are for planning purposes only. Exact dimensions may vary by manufacturer.

4-Hour Fire-Rated Buildings for Flammable and Combustible Liquids and Hazardous Materials



Heavy-duty, relocatable Safety Storage© buildings which comply with Underwriters Laboratories fire-rating classification and meet applicable regulatory requirements for safe storage, handling, dispensing, and use of flammable and combustible liquids and hazardous materials.

The buildings, which are available in three standard sizes, may be located less than five feet from a structure or property line. They may even be placed inside your facility (subject to local authority having jurisdiction).

FEATURES

- Four-hour fire-rated walls, roof, ceiling, and sump walls
- Three-hour UL Classified double doors with UL listed frame and hardware
- Air inlet vents equipped with 3-hour UL Classified fire-rated dampers
- Secondary containment sump with steel grating
- Chemical resistant coated surfaces
- Security locks with interior safety release
- Static grounding system
- Forklift openings for ease of relocation
- Hold-down brackets
- Hazard placards and labeling
- One-year limited warranty

OPTIONS (partial list)

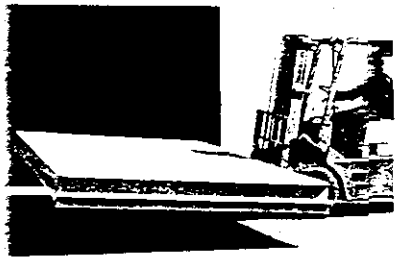
- Stainless steel lining*
- Lighting, heating, and air conditioning*
- Electromechanical exhaust ventilation system(s)*
- Dry chemical fire suppression system(s)
- Liquid level detectors*
- Interior wall(s), and shelving
- Safety showers and eye wash units
- Loading ramp(s)
- Fiberglass floor grating
- Epoxy coated plywood flooring

*Explosion-proof and intrinsically safe available.
[illegible] manufacturer's specifications [illegible] materials [illegible] flammable and combustible liquids.

Model	Nominal Dimensions			Inside Dimensions			Tare Weight (Lbs.)	Door Openings		Designed Storage Capacity			Sump Capacity (Gallons)
	Length*	Width	Height	Length	Width	Height		Height	Width	Wt. (lbs.)**	Sq. Ft.	Drums**	
44-4	33'6"	9'6"	9'	[illegible]	8'	7'4"	31,125	6'7"	14'10"	88,000	176	44	751
30-4	16'6"	9'6"	9'	[illegible]	8'	7'4"	21,725	6'7"	14'10"	59,000	118	28	501
14-4	9'	9'6"	9'	7'8"	8'	7'4"	12,000	6'7"	14'10"	29,500	59	12	250

*Includes 10" drop-out brackets. **55 gallon drums. ***4" in steel grating.
Others not shown above are for planning purposes only. Exact dimensions may vary by manufacturer.

SAFETY STORAGE® Secondary Containment Products



Hazardous Liquid Spill Containment Sumps

Safety Storage Spill Containment Sumps provide secondary containment storage for hazardous chemicals. The sumps are available in five standard sizes to accommodate up to eighty 55-gallon drums and have a spill capacity of up to 1460 gallons. They may be used inside or outside with a minimum of site preparation.

Model	Nominal Dimensions			Storage Capacity Max.		Sump Capacity Gallons	Tare Weight Lbs.†
	Length*	Width	Height	Sq. Ft.	Drums*		
20S	20'6"	11'4½"	1'4"	227	40	1460	4147
14S	15'7"	11'4½"	1'4"	168	28	1022	3013
12S	12'6"	11'4½"	1'4"	144	24	882	2588
10S	10'6"	11'4½"	1'4"	120	20	742	2163
7S	7'6"	11'4½"	1'4"	84	14	532	1553

* Does not include ramps. † Tare weight includes steel floor grating.

FEATURES

- ☐ Constructed of continuously welded heavy-gauge steel
- ☐ Chemical resistant coated surfaces
- ☐ Steel floor grating
- ☐ Forklift openings for ease of relocation
- ☐ Static grounding system

OPTIONS (partial list)

- ☐ Sump overflow fitting with cap
- ☐ Chemical resistant sump liner

SAFE-T-PALLET™ Spill Containment Pallets

Steel

FEATURES

- ☐ Constructed of heavy-gauge steel
- ☐ Dimensions: 64"L x 45½"W x 16"H
- ☐ Storage capacity: four (4) 55-gallon drums (single level)
- ☐ Sump capacity: 105 gallons
- ☐ Steel floor grating
- ☐ Chemical resistant coated surfaces
- ☐ Forklift openings for ease of relocation

OPTIONS

- ☐ Chemical resistant sump liner
- ☐ Sump overflow fitting with cap
- ☑ Side rails and safety chains
- ☐ Fiberglass floor grating

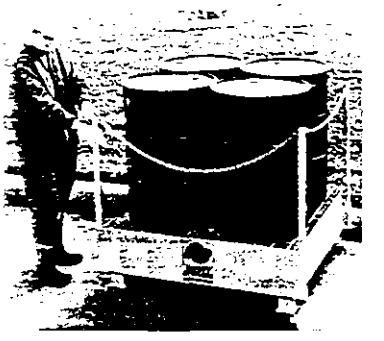
Molded Polyethylene

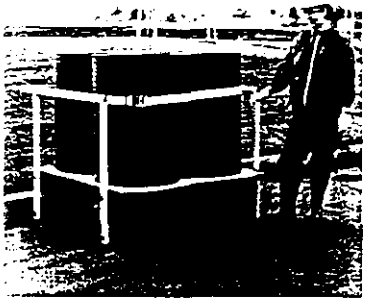
FEATURES

- ☐ Constructed of rotationally-molded, high-density, corrosion-resistant polyethylene
- ☐ Dimensions: 63"L x 51"W x 15"H
- ☐ Storage capacity: four (4) 55-gallon drums (single level)
- ☐ Sump capacity: 90 gallons
- ☐ Fiberglass floor grating
- ☑ Forklift pockets for ease of relocation

OPTIONS

- ☑ Side rails and safety chains





SAFETY STORAGE, INC.
3301 Bert Drive
Hollister, CA 95023
1-800/344-6539
Phone: 408/637-8965
Fax: 408/637-7405

AFTech Products

OILTRAP SEPARATOR

4501 Shilshole Avenue NW • Seattle, Washington 98107
(206) 783-0730 • (206) 783-0434 fax • (800) 733-4501
internet http://www.marinenetwork.com/pnw/aftech
email aftech@aftech.seanet.com

Date: 1/27/97

Pages: 8

To: Stephal Engineering

Attention: **Matt Stephal**

Fax Phone: 907-277-4722

From: Sean Fagan

Subject: OilTrap

Matt,

Following please find customer list, questionare, brochure and linecard. I am also including information on electrocoagulation, another possibility, or can work in conjunction with the OilTrap units.The Coast Guard references are Lt. Dutton (512)939-6282 and Cheif Prentice (609)344-6594. They are both using the portable unit. As far as local regulations are concerned, if you can tell us what you have to meet we will put together a unit to meet those needs. One example, you mentioned 10GPM's. We are in the process of constructing a unit for the Japanese Navy that will operate between 5 - 10 GPM and it will meet all of their local discharge requirements. If you would please fill out the questionare at your earliest convenience and return it to me, I can begin to put together a proposal for you and your clients. If you have any questions or additional needs please feel free to call, fax or e-mail me. Thank you.

Regards,

Sean Fagan

CUSTOMERS
10-6-96
OilTrap has been installed in the following:

2 - US Navy Torpedo Testing and Recovery Vessels	2 1/2 Years
1 - Virginia V - Historic Steamship	11 Months
1 - WA State Parks - 74' Twin Diesel	2 1/4 Year
1 - NOAA 45' Research Vessel	1 3/4Year
1 - National Parks 75' Twin Diesel	1 3/4 Yrs
1 - 183' Dinner Cruise Ship	1 3/4 Yrs
5 - Various Working Tugs in Pacific NW	1 3/4 Yrs
1 - Commercial System / Mississippi Barge Processing Tug and Barge Fleets Waste Water	1 Year
3 - Commercial Fish Processors	1 1/2 Yrs
2 - Closed Loop Car Wash Systems	1 Year
1 - Commercial System Shoreside Processing Tug Fleet	1 Year
Misc. Private Vessels	

Portables

4 - USCG	1 Year
1 - Private Marina - Mississippi	13 Months
1 - Multiple Boat Owners - California	16 Months
2 - Marine Service Co.'s - Texas	13 Months
3 - Marine Service Co. - Washington	1 Year
2 - Tug Co. - Washington	9 Months

Step 6, What are the solutions?

Everyone wants to get to the bottom line, "what is the solution and cost"?

Since each waste stream is unique, we match technology to the problem rather than "one size fits all". OilTrap will guide you through the "steps" and propose the latest technology, integrated into one solution. The OilTrap solution will treat your "source" water, remove the contaminants, discharge or recycle the water, at an acceptable flow rate. OilTrap guarantees performance, not just equipment. Costs are determined by the configuration of the system and quoted on:

cents per gallon
lease/rental
system purchase
on-site service processing
partnership agreement

Partnership agreements are available to customers, service providers, engineers, consultants, government agencies, treatment companies, waste haulers, other technology companies and new business entrepreneurs to provide the most efficient and cost effective solution to treating/processing industrial waste water. Call OilTrap today at (800)943-6495 and see why our customers and partners agree, ***we're just plane easy to do business with.***

Common Terms:

API	American Petroleum Institute
BOD	biochemical oxygen demand
BTEX	benzene, toluene, ethylbenzene, xylene
COD	chemical oxygen demand
DAF	dissolved air flotation
FOG	fats oils & grease
GAC	granular activated carbon
HC	hydrocarbons
ISA	Instrument Society of America
ISO	International Standards Organization
IWW	industrial waste water
MWW	municipal waste water
NF	nanofiltration
NPDES	National Pollution Discharge Elimination System
PAC	powdered activated carbon
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorobiphenyl
pH	hydrogen potential
ppm	part per million
ppb	part per billion
PVC	polyvinyl chloride
RO	reverse osmosis (membrane technology)
SS	suspended solids
TDS	total dissolved solids
TPH	total petroleum hydrocarbons
UF	ultrafiltration
UV	ultraviolet rays
VOC	volatile organic compounds

Primary Metals: cadmium, chromium, copper, lead, mercury, nickel, silver, zinc

Tank volume formula: Radius squared times 3.14 times length of tank.
(7.5 gallons per cubic foot)
(1 gallon = 231 cubic inches)
milligrams/litre = ppm
micrograms/litre = ppb

OilTrap Environmental Products, Inc.
(800)943-6495, (360)943-6495
FAX (360)943-7105
Olympia, WA USA

OilTrap™

...Services & Partnerships

A guide to cleaning contaminated water for reuse or discharge.

Step 1: what's the source
Step 2: contaminants in water
Step 3: volumes of water
Step 4: contamination levels
Step 5: recycle or discharge
Step 6: solutions

- On-site processing and services.
- Equipment leasing and rental.
- Systems engineering & manufacturing.
- Service partnerships
- Networked to other service providers
- Specialists in water recycling & discharge

Step 1, Identify the source of the water:

The source of the waste water is extremely helpful in order to determine similar solutions and regulations.

Examples of "sources":
marine bilge water, truck wash, steam cleaning, container wash out, ground water, marine hull cleaning, industrial waste water, machine shop tramp oil, tank cleaning, etc.

Step 2, Identify the suspected contaminants!

If the source is not known, then a water analysis is done to determine what contaminants are in the water.

Examples of contaminants:
petroleum elements (gas, oil, diesel, benzene, VOC's) metals, BOD, COD, suspended solids.

OilTrap can assist you in this process by calling (800)943-6495.

Step 3, Estimate the number of gallons generated next to the required frequency!

Minute: _____ Week: _____
Hour: _____ Month: _____
Day: _____ Year: _____
One time only: _____

This step is a key factor in determining system flow rate requirements resulting in system sizing and performance

Step 4, What are the levels of contaminants in the water:

Knowing the amounts of contaminants in the water will determine the size of the system components.

Example of levels:
- *Oil - 1000 ppm*
- *Benzene - 10 ppm*
- *Lead (metals) - 10 ppm*
- *Suspended solids - 400 ppm*

OilTrap can assist you in this process by calling (800)943-6495.

Step 5, What do you want to do with the water?

Reuse or discharge? (see below)

☐ Reuse:

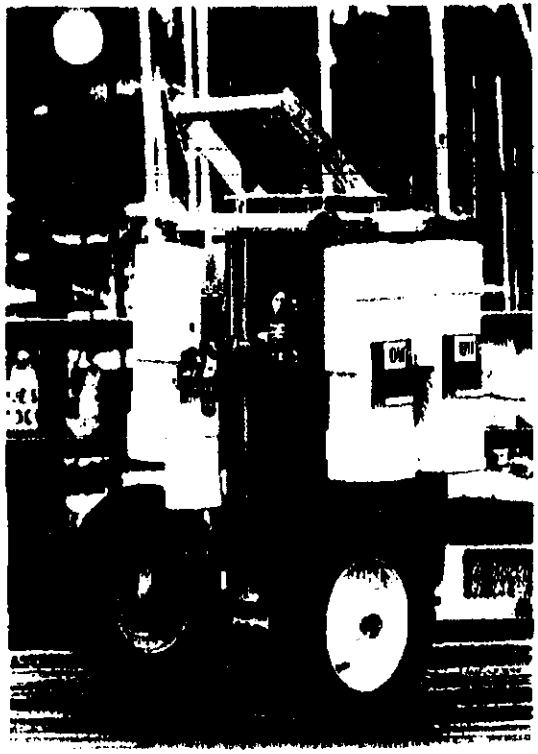
Don't overlook recycling as there are many uses for cleaned water other than disposal. Reusing the water also eliminates all permits and regulations.

☐ Discharge:

Discharge options: municipal sewer, septic, ground surface, storm water, lakes or streams, marine waterways, etc.

Discharge requirements:
If you are discharging, what are the discharge requirements? Check with your sewer district, city or county regulatory agency, state ecology department, EPA, or Coast Guard for specifics.

OilTrap could be your best ever econonics partner. Fax or mail this worksheet to OilTrap today. Since all waste water is unique, please call and we will be glad to walk you through the worksheet and address any unique requirements.



OilTrap MA-4000 System Includes:

- Integrated separator/cart with 16" pneumatic wheels
- 2 Primary OilTrap Filters
- 2 Polishing OilTrap Filters
- Particulate (turbidity) Bag Filter (1 micron)
- Pump - 115 VAC 1/2 hp, self priming
- Control Panel - 115 VAC
- Oil Sensor
- Flow Sensor
- 50' length of hose/electrical wire
  (additional lengths available)
- pressure regulator
- remote pump start

OilTrap Environmental Products, Inc.
Olympia, WA (800)[illegible]
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Brochure No. MA4000.96

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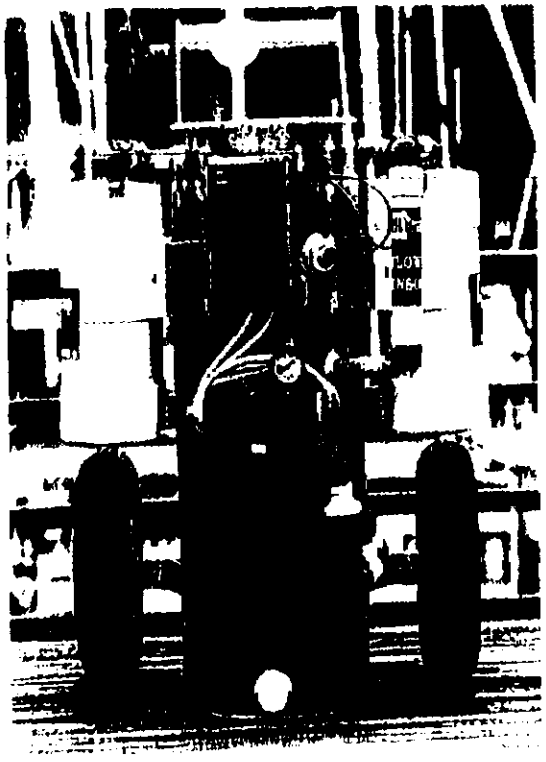


Specifications:

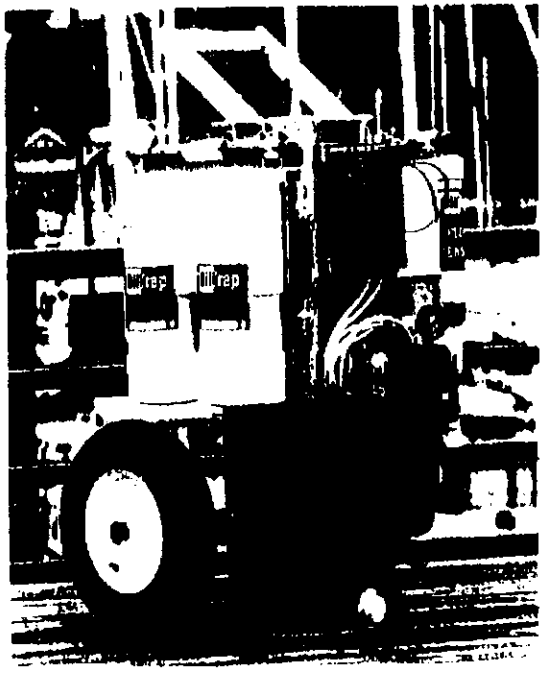
Size	28" W, 43" H, 27" D
Power	115 VAC
Flow Rate	900 GPH
Ship Weight	115 Lbs
Separator Oil Capacity	4 Gallons
Separator Water Capacity	15 Gallons
Operational Weight	165 Lbs
Bag filter size	1 Micron
Hydrocarbon Discharge	less than 1 PPM

Note: Specifications subject to change without notice

Other OilTrap Products

On board bilge systems
Closed Loop equipment washing/steam cleaning
Custom systems

OilTrap™



OilTrap MA 4000 Portable Bilge System

OilTrap's new commercial technology is not only available as on-board systems, but now as a portable system for multiple boat owners or service personnel. No more concerns about what to do with that unwanted bilge water. This completely automated "roll up" system will remove bilge water, "trapping" the petroleum based products and discharging the water 15x times cleaner than minimum discharge regulations

I .IA-4000 eliminates any potential of accidental discharge, will override inadvertent operator errors, and will shutdown if a problem occurs. Being both a pollution prevention system and bilge de-watering system relieves the owner/operator from the continuing *frustrations, concerns and worries* about improper handling and disposal of bilge water This industrial strength system is compact and affordable. It is easy to own, easy to operate, and requires no preventive maintenance.

OilTrap systems:

- **Removes large volumes of oil/fuel from bilge water.**

The front end separator removes large volumes of oil/fuel for recycling, leaving only lightly contaminated waste water to pass through the filter assembly. The filter assembly cleans the waste water by removing contaminants to less than 1 part per million (ppm) including emulsified and suspended oils.

- ***Easy to operate***

The system has one (3 position) switch with a choice of manual, automatic, or off. It has a remote safety start button that allows 110 VAC access to the pump only when the system is activated. Once activated, the system will monitor itself and shut down if any erro occurs.

- **Requires no maintenance**

There is no scheduled preventive maintenance required for the system.

Front End Sep or

The maintenance free body of the MA-4000 is a front end oil/water separator that removes large volumes of oil/diesel before the water is passed to the filters for final cleaning. A unique feature of the separator is the oil/fuel level sensor. The sensor continuously monitors for oil/fuel in the separator. When the accumulation of oil/fuel reaches the sensor, the system shuts down and signals the operator via the "Check Oil" indicator on the console panel. To restore the system to normal operation, *simply drain the oil through the "oil drain* valve" into a container or oily waste holding tank for recycling. Then, return the switch on the console panel to "automatic". It's really that easy!

Filter Rack Assembly

The heart of the system is the patent pending filtration technology developed by OilTrap. The filter rack assembly consists of 4 filters *that remove* oil/fuel *from the water* prior to discharge. As lightly contaminated water from the separator flows through the filters, the first filter traps 90% of the oil/fuel. The remaining 10% is trapped in the second filter. The last 2 "polishing" filters remove remaining emulsified oils from the water. Each filter is designed with a "lock up protection" feature providing for restricted flow when the filter cartridge is full of contaminants. This feature is a back-up safeguard to the oil sensor on the separator. This is truly a pollution prevention system with redundant safeguards to guard against accidental discharges.

Electronics Support (I)

The console panel is mounted on the back o the separator. *It includes* a "pump run", "ch oil" and "check flow" indicators, 3 way sw (manual, automatic, and off), and fuse hold

Remote Pump

The MA 4000 is configured with 50' of hos (custom lengths available) along with a removable pump. The pump and hose ar removed from the system and located at the *waste water site (bilge, tank, barrel, etc.).* For safety reasons, a remote "start" button i used that allows the 115 VAC power to sta the pump only on command. The 115 VAC not present anywhere in the lines until the remote power button is activated. From the self priming pump, the contaminated water pumped first through the separator followed the filters and cleaned for discharge.

System Summary

The MA 4000 will monitor the flow of wate from the waste water location through the system and discharge at less than 1 PPM. T system is designed to process water unattended. The pollution prevention safeguards will prevent any accidental spill associated with large volumes of contamina in the bilge. The system is easy to operate r requires no preventive maintenance. OilTrap also recycles used filters eliminatin any local disposal issues.

Electrocoagulation
&
Oil-Water
Separation/Polishing

AFTech Products is introducing two new, technologically advanced water treatment systems.

. Electrocoagulation industrial waste water treatment by Protech Services.

. Oily water separation/polishing system by OilTrap.

Oily water separation and polishing is the most effective way to remove petroleum based products and emulsified/suspended/dissolved elements from contaminated water. It removes Benzene, Toluene, Xylene, some metals and volatile organic compounds to less than 1 **PPM.**

Electrocoagulation industrial waste water treatment works very well for dealing with heavy metals, suspended solids, bacteria and organic wastes from fish processing, industrial and municipal effluents and safely recycling water into the environment.

These low cost advanced technology systems are not subject to highly mechanical processes, thereby being highly reliable. Both of these systems when used together to process high quantities produce a very cost effective method of removing waste byproducts and petroleum based products from your water.

ENVIRONMENTAL PRODUCTS

EC Systems	Water Treatment, Small Footprint - 1 million gal/cell. Inexpensive to Operate
Oil-Water Separator	Oil Trap separates to 1 PPM - Low maintenance, user friendly.
AFTech Oil Boom	Manufactured in Seattle of oil and sunlight resistant fabrics.
	Bottom tension boom.
AFTech NW Trawl	State of the art bottom tension boom design with cross connecting net system
Boom Accessories	Bridles, boom lights, anchor buoy systems, repair kits.
Recovery Systems	SKIM-PAK; self-adjusting surface skimmers, 10 - 300 GPM.
	AFTech Skimmer Pockets and Recovery Pockets
Sorbents	**OIL DRI**; packaged in bales, rolls, sweeps
	Response Kits Poly containers with pump, skimmer, and hose.
Spill Kits	Sorbent sweep/pads, disposal bags, safety gear, emergency
	phone numbers stored in drums.

DIESEL / GAS PUMPS & GENERATORS, METERS, HOSES AND FITTING

AFTech Pumps:	
Pacer	2" & 3" Glass Reinforced Plastic housings, 250 - 350 GPM.
Amflow	2" Peristaltic hose pumps; 120 gpm, adjustable @ 29' lift.
Poppet	2"- 4" Piston air pump; 150-450 GPM @ 300 PSI discharge pressure.
Hose and Fittings	Oil and general service hose with NYGLAS "quick-connect" fittings.
Generators	2 KW to 5 KW Yanmar diesel driven.
Hydraulic Power Pack	4.2 HP to 18 HP in an aluminum roll cage frame.

MAINTENANCE PRODUCTS

Cleaner/Degreaser	**AFTech Cleaner**; a safe, non-toxic, all-purpose cleaner.
Anti-Seize	HARBOR MASTER; protect/lubricate metal surfaces.
Rust Remover/Coating	TRAC 1205; a safe, non toxic, or corrosive, rust remover.
Pressure Washers	**AFTech**; to 5000 psi; 2-10 gpm.

TRAINING

Hazwoper	**24 Hour and 8 Hour refresher training**

PAULSEN AND ASSOCIATES
4501 Shilshole Avenue NW
Seattle, Washington 98107
(206) 783-0730 Fax (206) 783-0434
1-800-733-4501

ELECTROCOAGULATION

Dissolved Oxygen Generation and Electronic Purification is a **patented** process that passes low DC voltage through water, using catalytic-type cells. This catalytic action by the cell forces most of the oxygen created (from breaking apart some of the water) to go directly into the dissolved state. The dissolved oxygen levels created by this process can go up from around 3 PPM to 20 PPM depending on starting water conditions. Certain dissolved minerals react with the oxygen slowing down the oxygen generation process.

Physical Contamination is effected by the electrical flow and field that causes a coagulation of solids, colloids and thin oils. The electrolysis with catalytic cells adds large amounts of dissolved oxygen that causes the oxidation of many contaminants.

Chemical Contamination is reduced by the high levels of dissolved oxygen in the water. This oxidizes and breaks down many chemicals and hydrocarbons in low concentrations. Minerals and dissolved metals in the water coagulate into the filterable solids as do soaps and phosphates.

Biological Contamination can be treated electronically very safely and effectively. Dissolved oxygen is a natural bactericide. It kills both anaerobic and aerobic bacteria without harming animals, fish or plants. Oxygen breaks down the outer wall of the bacteria cell, so no bacteria, not even the microscopic organisms, are immune to high dissolved oxygen. Dissolved oxygen has been shown to be very effective with killing fecal coliform bacteria found in waters with sewer contamination. Many cities use oxygen to purify the output of the sewage plants because it is not harmful at all to the environment.

This system allows for high water flow rates with minimal resistance. Meaning, it will not interfere with most water pumping and storage systems. This system is efficient on all types (physical, chemical and biological) of water contamination.

Alyeska Pump & Equipment

A DIVISION OF FAMILIAN NORTHWEST #74
6251 Tuttle Place #102
Anchorage, AK 99507
(907) 561-5842
Fax (907) 561-5072

FAX TRANSMISSION COVER SHEET

Date: 02/11/96

To: MATT STEPINC PE.

Fax: 277-4722

Subject: Elec. Diaphragm Pump

Sender: Timothy J. Bergin P.E.

YOU SHOULD RECEIVE 3 PAGE(S), INCLUDING THIS COVER SHEET. IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (907) 561-5842.

NOTES:

Model 5515-15 = $1705.-

Available on the floor -

3" Diaphragm 1ϕ - 1.5 HP. - 1750 RPM.

115/230V.

W/ this we can ready package in tank.

Any Q's Please call.

AVAILABLE:

WITHOUT POWER OR
WITH HEAVY DUTY
GASOLINE ENGINE

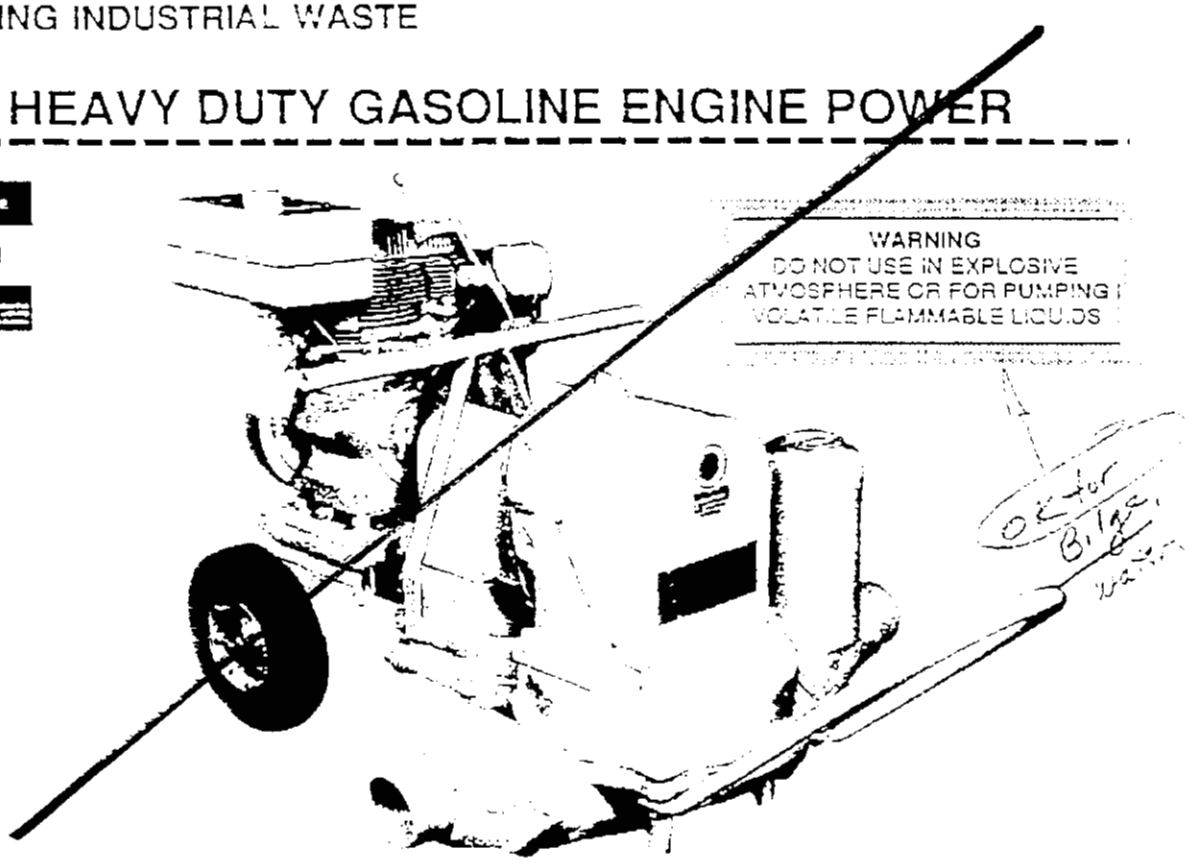
CH&E
QUALITY PRODUCTS

Long Coupled Diaphragm Pumps
Series
5400-6400 2"
5500-6500 3"

DIAPHRAGM PUMPS ARE BEST FOR:

- SEEPAGE DEWATERING
- SANDY - MUDDY - MUCKY WATER
- HIGH SUCTION LIFT
- CLEANING SEPTIC TANKS
- PUMPING INDUSTRIAL WASTE

HEAVY DUTY GASOLINE ENGINE POWER



B&S AIR COOLED ENGINE. 3 H.P. STANDARD SHAFT ENGINES CONNECTED THROUGH FLEXIBLE COUPLING. ENGINES HAVE AMPLE OIL CAPACITY FOR CONTINUOUS OPERATION. ENGINES RUN AT 2600 RPM FOR LONG SERVICE. A 1750 RPM ELECTRIC MOTOR MAY BE USED WHICH WILL DECREASE PUMPING CAPACITIES.

C. H. & E. Manufacturing Co. 3849 N. Palmer St. Milwaukee, Wis. 53212
phone 414-964-3400 • FAX 414-964-0677

FEATURES:

- Lightweight all aluminum . . . or water end parts abrasive resistant cast iron.
- Identical construction on two and three inch pumps except for size.
- Totally enclosed double gear reduction running in oil. Needle and ball bearing.
- Large opening RUBBER swing type valves.
- Self-cleaning straight water flow through valves and waterbox.
- Suction air chamber cushions stroke.
- Fast sure priming at all lifts.
- Roller bearing crankshaft and eccentric.
- Male hose connections for fast coupling.
- Skid or wheel mounting for all pumps.

PUMPS ANY LIQUID SUFFICIENTLY FLUID TO FLOW TO AND THROUGH THE PUMP

	CAPACITIES – ALL PUMPS	GALLONS PER HOUR TWO INCH PUMPS	GALLONS PER HOUR THREE INCH PUMPS
*	5 Foot Suction Lift	3000	6000
	10 Foot Suction Lift	2500	5500
	15 Foot Suction Lift	2000	4500
	20 Foot Suction Lift	1500	3500
	25 Foot Suction Lift	1250	3000

SPECIFICATIONS

TWO INCH DIAPHRAGM PUMPS

MODEL ALUMINUM CONSTR.	MODEL CAST IRON WATER END	POWER	NET WEIGHT SKID MOUNTED	NET WEIGHT 4 x 6 Semi-Pneumatic Tires
5420	6420	WITHOUT POWER— 2600 RPM INPUT SPEED	102 125	91 115
5422	6422	8 H.P. AIR COOLED ENG. BRIGGS MODEL 190400	146 175	137 164

THREE INCH DIAPHRAGM PUMPS

MODEL ALUMINUM CONSTR.	MODEL CAST IRON WATER END	POWER	NET WEIGHT SKID MOUNTED	NET WEIGHT 4 x 6 Semi-Pneumatic Tires
5520	6520	WITHOUT POWER— 2600 RPM INPUT SPEED	122 175	115 168
5522	6522	8 H.P. AIR COOLED ENG. BRIGGS MODEL 190400	168 221	161 214

*THESE HEAD CONDITIONS ARE OPEN DISCHARGE. WHEN YOU USE THIS MUCH HORSEPOWER ON A DIAPHRAGM PUMP, DAMAGE CAN BE DONE BY EXCESSIVE DISCHARGE HEAD CONDITIONS. PLEASE CONTACT FACTORY WITH YOUR HEAD CONDITIONS.

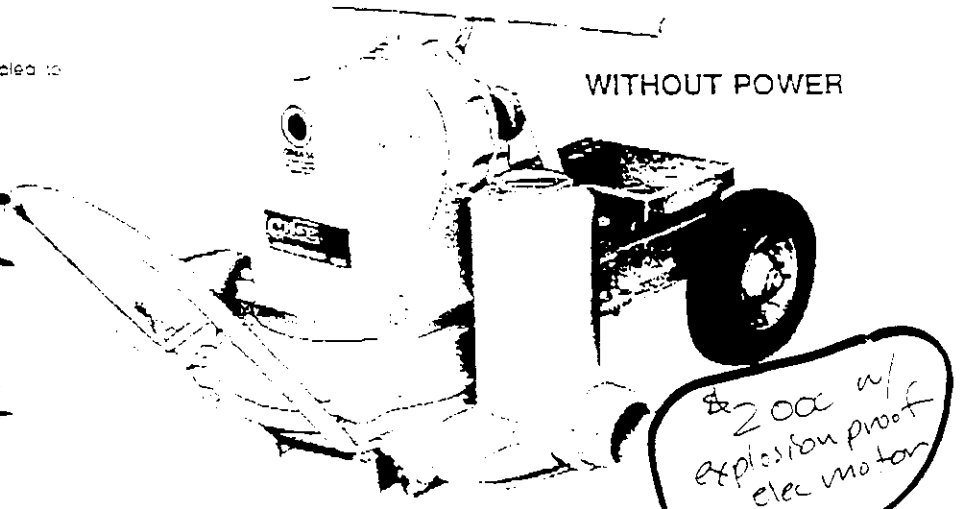
- Either engine or motor can be directly coupled to pump shaft with flexible coupling.

Bilge Pump

Add elec motor

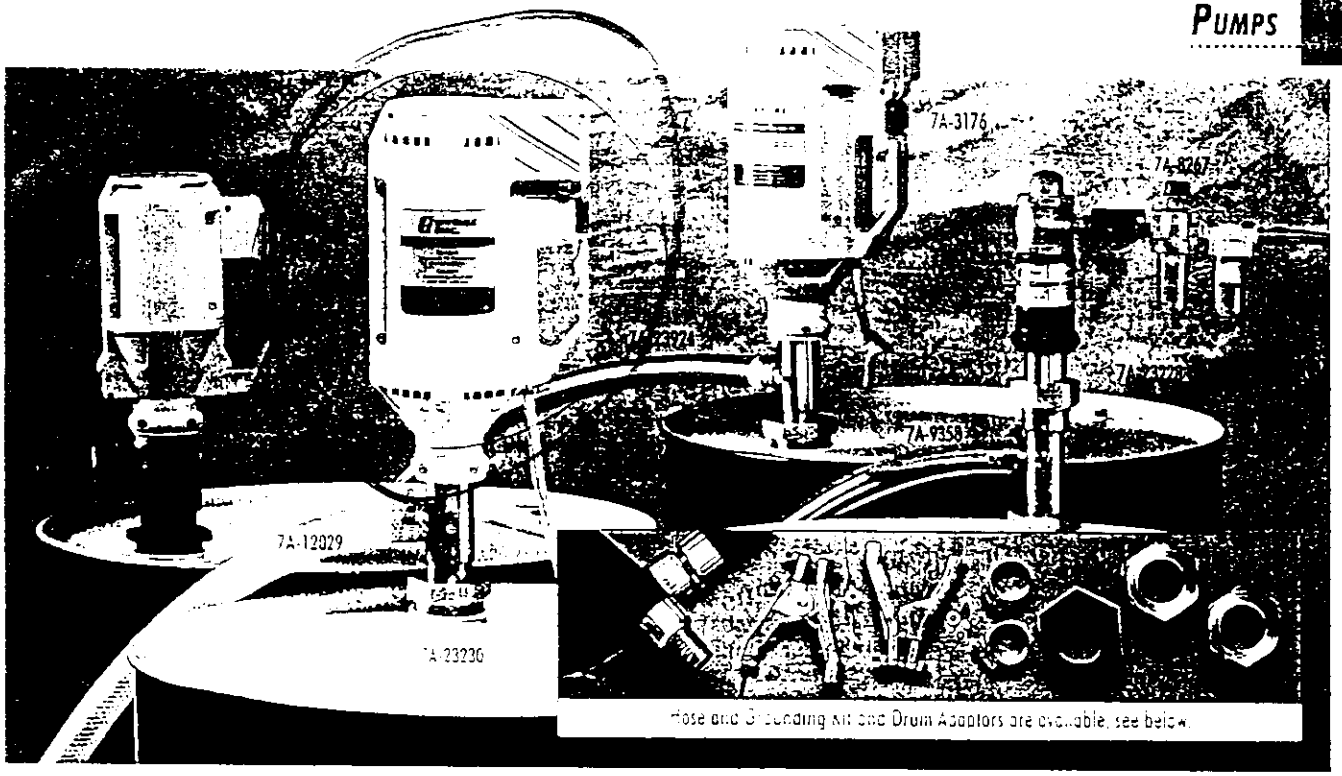
CONTACT FACTORY FOR OVER-ALL DIMENSIONS ON SPECIFIC MODELS.

explosion proof



$200 w/ explosion proof elec motor

C. H. & E. Manufacturing Co. 3849 N. Palmer St. Milwaukee, Wis. 53212
phone 414-964-3400 • FAX 414-964-0677



Hose and Grounding Kit and Drum Adaptors are available, see below.

Finish-Thompson Automatic Drum Pumps

Select from Many Tube and Motor Types to Suit a Wide Range of Uses and Applications

Heavy-duty automatic pumps quickly and safely transfer your workplace liquids.

Specifications: All pumps are designed to fit standard 2" bung openings. *Air-Drive* motor features 1/3hp, 500–6000 rpm, 50–75 psi and 12–25 cfm. *Totally Enclosed Fan-Cooled* (TEFC) motor is double-insulated, 1/4hp motor and *Open-Dripproof* (ODP) motor features 110V, 60 Hz, single-phase, 10,000 rpm and 3' grounded cord with plug. Handle contains built-in switch with manual reset to protect against thermal overload. TEFC motor is designed for corrosive environments. ODP motor is designed for non-corrosive environments. *Explosion-Proof*, double-insulated motor features 110V, 60 Hz, single-phase, 5000 rpm, 1/4hp and a 12' 3-wire cord without plug. Nos. 9231, 12031, 23229, 23230, 23231, 12030, 23232 and 23233 have a 30-minute run-dry capability. Choose from Polypropylene and 316 Stainless Steel material types below. Call 1-630-356-25[illegible] for chemical compatibility.

Accessories: Hose and Grounding Kit are used for pumping flammables and combustibles. *Filter Lubricating Assembly* extends the life of your Air-Drive Motor. *PVC Discharge Hose and Clamp, Reinforced PVC Discharge Hose and Clamp* and *Teflon® Discharge Hose and Clamp* and *Drum Adaptors* let you customize your pump to your application.

Please Specify: Drum Adaptor Material: G (galvanized steel), P (polypropylene), S (316 stainless steel).

No.	Motor Type	Tube Material	Shaft	Shaft Length	Internals	Max. GPM	Max. Feet Head	Max. Temp.	Max. Viscosity (CPS)	Seal	Each
7A-9231	Air	Polypropylene	Inconel	36" x 2" dia	Polypro/Inconel	22	80	160°F	500	Sealless	675.60
7A-12031	Air	Stainless Steel	Stainless Steel	36" x 2" dia	S.S./Teflon Hstar	22	80	400°F	500	Sealless	883.50
7A-3175	Air	Stainless Steel	Stainless Steel	36" x 1¼" dia	S.S./Teflon	15	55	400°F	400	Teflon	927.65
7A-23228	Air	Stainless Steel (USDA Sanitary)	Stainless Steel (USDA Sanitary)	36" x 1¼" dia	S.S./Teflon	9	55	400°F	400	Teflon	1055.95
7A-3174	TEFC	Stainless Steel	Stainless Steel	36" x 1¼" dia	S.S./Teflon	15	55	400°F	400	Teflon	1055.95
7A-23229	TEFC	Polypropylene	Inconel	40" x 2" dia	Polypro/Inconel	45	80	160°F	500	Sealless	694.10
7A-23230	TEFC	Stainless Steel	Stainless Steel	36" x 2" dia	S.S./Teflon Hstar	45	80	400°F	500	Sealless	1102.00
7A-23231	TEFC	Stainless Steel (USDA Sanitary)	Stainless Steel (USDA Sanitary)	36" x 1¼" dia	S.S./Teflon	15	55	400°F	400	Teflon	1695.00
7A-9230	ODP	Polypropylene	Inconel	36" x 2" dia	Polypro/Inconel	45	80	160°F	500	Sealless	675.60
7A-12030	ODP	Stainless Steel	Stainless Steel	36" x 2" dia	S.S./Teflon Hstar	45	80	400°F	500	Sealless	883.50
7A-3176	Expl. Proof	Stainless Steel	Stainless Steel	36" x 1¼" dia	S.S./Teflon	15	55	400°F	400	Teflon	1305.15
7A-23232	Expt. Proof	Polypropylene	Inconel	36" x 2" dia	Polypro/Inconel	9	55	160°F	500	Sealless	1143.35
7A-23233	Expt. Proof	Stainless Steel	Stainless Steel	36" x 2" dia	S.S./Teflon Hstar	9	55	400°F	500	Sealless	1351.20

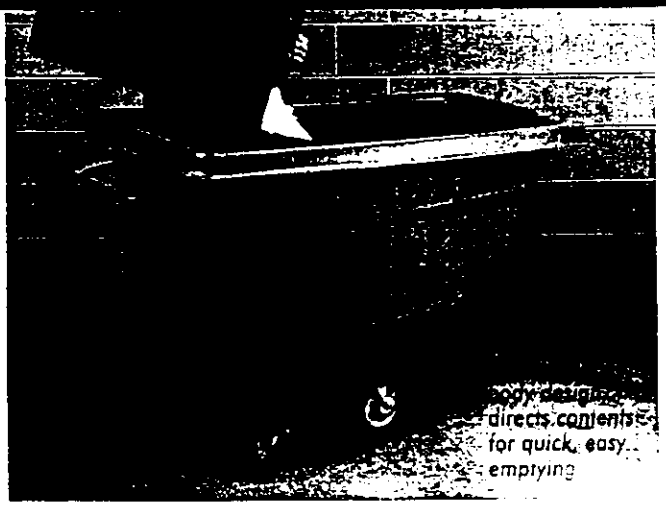
Adaptors

No.	Description	Inside Dia. (in.)	Each Galvanized	Each Polypropylene	Each Stainless Steel
7A-23925	2" NPT Drum Adaptor for Nos. 3175, 23228, 3174, 23231, 3176	1¼	42.55	83.40	186.95
7A-23926	2" NPT Drum Adaptor for Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232, 23233	2	42.55	83.40	186.95

Accessories

No.	Description	Each
7A-9337	Hose and Grounding Kit	297.05
7A-3267	Filter/Lubricating Assembly	151.25
7A-9358	1" x 5' PVC Discharge Hose and Clamp for use with Nos. 3175, 23228, 3174, 23231, 3176	49.10
7A-12029	Reinforced 1" x 5' PVC Discharge Hose with Hose Clamp for use with Nos. 9231, 12031, 23229, 23230, 9230, 12030, 23232, 23233	65.10
7A-23924	Teflon Discharge Hose and Clamp 1" x 5' for use with Nos. 3175, 23228, 3174, 23231, 3176	250.60

DRUM PUMP



Rubbermaid Tilt Trucks

- Easy-to-clean HDPE construction inhibits bacteria growth
- Resists denting and chipping; corrosion-free

A single operator can roll truck to it place to place, collecting waste quickly and efficiently. Available in three styles: *Utility*, with two semi-pneumatic rubber wheels and two rear casters; *Standard*, with two vulcanized rubber wheels and two rear casters; and *Heavy-Duty*, with two vulcanized rubber wheels, two casters and side rails. In stock.

No.	Description	Dimensions H x W x D	Volume (gal., cubic ft.)	Capacity (lbs.)	Each
7A-26445	Utility	38½ x 29 x 44	32 gal.	300	329.61
7A-26446	Standard	38½ x 29 x 44	32 gal.	300	224.31
7A-26447	Heavy-Duty	38½ x 29 x 44	32 gal.	150	316.47
7A-26448	Utility	44 x 34 x 50	2 cu. ft.	300	348.33
7A-26449	Standard	44 x 34 x 50	2 cu. ft.	300	256.71
7A-26450	Heavy-Duty	44 x 34 x 50	2 cu. ft.	300	88.14

Note: *No. 26445 does not have steel handle.*

Insider's Tip: Ergonomic

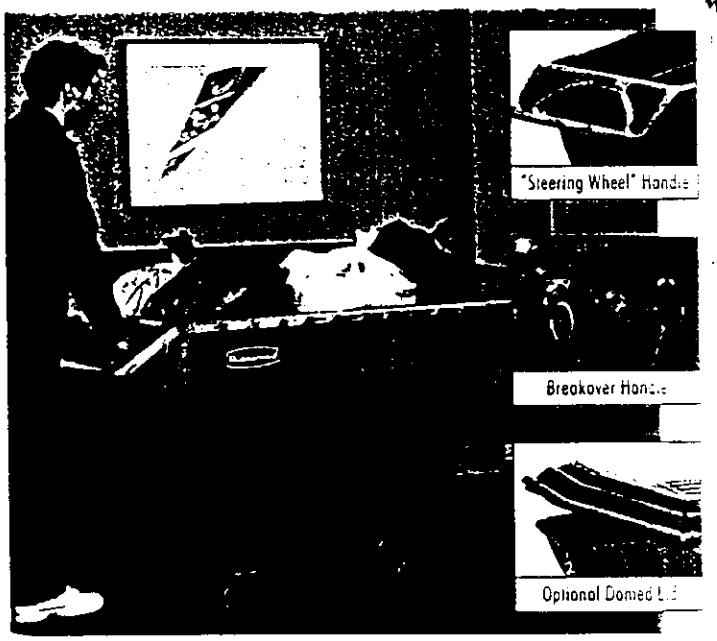
Back injuries are the leading cause of material handlers' [illegible]
stooping and reaching [illegible]
body postures, reduces [illegible]
Check out our selection of Ergonomic Back Saver [illegible]

Valley Dietz Steel Tilt Trucks

- Made entirely of 14-ga. steel
- Leakproof welds along all seams
- Available with or without hand brake

Large capacity—easy to handle. Tapered [illegible] for easier loading and dumping. Convenient recessed handles allow precise control. Heavy-duty wheel and caster assemblies are steel to withstand years of [illegible]. 10" x 2" steel front wheels and [illegible] swiveling casters. *4-wheel Trucks with Hand Brakes* have a foot-operated, hand-engaged braking system that locks the front wheels in place for stationary loading and [illegible] breakaway clamping.

No.	Description	Dimensions H x W x D	Volume (cu. ft.)	Capacity (lbs.)	Shipping Weight (lbs.)	Each
7A-29705	2-wheel	40 x 34 x 61	7 cu. ft.	1,000	170	370.44
7A-29710	4-wheel	40 x 36 x 61	10 cu. ft.	1,000	190	442.44
7A-29711	4-wheel	40 x 36 x 61	10 cu. ft.	1,000	190	466.80
7A-29712	4-wheel w/ brake	40 x 36 x 61	10 cu. ft.	1,000	190	614.40
7A-29713	4-wheel w/ brake	40 x 36 x 61	10 cu. ft.	1,000	190	590.04

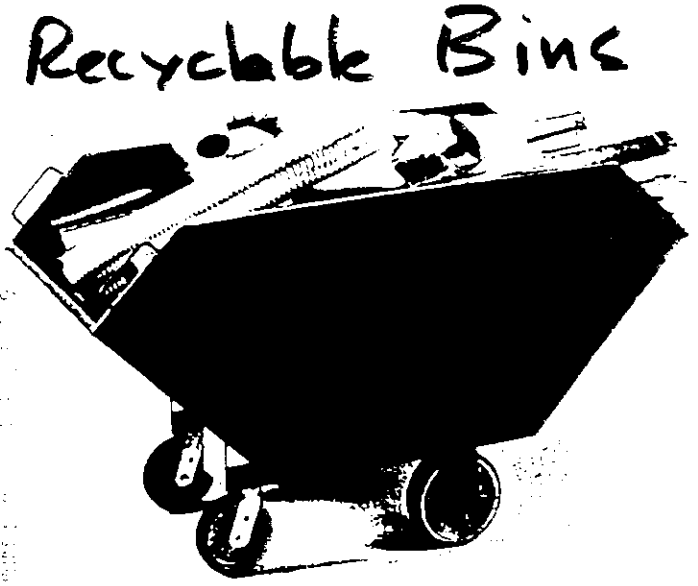


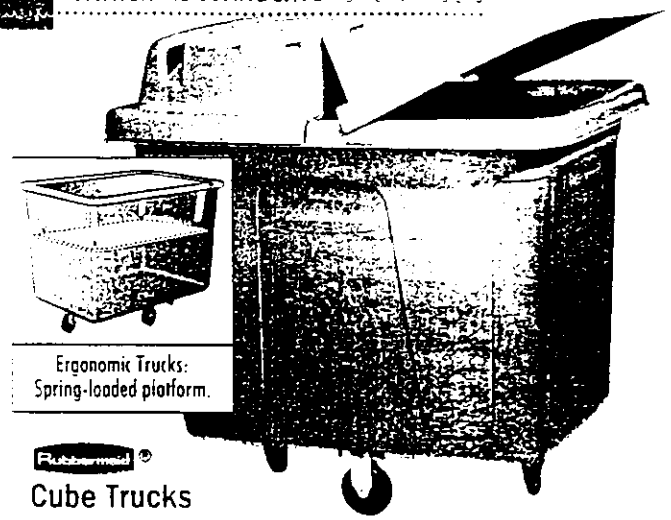
Rubbermaid Ergonomic Tilt Trucks

- "Pushover" design includes an extra handle to reduce the strain of dumping
- Streamlined shape; inset wheels—great in tight spaces
- Strong, rust-free structural foam body

Comes [illegible] steering-wheel handle [illegible] needs hands and arms to a safe distance for [illegible] when [illegible] maneuvering. Just nose door to open. *400-lb. Truck* has two [illegible] 12" x 2½" soft rubber wheels. *800-lb. Truck* has two [illegible], 12" x 2½" hard rubber wheels. Both styles measure 2[illegible]" W x 64" L. Optional *Domed Lid* with hinged [illegible] accommodates large [illegible] and is [illegible] accessible [illegible]

No.	Description	Each
7A-2721[illegible]	400-lb. Capacity [illegible]	474.[illegible]
7A-2721[illegible]	800-lb. Capacity [illegible]	668.[illegible]
7A-2721[illegible]	Domed Lid	198.[illegible]





Rubbermaid®

Cube Trucks

- Leakproof plastic body with metal crossbar base
- Straight, smooth walls are easy to clean and sanitize
- USDA approved for food processing

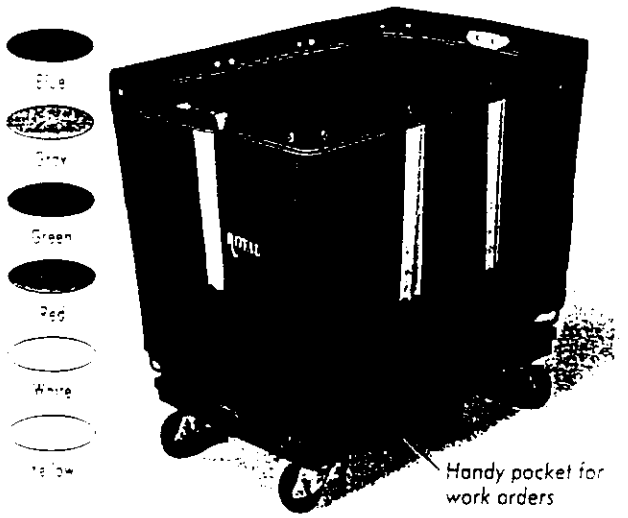
Has two fixed, two swivel casters placed in a diamond configuration. Two sizes are available with a spring-loaded integral platform that automatically brings material to a comfortable working height, reducing the need to bend and reach. Optional hinged, domed *Lids* sold separately. In stock.

Compliance: USDA approved for use in food processing.

Please Specify a Color for Cube Truck: [illegible] (gray), W (white). Trucks with Platform and all Lids available in gray only.

No.	Description	Cap (lbs.)	Dim. (in.) H	W	D	Each
7A-30925	8 cu. ft. truck	300	28	25½	39½	166.40
7A-30926	12 cu. ft. truck	400	32	27	43	244.30
7A-30927	14 cu. ft. truck	500	32	32½	44½	270.60
7A-30928	16 cu. ft. truck	600	32	32½	44½	299.00
7A-30929	20 cu. ft. truck	800	32	32½	45½	345.95
7A-30930	14 cu. ft. truck w/platform	500	32	32½	44½	361.65
7A-30931	20 cu. ft. truck w/platform	600	32	32½	45½	428.35
7A-30932	Lid for 8 cu. ft. truck		9	25½	39½	137.95
7A-30933	Lid for 12 cu. ft. truck		9	27	43	174.80
7A-30934	Lid for 14 and 16 cu. ft. trucks		9	32½	44½	197.55
7A-30935	Lid for 20 cu. ft. trucks		9	34	46½	197.40

Note: No. 26445 does not have steel handle.



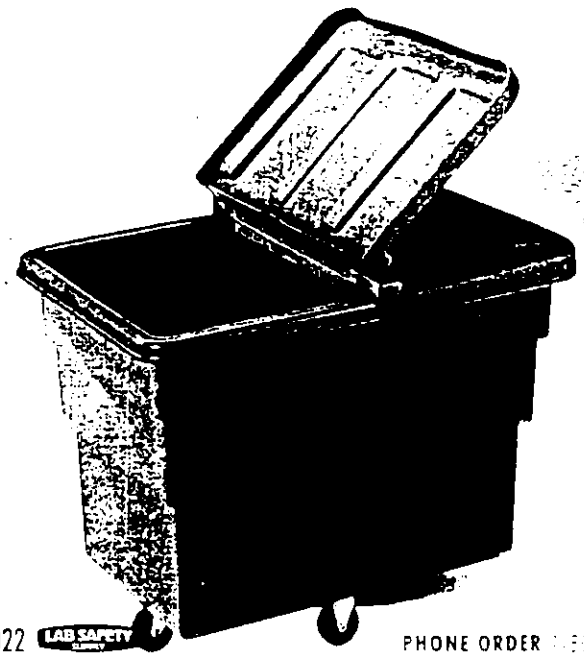
Basket Trucks

- Double-reinforced walls
- Tough, tightly woven polyester substrate
- Coated inside and out with self-bonding royal vinyl for maximum puncture, abrasion and chemical resistance

Heavy vinyl top crown, all-steel welded frame, extra coverage at all wear points—this truck is ready for many years of rugged service. Moves easily about on swiveling, 3" corner casters attached to a hardwood base. Optional pre-fitted *Vinyl Cover* with elastic hem available in black only.

Please Specify a Color: B (blue), G (green), GR (gray), R (red), W (white), Y (yellow).

No.	Capacity	Overall Height (in.)	Dim. (in.) L	W	D	Shipping Wt. (lbs.)	Each
7A-26993	10-bushel	31	36	24	25	33	135.90
7A-26994	12-bushel	33½	36	26	27½	38	149.50
7A-26995	16-bushel	35	40	28	30	50	180.65
7A-26996	18-bushel	35	42	30	30	56	200.25
7A-26997	20-bushel	35	48	32	30	64	210.30
7A-26998	Vinyl Cover for No. 26993					4	19.15
7A-31327-12	Vinyl Cover for No. 26994					4	20.90
7A-31327-16	Vinyl Cover for No. 26995					4	20.90
7A-31328-18	Vinyl Cover for No. 26996					5	24.05
7A-31328-20	Vinyl Cover for No. 26997					5	24.05



Rubbermaid®

Large-Capacity Utility Trucks

- Sturdy polyethylene resists cracking and denting
- Molded-in side ribs add extra strength

The ideal truck for transporting awkward or bulky items. One-piece, smooth-surface design offers easy cleaning; two fixed and two swivel casters (placed in diamond formation) provide fast, easy mobility. *No. 30447* includes a steel support ring to prevent bowing and bulging with full loads. Gray. Add a hinged *Lid* to keep contents safely inside and present a more pleasing appearance. In stock.

No.	Description	Wt. Capacity (lbs.)	Size (in.) H	W	D	Weight (lbs.)	Each
7A-30444	12-Bushel Utility Truck	600	34	44½	31⅛	44	298.05
7A-30445	12-Bushel Utility Truck	800	34	44½	31⅛	48	339.85
7A-30446	20-Bushel Utility Truck	800	36	53	39	77	416.00
7A-30447	20-Bushel Utility Truck	1000	36	53	39	84	457.95
7A-30448	Lid for 12-Bushel Truck	-	3⅛	45⅜	31⅛	16	128.75
7A-30449	Lid for 20-Bushel Truck	-	3⅛	53⅛	39⅛	19	171.65

ENPAC POLY-FUNNELS™ prevent splashes without draining your budget!

Save time, money, and prevent nuisance splashes while protecting workers with our POLY-FUNNELS™. These heavy-duty performers can handle whatever you dish out - from oil filter draining to caustic solvents and chemicals.

POLY-FUNNEL 55/30™

Fits 55- and 30-gallon open- and closed-head drums. Perfect for spent drum draining. Deep 6 1/2" side wall handles the contents of a five-gallon pail all at once. Tapered bottom drains FAST! Ask about the funnel cover locking feature. Cover available

POLY-DRUM FUNNEL 16/5™

Designed for five-gallon pails, 16-gallon drums, and 55-gallon closed-head drums. Handles up to 2.5 gallons poured at once, thanks to the deep 6 1/2" side walls. Cover available

POLY-FUNNEL™ TALL

Big splash protection when you're pouring from buckets into closed-head drums. It provides a higher 3½" side wall to reduce splash.

OPEN HEAD FUNNEL™

Large 24 1/2" diameter funnel sits easily on top of open-head 55-gallon drums. Five-inch side wall keeps work areas clear.

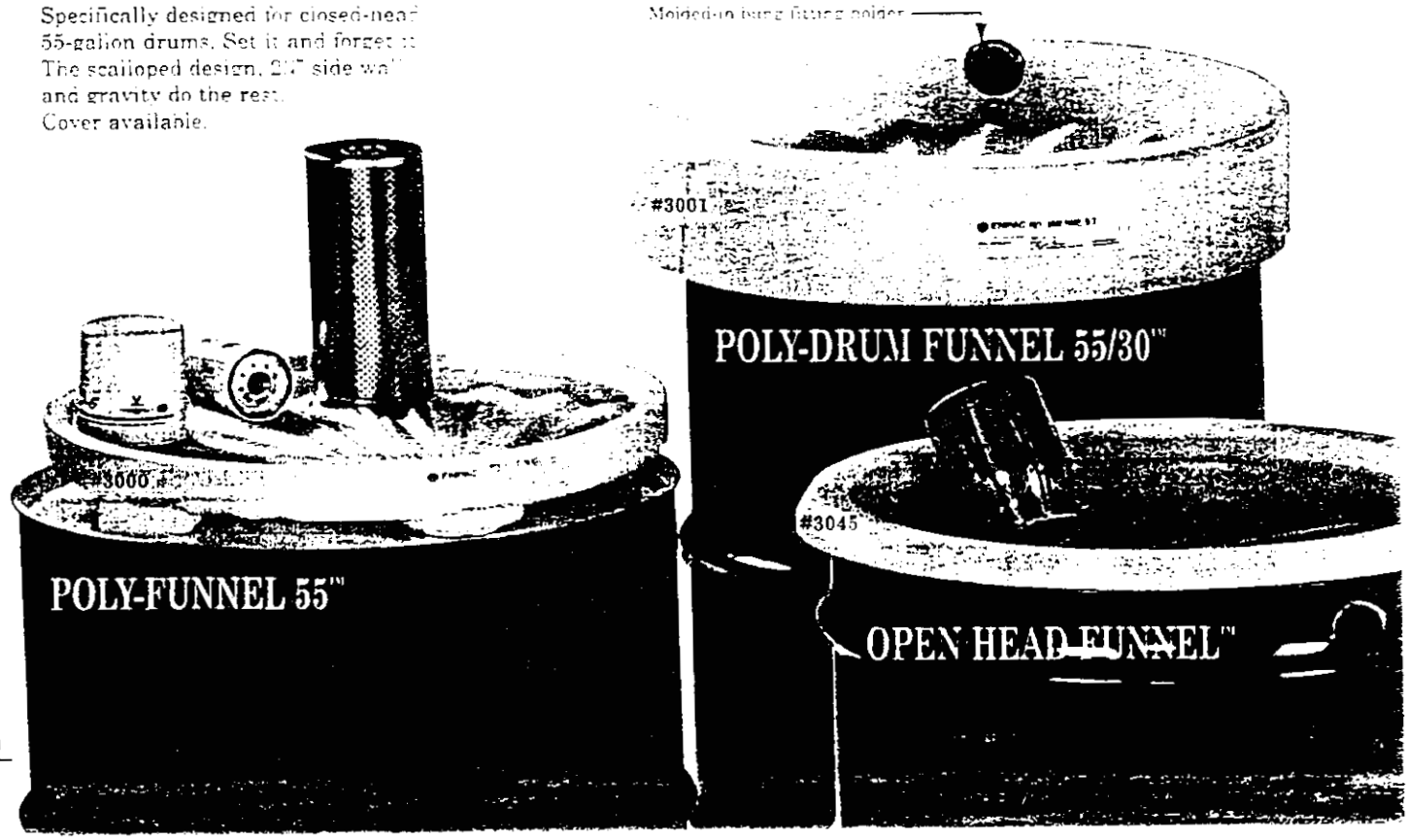
POLY-PAIL FUNNEL™

Mounts to 3, 1 2-, 5-, and 6-gallon right-head pails. Also fits open-top pails with 11 1/4" diameter openings. Cover available

POLY-FUNNEL 55™

Specifically designed for closed-head 55-gallon drums. Set it and forget it. The scalloped design, 2½" side wall and gravity do the rest.
Cover available.

Molded-in bung fitting spider



Specifications

POLY-DRUM FUNNEL 55/30™

Product No.	3001
Weight	6 lbs. / 3 kg
Capacity	6 gallons / 23 liters

FUNNEL 55/30™ COVER

Product No.	3056
Weight	2 lbs. / 1 kg

SAFETY FUNNEL 55/30™

Product No.	3018
Weight	6 lbs. / 3 kg

*Includes flame arrestor & POLY-DRUM FUNNEL 55/30

POLY-DRUM FUNNEL 16/5™

Product No.	3003
Weight	3 lbs. / 1.5 kg
Capacity	2¼ gallons / 9 liters

FUNNEL 16/5™ COVER

Product No.	3057
Weight	1½ lbs. / 1 kg

POLY-FUNNEL™ TALL

Product No.	3002
Weight	6 lbs. / 3 kg

POLY-FUNNEL™ 55

Product No.	3000
Weight	5 lbs. / 2 kg

POLY-FUNNEL™ 55 COVER

Product No.	3050
Weight	2¼ lbs. / 1 kg

SAFETY FUNNEL™

Product No.	3090
Weight	5 lbs. / 2 kg

*Includes flame arrestor & POLY-FUNNEL 55

OPEN-HEAD FUNNEL™

Product No.	3045
Weight	10 lbs. / 5 kg

POLY-PAIL FUNNEL™

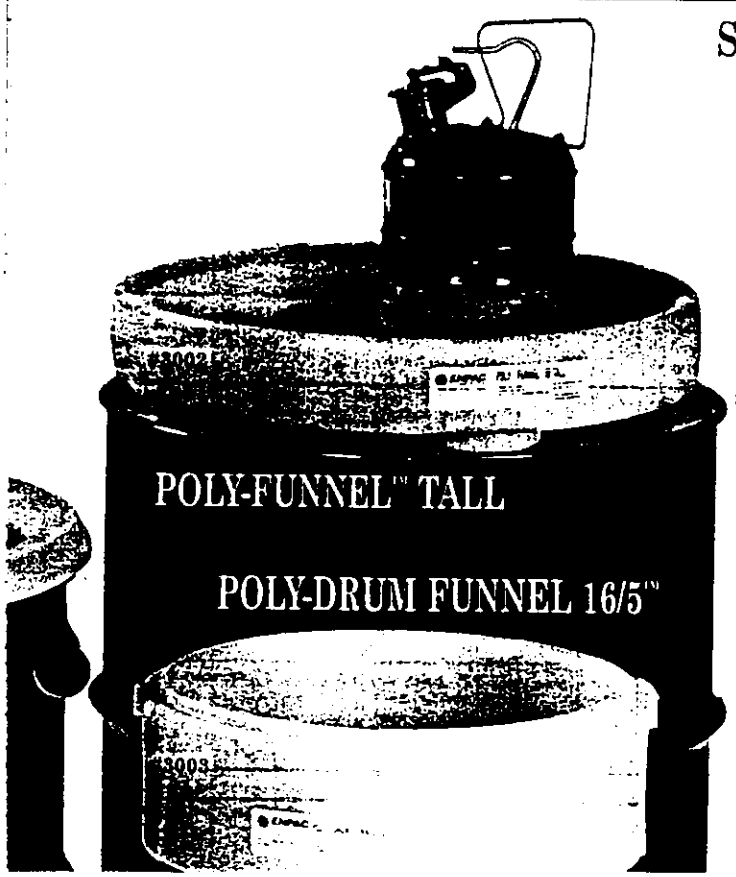
Product No.	3005
Weight	2 lbs. / 1 kg

POLY-PAIL COVER™

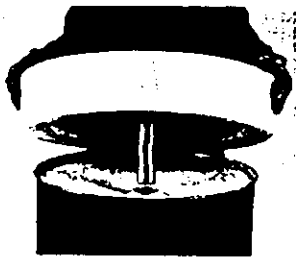
Product No.	3051
Weight	1 lb. / .5 kg

DRUM TOPPER™

Product No.	3065
Weight	2.5 lbs. / 2 kg

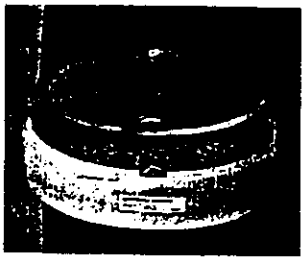


Safety Funnel™ 55/30



POLY-DRUM FUNNEL 55/30 with flame arrestor. Ideal for flamable liquids. #3018

Drain Drums!



Spent drum contents drain easily with POLY-DRUM FUNNEL 55/30, saving time and materials. #3001

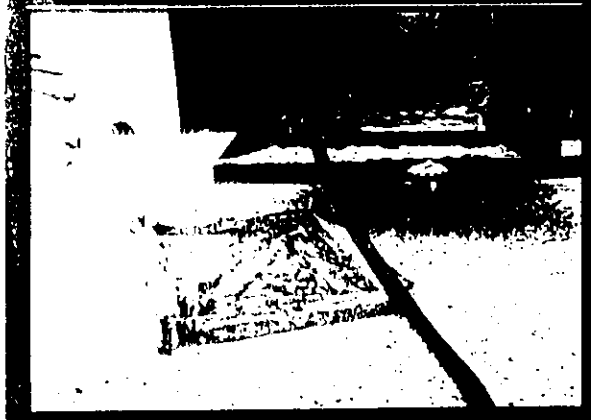
ENPAC CORPORATION

EXAMPLES
EXAMPLES

SHOWN IN ACTUAL SITUATIONS

SPILL CONTAINMENT WHEN HANDLING ENVIRONMENTALLY SENSITIVE MATERIAL

PROTECTS AGAINST OIL OR OTHER SPILLS



SPILL PREVENTION DURING FLUID TRANSFER.

Additional Products

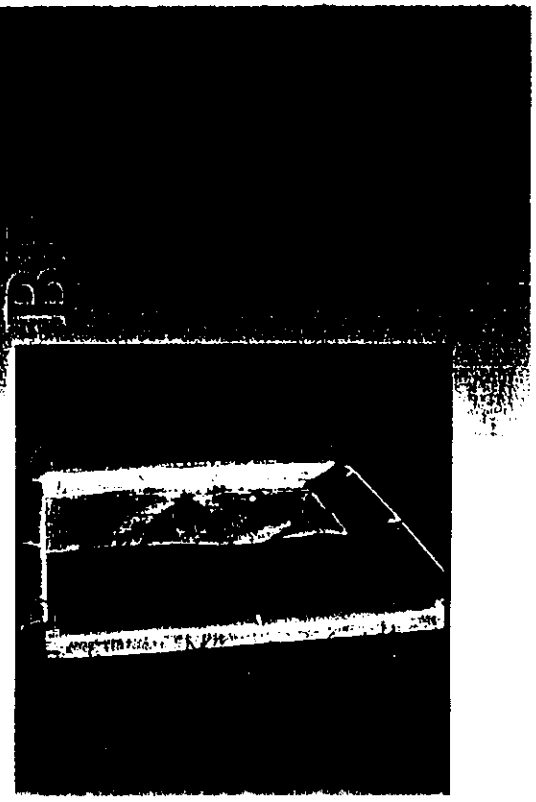
- FIBERGLASS STRUCTURES
  By RM Storage Products Ltd.
- ZORBOLITE HYDROCARBON ABSORBENT
  By GEM Manufacturing Ltd.
- POWERCLEAN & PREWASH MULTIPURPOSE CLEANER
  By EcoSolv
- POLYSHIELD SS100
  By CCI

For more information on our other products, please call

(907)-452-7043

or fax (907) 452-2310

KNOCK DOWN PORTABLE BERMS



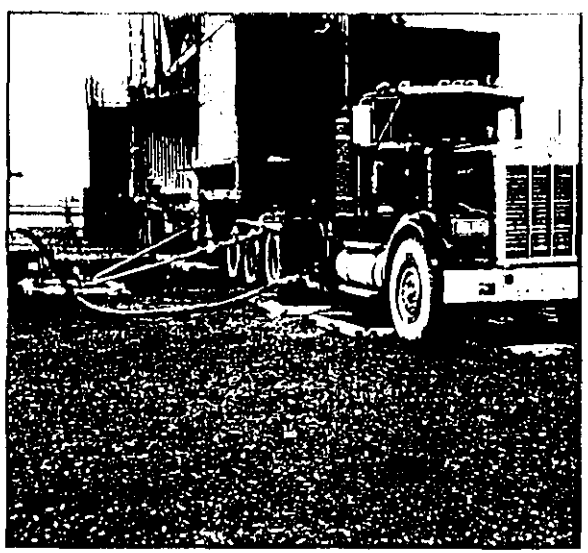
Features

- Reusable
- Light weight
- Good in temperatures down to -65° F
- Will contain petroleum & ethanol products
- Stores easily
- Cost effective & in compliance with safety standards

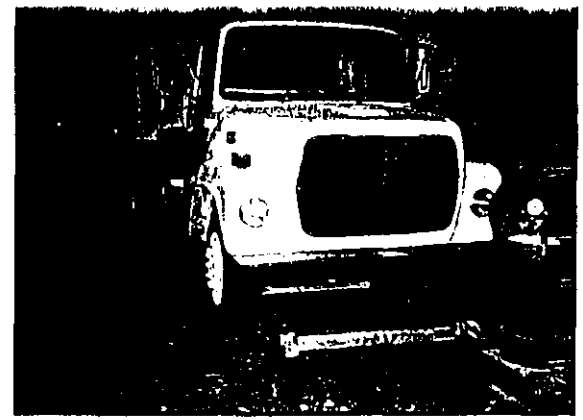
Spill Containment

DESCRIPTION

The knock down portable berm ("berm") consists of a liner and berm, that is formed from closed and open cell foam (for a 4" berm). The foam has been chosen for its low temperature properties and its resiliency. The liner material has been chosen for its extremely strong properties of resisting chemicals such as crude, diesel, methanol, and glycol. The liner material has also been used extensively in the Arctic and is suitable for temperatures as low as -65° F.



Berms were designed by CCI as a quick, temporary installation for the prevention of spills. The size of the containment area can be customized to fit any need. Suitable applications stem anywhere from drip pans for use under equipment to containment of spills during fuel transfers. They are also used extensively to store chemicals in.



OPTIONS

The material which makes up these berms is very smooth. Thus, if personnel are going to stand in or on the berms, we offer some additional features that can be added to our berms. Ruftop is an overlay we can add that is placed on the liner to form a slip resistant work surface and provide protection for the material against heavy traffic. Although the liner material is tough this ruftop helps prevent sharp objects from tearing down through the liner. The working overlay is a flexable cold weather matting that will offer a good slip resistant surface. When working in areas of snow or ice we offer sets of cleats that are welded to the bottom of the berm. These additions will make the berms safer when they are placed on snow or ice.

SIZES

In addition to the 4" foam berm we offer a 2" sand filled berm. Our standard 2" berm is the 18" x 18" x 2" drip pan. These berms are made from the same liner material and are designed to hold a 18" x 18" pad of absorbent material. The 2" sand filled berm allows for the containment of small spills (approximately 2.5 gallons) and it weighs 9 lbs.. The drip pan can be folded into a compact size and is handy for storing in a truck or heavy equipment cab. Different sizes can be manufactured at purchasers request.

PRICE LIST

4" FOAM FILLED BERM

Sizes	Price (base)	Price (w/ cleats)	Price (w/ ruftop)
[illegible]	$168.00		
3' x 3' x 4"	$270.00	$ 285.00	$300.00
3' x 4' x 4"	$283.00	$298.00	$313.00
4' x 4' x 4"	$292.00	$ 307.00	$322.00
4' x 5' x 4"	$319.00	$ 334.00	$349.00
4' x 6' x 4"	$340.00	$ 355.00	$416.00
4' x 8' x 4"	$389.00	$402.00	$465.00

2" SAND FILLED BERM

Sizes	Price (1-50)	Price (51+)
18" x 18" x 2"	$59.00	$59.00
30" x 42" x 2"	$98.00	$98.00
30" x 84" x 2"	$183.00	$166.00
40" x 40" x 2"	$147.00	$133.00
40" x 74" x 2"	$187.00	$170.00
40" x 96" x 2"	$222.00	$202.00
3' x 3' x 2"	$120.00	$110.00
3' x 6' x 2"	$175.00	$159.00
4' x 4' x 2"	$171.00	$156.00
4' x 6' x 2"	$217.00	$198.00
4' x 8' x 2"	$253.00	$230.00

Quotes are available on any size berms

We WILL design to fit your needs

If you have any questions or wish to place an order please call
(907)-452-7043
or fax an order to
(907)-452-8310

1/26/97

Call for Current Pricing

NuERA Technologies, Inc.

NW REGIONAL OFFICE
P.O. Box 5357
Kent, WA 98064
(206) 639-3630
FAX 206-639-3622

ALASKA OFFICE
P.O. Box 112332
Anchorage AK 99511
(907) 345-6411

DATE: 6/5/96

FAX TRANSMITTAL TO: Tom Fisher
USKH
FAX # 452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 8 PAGES

MESSAGE: Ref: Oil Filter Crusher Info.
Elements > 16" Tall

Herkules - 3 pgs

Oberg - 4 pgs

Tom,

Give me a call if you have any questions.

Tks.

Steve

RECEIVED
JUN-05-1996
USKH
FAIRBANKS, ALASKA

NuERA Technologies, Inc.
Steven R. Ransom
Profitable Waste Management

- Waste Oil Furnaces
- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs

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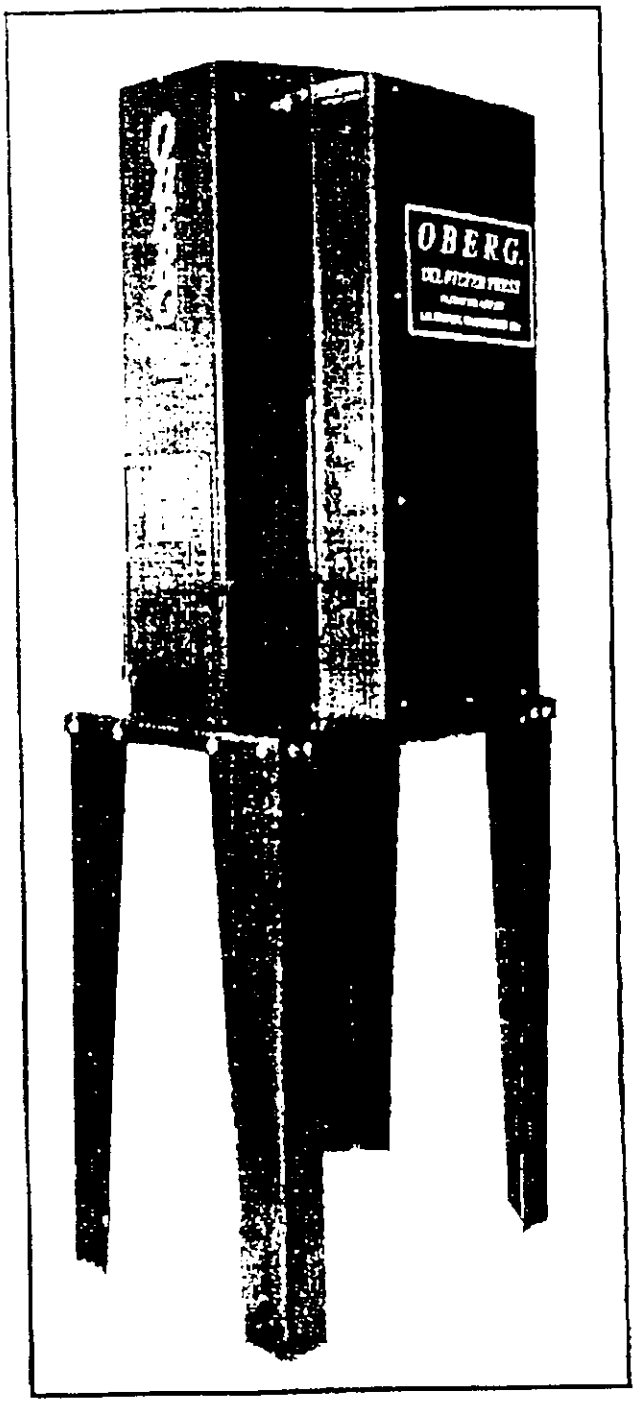
OBERG™

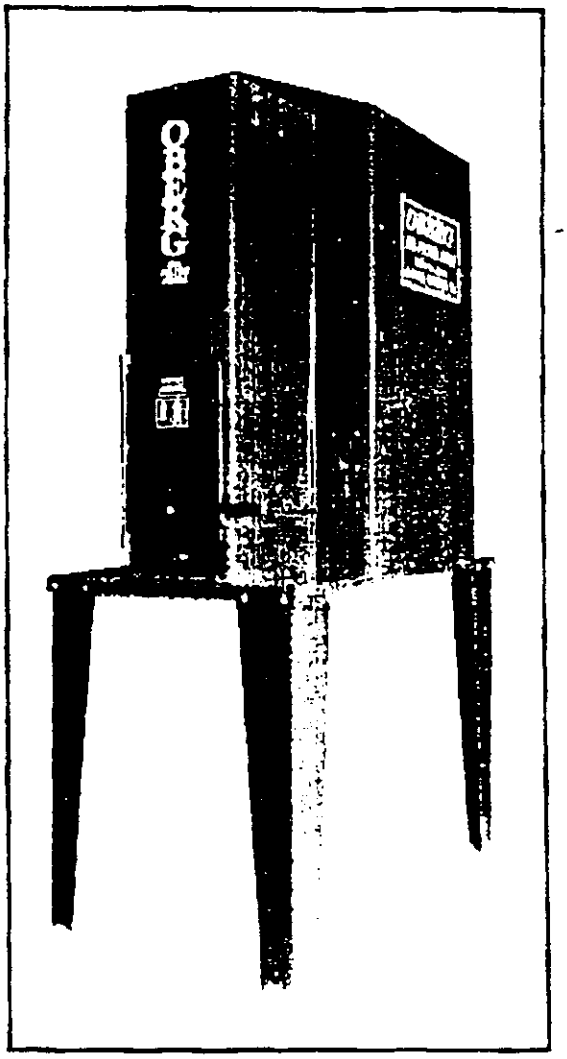
America's #1 Quality Filter Press



Models For Automotive, Heavy Truck And Industrial Filters

MODEL P-300

#1 CHOICE FOR CRUSHING INDUSTRIAL SIZE FILTERS



The *OBERG* Model P-300 provides more crushing force than any competitor, crushing filters up to 20" tall, multiple smaller filters at once, and oily shop rags. The large crushing chamber also allows crushing five gallon paint cans into thin wafers. With over 70,000 pounds of crushing force, the P-300 removes the maximum oil possible from used filters! This eliminates the fabric mess and disposal problem typical when cutting filters.

Crushed filters are deposited through a trap door in the rear of the crushing chamber directly into a transport drum. The P-300 includes legs to house two 55 gallon drums under the machine. One drum can be used for crushed filters and the other for waste oil. A drain located under the crushing chamber allows for waste oil to be plumbed directly to a drum or bulk tank.

All operation is provided by a fully self-contained electric/hydraulic power unit. This provides consistent crushing force without the need for high volume air supply, condensation filters and lubricators necessary with air units.

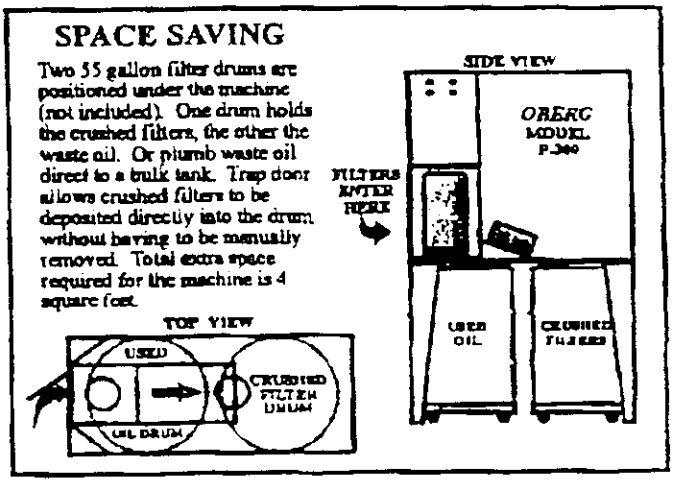
A push button control activates the system and a built in safety mechanism prevents the machine from operating when the loading door is open.

DIMENSIONS

Overall Height	*104"*
Overall Width	*36"*
Overall Length	*60"*
Shipping Weight	*1,380 Lbs.*

SPECIFICATIONS

Cycle Time	*57 sec.*
Cavity Size	*15"w x 15"d x 20"h*
Electrical	*208-220v. 15 amp. Single Phase*
Crushing Force	*70,650 Lbs.*



OBERG International Inc.

NuERA TECHNOLOGIES
P.O. Box 112332
Anchorage, AK 99511-2332
(907) 345-6411

800-347-9575

Manufacturer of Quality Waste Reduction Equipment

OBERG OIL FILTER PRESS
USER PRICE SHEET

OBERG PART #	PRODUCT DESCRIPTION	USER PRICE	SHIPPING WEIGHT
P100WM	**FILTER PRESS** Automotive and Light Industrial Filter Press Mounts To Wall	1,695.00	360 lbs
P200L	**FILTER PRESS** H.D. Truck Filter Press (Note: Model P-200 Will Also Crush Multiple Automotive And Light Industrial Filters) With Legs To House One 55 Gallon Drum	3,880.00	615 lbs
P300	**FILTER PRESS** H.D. Industrial Filter Press (Crushes Filters Up To 20" Tall) (Also Crushes 5 Gallon Size Cans) With Legs To House Two 55 Gallon Drums	5,495.00	1380 lbs
P350	**FILTER PRESS** H.D. Industrial Filter Press (Crushes Railroad Type Filters Up To 40" Tall) (Also Crushes Multiple 5 Gallon Size Cans) Includes Bins For Collection Of Filters And Waste Oil	14,950.00	3000 lbs

SHIPMENTS: F.O.B. ARLINGTON, WASHINGTON
TERMS: 2%10 NET30

Prices effective September 1, 1995

OBERG™ FILTER PRESS

The American Standard For Crushing All Size Filters

Auto - Heavy Duty Truck - Industrial - Railroad

Used Filter Recycling Across America

PARTIAL COMMERCIAL CUSTOMER LIST

Cummins Service Products - Detroit Diesel
Volvo GM Heavy Truck - PACCAR
Rollins Truck Leasing - Ryder Truck Leasing
Penske Truck Leasing - United Parcel Service
Waste Management - Coca Cola - Sysco
Chicago Transit - Milwaukee Transit
Peabody Coal - Mobil

Weyerhauser
Puget Power
Tri-Met Oregon
City of Torrance
City of San Diego
Los Angeles Water & Power
Pacific Gas & Electric
Northrop
Long Beach Transit
City of Huntington Beach
City of Anaheim
United Airlines
Sacramento Transit
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Sam Trans
Southern Pacific Railroad
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Atlantic City Int'l Airport
Texas Gulf
Fleetguard Filters
Southeastern Freightways
Florida Power
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Louisiana Pacific - Chevron USA - Pepsi Cola
Atlantic Richfield - Borden
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AND THOUSANDS MORE. REFERENCES UPON REQUEST

OBERG Also Supplies Federal Government Facilities Under Contract

GSA Contract #GS-07F-71950

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Call Or Fax To Request Complete Catalog And Video

OBERG International, Inc., Arlington WA U.S.A.

"America's #1 Quality Filter Press"

NuERA Technologies, Inc.

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Anchorage AK 99511
(907) 345-6411

DATE: 7/29/96

FAX TRANSMITTAL TO: Tom Fisher, USKH

FAX # 907/452-4225

FROM: Steve Ransom, NuERA Technologies, Inc.

TOTAL PAGES FAXED (INCLUDING THIS SHEET): 1 PAGES

MESSAGE:

REF: Bid specs: Kerkules oil filter crusher (manufacturer's written bid sheet not located)

Sample spec for Model OFC-4

Capable of crushing filters 20" high by 9" diameter, minimum crushing pressure 17.5 tons, maximum 55 second cycle time, air operated; supplied with air filter-regulator & gauge, and timer.

NuERA Technologies, Inc. Steven R. Ransom
Profitable Waste Management
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- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs
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P.O Box 112332
Anchorage, AK 99511-2332
(907) 345-6411
1-800-347-9575

SMART ASH

Date: 1/10/97

To: Tom Fisher - USKH

Page 1 of 5 Pages

Fax # 452-4225

From: Steve Ransom, NuERA Corporation Fax 206-639-3622

Message:

Tom,

Here's the Smart Ash information I was able to copy for you. Original Brochure Slicks enroute via US Mail, (and associated data)

List Price on Incinerator @ $3,295

"Smart Heat" Energy Recovery Unit @ $4,700

Thanks for your Call.

Sincerely,

Steve R.

NuERA Corporation Steven R. Ransom

Profitable Waste Management

- Waste Oil Furnaces
- On Site Disposal/Recycling Eq.
- Waste Assessment & Minimization Programs

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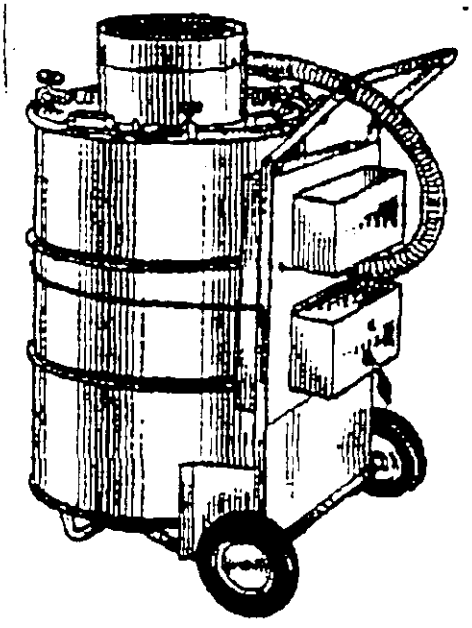
ELASTEC INC

POLLUTION CONTROL SYSTEMS

SmartAsh Power to Burn

This innovative combustion system meets EPA requirements for burning non-hazardous refuse.



SmartAsh uses no fuel. Simply load a 55 gallon, open head, steel drum; light it and clamp on the lid.

Two 120v electric high-velocity blowers create a cyclone of intense heat. Combustion is so complete the volume of materials is reduced to an average of 3% ash. Portable and convenient, SmartAsh rolls out of sight when the job is done.

The air powered SmartAsh reduces disposal cost while eliminting possible long term environmental liabilities.

SmartAsh gives you the power to burn!

REPORTED FUELS:

Absorbent Materials
(Natural & Synthetics)
Classified Papers
Office Waste
Filters
Packing Materials
Clothing

Specifications

Construction:
*Stainless Steel Lid
*Plated Tubular Steel Frame
*2-Blowers, Axial Vane 120 V Standard
or 220 V optional
*Requires: 55 Gallon Steel Open Head Drum

Height: 43"
Floor Space: 32" x 32"
Weight: 76 lbs. Without Drum
116 lbs. With Drum
Burn Rate: 50 LBS./HR.

NuERA Corporation
P.O. Box 5357
KENT, WASHINGTON 98064-5357
(206) 639-3630
800-347-9575

Product #100

SMART ASH MODEL 100A

This innovative combustion system meets EPA & DEC requirements for burning non-hazardous oily waste and other combustible refuse. The Smart Ash uses no fuel. Simply load a 55 gal. open-head steel drum; light it and clamp on the lid. Two 120V electric high velocity blowers create a cyclone of intense heat. Combustion is so complete, the volume of materials is reduced to an average of 3% ash. Portable and convenient, the Smart Ash rolls out of sight when the job is done.

SMART Ash®

POWER TO BURN!

OVER 200 UNITS IN USE STATEWIDE

Attn: Tom. 5 of 5

List of burnable's for Smart Ash

1.) Absorbent types
- a.) Cellulose base types
- b.) Cotton
- c.) Polypropylene & Cotton mix
- d.) Corn cob
- e.) Saw dust
- f.) Peat moss

2.) Hydrocarbons
- a.) All types of crude's
- b.) Waste oils
- c.) Used motor oils
- d.) Transmission oils all types and weights
- e.) Lubricating greases
- f.) Hydraulic oils
- g.) Diesel fuels #1 and #2
- h.) Kerosene's
- I.) Jet fuels (flash point above 100 degrees Fahrenheit.)

All **liquids must** be absorbed in a burnable absorbent, to be incinerated.

3.) Filters
- a.) Spin on and cartridge oil filters from cars and trucks, heavy equipment
- b.) Air filters of all types, car, truck, industrial types
- c.) Poly & Fiberglass filters
- d.) Natural Gas pipeline filters (glycol filters)

4.) Paper Products
- a.) Newspapers
- b.) Office wastes
- c.) Cardboards
- d.) Fast food paper wastes
- e.) Computer papers
- f.) Sensitive documents

5.) Wood products
- a.) Saw dust
- b.) Scrap at construction sites
- c.) Tree limbs & leaves
- d.) Shipping Pallets
- e.) Any type of wood products will fit this category

6.) Plastic's

This unit will incinerate a wide variety of plastic's. The volatile emission's emitted by these types of material are not acceptable in the permitting requirements.

7.) Miscellaneous
- a.) Clothing
- b.) Gloves
- c.) Oily rags
- d.) Packaging material

DANGER

HAZARDOUS WASTE STORAGE AREA
UNAUTHORIZED PERSONS KEEP OUT

FG	10 x 14	70375
AL	7 x 10	40665
AL	10 x 14	40666
PL	7 x 10	22101
PL	10 x 14	22102
SS	7 x 10	84080
SS	10 x 14	84081

DANGER

KEEP OUT

FG	10 x 14	47008
FG	14 x 20	75478
AL	7 x 10	40675
AL	10 x 14	40676
PL	7 x 10	22111
PL	10 x 14	22112
SS	7 x 10	84095
SS	10 x 14	84096

DANGER

PESTICIDE STORAGE
AUTHORIZED PERSONNEL ONLY

FG	10 x 14	70479
AL	7 x 10	40685
AL	10 x 14	40686
PL	7 x 10	22121
PL	10 x 14	22122
SS	7 x 10	84107
SS	10 x 14	84108

NOTICE

ALL EMPLOYEES WHOSE WORK DOES NOT REQUIRE THEM TO ENTER THIS AREA MUST KEEP OUT

FG	10 x 14	69380
AL	7 x 10	40695
AL	10 x 14	40696
PL	7 x 10	22131
PL	10 x 14	22132
SS	7 x 10	84119
SS	10 x 14	84120

NOTICE

AUTHORIZED PERSONNEL ONLY

FG	7 x 10	70604
FG	10 x 14	70602
AL	7 x 10	40705
AL	10 x 14	40706
PL	7 x 10	22141
PL	10 x 14	22142
SS	7 x 10	84129
SS	10 x 14	84130

NOTICE

NO ADMITTANCE EMPLOYEES ONLY

FG	10 x 14	69362
AL	7 x 10	40715
AL	10 x 14	40716
PL	7 x 10	22151
PL	10 x 14	22152
SS	7 x 10	84141
SS	10 x 14	84142

DANGER

HIGH VOLTAGE KEEP OUT

FG	7 x 10	45470
FG	10 x 14	45471
FG	14 x 20	45472
AL	7 x 10	40667
AL	10 x 14	40668
PL	7 x 10	22103
PL	10 x 14	22104
SS	2½ x 4½	89174
SS	3½ x 5	84082
SS	7 x 10	84083
SS	10 x 14	84084

DANGER

KEEP OUT
HAZARD AREA

FG	14 x 20	71091
AL	7 x 10	40677
AL	10 x 14	40678
PL	7 x 10	22113
PL	10 x 14	22114
SS	7 x 10	84097
SS	10 x 14	84098

DANGER

RESTRICTED AREA

FG	10 x 14	69473
AL	7 x 10	40687
AL	10 x 14	40688
PL	7 x 10	22123
PL	10 x 14	22124
SS	7 x 10	84109
SS	10 x 14	84110

NOTICE

ALL LUNCH BOXES PACKAGES, BAGS PURSES, ETC. ARE SUBJECT TO INSPECTION

FG	10 x 14	69382
AL	7 x 10	40697
AL	10 x 14	40698
PL	7 x 10	22133
PL	10 x 14	22134
SS	7 x 10	84121
SS	10 x 14	84122

NOTICE

EMPLOYEES ONLY

FG	7 x 10	47301
FG	10 x 14	47327
AL	7 x 10	40707
AL	10 x 14	40708
PL	7 x 10	22143
PL	10 x 14	22144
SS	7 x 10	84131
SS	10 x 14	84132

NOTICE

NO ADMITTANCE WITHOUT A PERMIT

FG	10 x 14	71157
AL	7 x 10	40717
AL	10 x 14	40718
PL	7 x 10	22153
PL	10 x 14	22154
SS	7 x 10	84143
SS	10 x 14	84144

DANGER

HIGH VOLTAGE
UNAUTHORIZED PERSONNEL KEEP OUT

FG	14 x 20	71580
AL	7 x 10	40669
AL	10 x 14	40670
PL	7 x 10	22105
PL	10 x 14	22106
SS	7 x 10	84085
SS	10 x 14	84086

DANGER

NO ADMITTANCE

FG	7 x 10	47154
AL	7 x 10	40679
AL	10 x 14	40680
PL	7 x 10	22115
PL	10 x 14	22116
SS	7 x 10	84101
SS	10 x 14	84102

DANGER

ROBOTIC AREA
AUTHORIZED PERSONNEL ONLY

FG	10 x 14	69461
AL	7 x 10	40689
AL	10 x 14	40690
PL	7 x 10	22125
PL	10 x 14	22126
SS	7 x 10	84111
SS	10 x 14	84112

NOTICE

ALL TRUCK DRIVERS MUST SIGN IN BEFORE PROCEEDING PAST THIS POINT

FG	10 x 14	69366
AL	7 x 10	40699
AL	10 x 14	40700
PL	7 x 10	22135
PL	10 x 14	22136
SS	7 x 10	84123
SS	10 x 14	84124

NOTICE

ENTRANCE FOR EMPLOYEES ONLY

FG	10 x 14	69210
AL	7 x 10	40709
AL	10 x 14	40710
PL	7 x 10	22145
PL	10 x 14	22146
SS	7 x 10	84133
SS	10 x 14	84134

NOTICE

NO ADMITTANCE WITHOUT PASS FROM OFFICE

FG	10 x 14	69392
AL	7 x 10	40719
AL	10 x 14	40720
PL	7 x 10	22155
PL	10 x 14	22156
SS	7 x 10	84145
SS	10 x 14	84146

DANGER

KEEP AWAY

FG	10 x 14	47006
FG	14 x 20	69310
AL	7 x 10	40671
AL	10 x 14	40672
PL	7 x 10	22107
PL	10 x 14	22108
SS	7 x 10	84089
SS	10 x 14	84090

DANGER

NOT A PEDESTRIAN WALKWAY FORK TRUCKS ONLY

FG	10 x 14	69410
AL	7 x 10	40681
AL	10 x 14	40682
PL	7 x 10	22117
PL	10 x 14	22118
SS	7 x 10	84103
SS	10 x 14	84104

DANGER

THIS ENCLOSURE CONTAINS HIGH VOLTAGE ELECTRICAL EQUIPMENT AND MUST NOT BE ENTERED EXCEPT BY PERMISSION

FG	14 x 20	69523
AL	7 x 10	40691
AL	10 x 14	40692
PL	7 x 10	22127
PL	10 x 14	22128
SS	7 x 10	84113
SS	10 x 14	84114

NOTICE

ALL VEHICLES ENTERING OR LEAVING THE PREMISES ARE SUBJECT TO INSPECTION

FG	10 x 14	69387
AL	7 x 10	40701
AL	10 x 14	40702
PL	7 x 10	22137
PL	10 x 14	22138
SS	7 x 10	84125
SS	10 x 14	84126

NOTICE

NO ADMITTANCE

FG	10 x 14	70699
AL	7 x 10	40711
AL	10 x 14	40712
PL	7 x 10	22147
PL	10 x 14	22148
SS	7 x 10	84137
SS	10 x 14	84138

NOTICE

NO ENTRY
UNLESS AUTHORIZED

FG	7 x 10	70715
FG	10 x 14	70713
AL	7 x 10	40721
AL	10 x 14	40722
PL	7 x 10	22157
PL	10 x 14	22158
SS	7 x 10	84149
SS	10 x 14	84150

DANGER

KEEP OFF

FG	7 x 10	47152
FG	10 x 14	47007
AL	7 x 10	40673
AL	10 x 14	40674
PL	7 x 10	22109
PL	10 x 14	22110
SS	7 x 10	84091
SS	10 x 14	84092

DANGER

PESTICIDE STORAGE AREA ALL UNAUTHORIZED PERSONS KEEP OUT
FIRE MAY CAUSE TOXIC FUMES

FG	10 x 14	70480
AL	7 x 10	40683
AL	10 x 14	40684
PL	7 x 10	22119
PL	10 x 14	22120
SS	7 x 10	84105
SS	10 x 14	84106

DANGER

UNSAFE ROOF
KEEP OFF

FG	10 x 14	74391
AL	7 x 10	40693
AL	10 x 14	40694
PL	7 x 10	22129
PL	10 x 14	22130
SS	7 x 10	84115
SS	10 x 14	84116

NOTICE

ALL VISITORS AND JOB APPLICANTS MUST STOP AND SIGN IN AT GATE HOUSE

FG	10 x 14	69388
AL	7 x 10	40703
AL	10 x 14	40704
PL	7 x 10	22139
PL	10 x 14	22140
SS	7 x 10	84127
SS	10 x 14	84128

NOTICE

NO ADMITTANCE APPLY AT OFFICE

FG	10 x 14	47328
AL	7 x 10	40713
AL	10 x 14	40714
PL	7 x 10	22149
PL	10 x 14	22150
SS	7 x 10	84139
SS	10 x 14	84140

NOTICE

NO SOLICITATION OR DISTRIBUTION OF MATERIALS ALLOWED ON COMPANY PROPERTY AT ANY TIME

FG	10 x 14	69402
AL	7 x 10	40723
AL	10 x 14	40724
PL	7 x 10	22159
PL	10 x 14	22160
SS	7 x 10	84151
SS	10 x 14	84152

SIGNS

Hazard Communication 1910.12004

Every workplace exposure that an employee experiences is the responsibility of the employer. The worker has the right to know what he is being exposed to. You must placard to make the employee aware of this exposure. Under Hazard Communication, the employer must ensure that every container of hazardous chemicals in the workplace, where there is the potential of exposure, is labeled, tagged, or marked.

Liquefied Hydrogen, Flammable Gas 1910.103(c)(2)(i)

Hydrogen storage sites must be placarded as follows: LIQUEFIED HYDROGEN – FLAMMABLE GAS – NO SMOKING – NO OPEN FLAMES.

No Unauthorized Personnel 1910.103(c)(2)(i)

Hydrogen storage sites have to be fenced and posted to prevent entrance by unauthorized personnel.

Hydrogen Gas Storage Areas 1910.103(b)(1)(v)

Hydrogen gas storage locations must be permanently placarded as follows: HYDROGEN – FLAMMABLE GAS – NO SMOKING – NO OPEN FLAMES, or the equivalent.

Non-potable Water 1926.51(b)

Outlets for non-potable water must be identified with signs meeting the requirements of Subpart G of Part 1926 (Signs, Signals and Barricades) to clearly indicate that the water should not be used for drinking, washing, or cooking purposes.

CAUTION
ACID

FG - 10 x 14 - 69371
AL - 7 x 10 - 40826
AL - 10 x 14 - 40827
PL - 7 x 10 - 22262
PL - 10 x 14 - 22263
SS - 7 x 10 - 84285
SS - 10 x 14 - 84286

CAUTION
CARBON MONOXIDE MAY BE PRESENT

AL - 10 x 14 - 43496

CAUTION
CHEMICAL LINES OVERHEAD

FG - 10 x 14 - 75073
AL - 7 x 10 - 40828
AL - 10 x 14 - 40829
PL - 7 x 10 - 22264
PL - 10 x 14 - 22265
SS - 7 x 10 - 84289
SS - 10 x 14 - 84290

CAUTION
CHLORINE AREA

FG - 10 x 14 - 69042
AL - 7 x 10 - 40830
AL - 10 x 14 - 40831
PL - 7 x 10 - 22266
PL - 10 x 14 - 22267
SS - 7 x 10 - 84291
SS - 10 x 14 - 84292

CAUTION
EYE AND GLOVE PROTECTION MUST BE WORN WHEN HANDLING CHEMICALS

FG - 10 x 14 - 69228
AL - 7 x 10 - 40840
AL - 10 x 14 - 40841
PL - 7 x 10 - 22276
PL - 10 x 14 - 22277
SS - 7 x 10 - 84301
SS - 10 x 14 - 84302

CAUTION
POSSIBLE HYDROGEN SULFIDE GAS PRESENT

FG - 10 x 14 - 72573
AL - 7 x 10 - 40850
AL - 10 x 14 - 40851
PL - 7 x 10 - 22286
PL - 10 x 14 - 22287
SS - 7 x 10 - 84317
SS - 10 x 14 - 84318

CAUTION
COMPRESSED AIR

FG - 10 x 14 - 69051
AL - 7 x 10 - 40832
AL - 10 x 14 - 40833
PL - 7 x 10 - 22268
PL - 10 x 14 - 22269
SS - 7 x 10 - 84293
SS - 10 x 14 - 84294

CAUTION
HAZARDOUS WASTE STORAGE AREA UNAUTHORIZED PERSONS KEEP OUT

FG - 10 x 14 - 70374
AL - 7 x 10 - 41273
AL - 10 x 14 - 41274
PL - 7 x 10 - 22709
PL - 10 x 14 - 22710
SS - 7 x 10 - 85409
SS - 10 x 14 - 85410

CAUTION
PREVENT STATIC SPARK DISCHARGE USE GROUNDING DEVICES

FG - 10 x 14 - 70488
AL - 7 x 10 - 40852
AL - 10 x 14 - 40853
PL - 7 x 10 - 22288
PL - 10 x 14 - 22289
SS - 7 x 10 - 84319
SS - 10 x 14 - 84320

CAUTION
CONTAINS HAZARDOUS MATERIAL SEE MSDS FILE

FG - 10 x 14 - 70256
AL - 7 x 10 - 40834
AL - 10 x 14 - 40835
PL - 7 x 10 - 22270
PL - 10 x 14 - 22271
SS - 7 x 10 - 84295
SS - 10 x 14 - 84296

CAUTION
HIGH PRESSURE PIPELINE

FG - 10 x 14 - 70495
AL - 7 x 10 - 41275
AL - 10 x 14 - 41276
PL - 7 x 10 - 22711
PL - 10 x 14 - 22712
SS - 7 x 10 - 85411
SS - 10 x 14 - 85412

CAUTION
TOXIC/HAZARDOUS CHEMICALS ARE USED IN THIS WORKPLACE SAFETY DATA SHEETS ARE AVAILABLE IN THE SUPERVISOR'S OFFICE

FG - 10 x 14 - 70559
AL - 7 x 10 - 40854
AL - 10 x 14 - 40855
PL - 7 x 10 - 22290
PL - 10 x 14 - 22291
SS - 7 x 10 - 84321
SS - 10 x 14 - 84322

CAUTION
CORROSIVE MATERIALS WEAR REQUIRED PROTECTION

FG - 7 x 10 - 47079
FG - 10 x 14 - 47117
AL - 7 x 10 - 40836
AL - 10 x 14 - 40837
PL - 7 x 10 - 22272
PL - 10 x 14 - 22273
SS - 7 x 10 - 84297
SS - 10 x 14 - 84298

CAUTION
NON-POTABLE WATER DO NOT DRINK

FG - 10 x 14 - 69458
AL - 7 x 10 - 40846
AL - 10 x 14 - 40847
PL - 7 x 10 - 22282
PL - 10 x 14 - 22283
SS - 7 x 10 - 84313
SS - 10 x 14 - 84314

CAUTION
WELDING FUMES MAY BE PRESENT

AL - 10 x 14 - 43498

DANGER
ACETYLENE

FG - 7 x 10 - 70206
FG - 10 x 14 - 70207
AL - 7 x 10 - 40856
AL - 10 x 14 - 40857
PL - 7 x 10 - 22292
PL - 10 x 14 - 22293
SS - 7 x 10 - 84323
SS - 10 x 14 - 84324

CAUTION
ENTRY PROHIBITED WITHOUT PERMIT TEST FOR O2 DEFICIENCY, H2S AND COMBUSTIBLE VAPORS

FG - 14 x 20 - 69216
AL - 7 x 10 - 40831
AL - 10 x 14 - 40832
PL - 7 x 10 - 22067
PL - 10 x 14 - 22068
SS - 7 x 10 - 84018
SS - 10 x 14 - 84019

CAUTION
PERSONAL PROTECTIVE CLOTHING IS TO BE WORN AT ALL TIMES WHEN HANDLING CHEMICALS

FG - 10 x 14 - 70474
AL - 7 x 10 - 40848
AL - 10 x 14 - 40849
PL - 7 x 10 - 22284
PL - 10 x 14 - 22285
SS - 7 x 10 - 84315
SS - 10 x 14 - 84316

HAZARDOUS MATERIALS

DANGER
ACID

FG	7 x 10	47150
FG	10 x 14	47206
AL	7 x 10	40856
AL	10 x 14	40859
PL	7 x 10	22294
PL	10 x 14	22295
SS	3½ x 5	84325
SS	7 x 10	84326
SS	10 x 14	84327

DANGER
BENZENE
CANCER HAZARD

FG	10 x 14	69766
AL	7 x 10	41288
AL	10 x 14	41296
PL	7 x 10	22725
PL	10 x 14	22726
SS	7 x 10	85441
SS	10 x 14	85442

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST-CANCER
AND LUNG DISEASE HAZARD

SS	3½ x 5	85451
SS	7 x 10	85452
SS	10 x 14	85453

DANGER
CYANIDE

FG	10 x 14	72428
AL	7 x 10	41291
AL	10 x 14	41292
PL	7 x 10	22727
PL	10 x 14	22728
SS	7 x 10	85456
SS	10 x 14	85457

DANGER
DIESEL

FG	10 x 14	69069
AL	7 x 10	41293
AL	10 x 14	41294
PL	7 x 10	22729
PL	10 x 14	22730
SS	7 x 10	85458
SS	10 x 14	85459

DANGER
DIESEL
FUEL

FG	7 x 10	70265
FG	10 x 14	70266
FG	14 x 20	70267
AL	7 x 10	43005
AL	10 x 14	43006
PL	7 x 10	25428
PL	10 x 14	25429
SS	7 x 10	84371
SS	10 x 14	84372

DANGER
DO NOT BURN
OR WELD
ON THIS VESSEL

SS	7 x 10	85157

DANGER
ETHYLENE
OXIDE

AL	10 x 14	43507

DANGER
EXPLOSIVE GAS
NO SMOKING

FG	10 x 14	70327
FG	14 x 20	72207
AL	7 x 10	43227
AL	10 x 14	43228
PL	7 x 10	25650
PL	10 x 14	25651
SS	7 x 10	85161
SS	10 x 14	85162

DANGER
EXPLOSIVE VAPOR
NO SMOKING
NO OPEN FLAME
NO SPARK

FG	14 x 20	71901
AL	7 x 10	43229
AL	10 x 14	43230
PL	7 x 10	25652
PL	10 x 14	25653
SS	7 x 10	85163
SS	10 x 14	85164

DANGER
EXPLOSIVES

FG	10 x 14	75636
AL	7 x 10	43231
AL	10 x 14	43232
PL	7 x 10	25654
PL	10 x 14	25655
SS	7 x 10	85165
SS	10 x 14	85166

DANGER
EXPLOSIVES
KEEP AWAY

FG	14 x 20	71895
AL	7 x 10	43233
AL	10 x 14	43234
PL	7 x 10	25656
PL	10 x 14	25657
SS	7 x 10	85169
SS	10 x 14	85170

DANGER
EXPLOSIVES
KEEP OUT

FG	10 x 14	70330
AL	7 x 10	43235
AL	10 x 14	43236
PL	7 x 10	25658
PL	10 x 14	25659
SS	7 x 10	85173
SS	10 x 14	85174

DANGER
FLAMMABLE
GAS

FG	10 x 14	72230
AL	7 x 10	43237
AL	10 x 14	43238
PL	7 x 10	25660
PL	10 x 14	25661
SS	7 x 10	85175
SS	10 x 14	85176

DANGER
FLAMMABLE
KEEP FLAMES AND HEAT AWAY

FG	10 x 14	71932
AL	7 x 10	43239
AL	10 x 14	43240
PL	7 x 10	25662
PL	10 x 14	25663
SS	7 x 10	85179
SS	10 x 14	85180

DANGER
FLAMMABLE
LIQUIDS

FG	10 x 14	72236
AL	7 x 10	43241
AL	10 x 14	43242
PL	7 x 10	25664
PL	10 x 14	25665
SS	7 x 10	85181
SS	10 x 14	85182

DANGER
FLAMMABLE MATERIAL
NO SMOKING

FG	7 x 10	47148
FG	10 x 14	47024
FG	14 x 20	75662
AL	7 x 10	43245
AL	10 x 14	43246
PL	7 x 10	25666
PL	10 x 14	25669
SS	7 x 10	85185
SS	10 x 14	85186

DANGER
FLAMMABLE
MATERIALS

FG	10 x 14	72246
FG	14 x 20	72249
AL	7 x 10	43243
AL	10 x 14	43244
PL	7 x 10	25666
PL	10 x 14	25667
SS	7 x 10	85183
SS	10 x 14	85184

DANGER
FLAMMABLE
NO MATCHES OR OPEN LIGHTS

FG	10 x 14	71945
AL	7 x 10	43247
AL	10 x 14	43248
PL	7 x 10	25670
PL	10 x 14	25671
SS	7 x 10	85187
SS	10 x 14	85188

DANGER
FUEL
OIL

FG	10 x 14	76092
AL	7 x 10	41305
AL	10 x 14	41306
PL	7 x 10	22741
PL	10 x 14	22742
SS	7 x 10	85485
SS	10 x 14	85486

DANGER
FUEL STORAGE
NO SMOKING

FG	10 x 14	71951
AL	7 x 10	43249
AL	10 x 14	43250
PL	7 x 10	25672
PL	10 x 14	25673
SS	7 x 10	85189
SS	10 x 14	85190

DANGER
GASOLINE
AND
OIL

FG	10 x 14	692659
AL	7 x 10	41309
AL	10 x 14	41310
PL	7 x 10	22745
PL	10 x 14	22746
SS	7 x 10	85489
SS	10 x 14	85490

DANGER
ACID
WEAR PROPER PROTECTION

FG	10 x 14	72384
AL	7 x 10	40860
AL	10 x 14	40861
PL	7 x 10	22296
PL	10 x 14	22297
SS	7 x 10	84332
SS	10 x 14	84333

DANGER
BENZENE
CANCER HAZARD
FLAMMABLE-NO SMOKING
AUTHORIZED PERSONNEL ONLY
RESPIRATOR REQUIRED

FG	10 x 14	70653
AL	7 x 10	43350
AL	10 x 14	43354
PL	7 x 10	25778
PL	10 x 14	25777
SS	7 x 10	85443
SS	10 x 14	85444

DANGER
ACIDS

AL	7 x 10	40862
AL	10 x 14	43455
PL	7 x 10	22298
PL	10 x 14	25878
SS	7 x 10	84334
SS	10 x 14	84335

DANGER
CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
NO SMOKING OR EATING

FG	10 x 14	72410
AL	7 x 10	41890
AL	10 x 14	41991
PL	7 x 10	23092
PL	10 x 14	23093
SS	7 x 10	86031
SS	10 x 14	86032

DANGER
ASBESTOS
CANCER AND LUNG
DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING ARE REQUIRED
IN THIS AREA

FG	20 x 14	74520
AL	10 x 7	41285
AL	14 x 10	41286
PL	10 x 7	22721
PL	14 x 10	22722
B-836	18 x 12	78058
SS	10 x 7	85437
SS	14 x 10	85438

DANGER
CAUSTIC

FG	7 x 10	72392
FG	10 x 14	72394
AL	7 x 10	40865
AL	10 x 14	40870
PL	7 x 10	22305
PL	10 x 14	22306
SS	3½ x 5	84344
SS	7 x 10	84345
SS	10 x 14	84346

DANGER
BENZENE

FG	7 x 10	75974
FG	10 x 14	75975
AL	7 x 10	41287
AL	10 x 14	41288
PL	7 x 10	22723
PL	10 x 14	22724
SS	3½ x 5	89175
SS	7 x 10	85439
SS	10 x 14	85440

DANGER
CHLORINE

FG	10 x 14	72408
AL	7 x 10	40877
AL	10 x 14	40878
PL	7 x 10	22313
PL	10 x 14	22314
SS	7 x 10	84355
SS	10 x 14	84356

CHEMICAL HAZARD

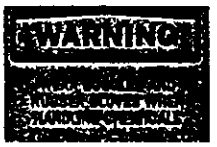
NOTICE
DO NOT DUMP CHEMICALS DOWN THIS DRAIN

FG	10 x 14	70270
AL	7 x 10	40919
AL	10 x 14	40920
PL	7 x 10	22355
PL	10 x 14	22356
SS	7 x 10	84463
SS	10 x 14	84464

NOTICE
NON-POTABLE WATER
NOT TO BE USED FOR DRINKING, WASHING OR COOKING PURPOSES

FG	10 x 14	69394
AL	7 x 10	40925
AL	10 x 14	40926
PL	7 x 10	22361
PL	10 x 14	22362
SS	7 x 10	84469
SS	10 x 14	84470

AL	10 x 14	43503



FG	10 x 14	69615
AL	7 x 10	40941
AL	10 x 14	40942
PL	7 x 10	22377
PL	10 x 14	22378
SS	7 x 10	84491
SS	10 x 14	84492

CORROSIVE LIQUIDS
USE PERSONAL PROTECTIVE EQUIP.

AL	7 x 10	40946
PL	7 x 10	22382
SS	3½ x 10	84499
SS	7 x 10	84500

HYDROGEN

SS	2¼ x 4½	43989

OXYGEN

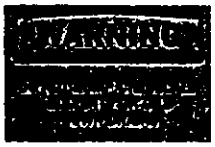
SS	2¼ x 4½	43987

NOTICE
MSDS AND THE WRITTEN HAZARDOUS COMMUNICATION PROGRAM FOR THIS WORK PLACE IS LOCATED IN FOREMAN'S OFFICE

FG	10 x 14	70430
AL	7 x 10	40921
AL	10 x 14	40922
PL	7 x 10	22357
PL	10 x 14	22358
SS	7 x 10	84465
SS	10 x 14	84466

NOTICE
"RIGHT TO KNOW" INFORMATION AVAILABLE IN THIS OFFICE

FG	10 x 14	70513
AL	7 x 10	40929
AL	10 x 14	40930
PL	7 x 10	22365
PL	10 x 14	22366
SS	7 x 10	84473
SS	10 x 14	84474



FG	10 x 14	69573
AL	7 x 10	40935
AL	10 x 14	40936
PL	7 x 10	22371
PL	10 x 14	22372
SS	7 x 10	84483
SS	10 x 14	84484

ACETYLENE

SS	2¼ x 4½	43988

DANGER—ACIDS
WEAR GOGGLES
AVOID FUMES AND SKIN CONTACT
WASH WITH WATER IMMEDIATELY

FG	10 x 14	72434
AL	7 x 10	43321
PL	7 x 10	25744
SS	7 x 10	85562
SS	10 x 14	85563

OXYGEN
NO SMOKING
NO OPEN FLAMES

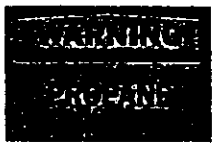
FG	10 x 14	70471
AL	7 x 10	42715
PL	7 x 10	25138
SS	7 x 10	88455
SS	10 x 14	88456

NOTICE
NON-POTABLE WATER

FG	10 x 14	69407
AL	7 x 10	40923
AL	10 x 14	40924
PL	7 x 10	22359
PL	10 x 14	22360
SS	7 x 10	84467
SS	10 x 14	84468

SAFETY FIRST
IF YOU GET CHEMICALS ON YOUR BODY OR EYES WASH THOROUGHLY WITH PLENTY OF WATER

FG	14 x 20	74616
AL	7 x 10	40931
AL	10 x 14	40932
PL	7 x 10	22367
PL	10 x 14	22368
SS	7 x 10	84475
SS	10 x 14	84476



FG	10 x 14	69604
AL	7 x 10	40937
AL	10 x 14	40938
PL	7 x 10	22373
PL	10 x 14	22374
SS	7 x 10	84487
SS	10 x 14	84488

ACETYLENE
NO SMOKING
NO OPEN FLAMES

FG	10 x 14	69370
AL	7 x 10	40943
PL	7 x 10	22379
SS	7 x 10	84493
SS	10 x 14	84494

DIRTY REFRIGERANT
DO NOT USE WITHOUT RECYCLING

SS	7 x 10	43984

SPRAY PAINT BOOTH
PAINT FUMES MAY BE PRESENT

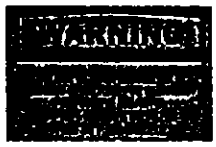
AL	10 x 14	43502

NOTICE
NON-POTABLE WATER
NOT FOR DRINKING OR COOKING USE

FG	7 x 10	72546
AL	7 x 10	40927
AL	10 x 14	40928
PL	7 x 10	22363
PL	10 x 14	22364
SS	7 x 10	84471
SS	10 x 14	84472

SAFETY FIRST
WEAR FACESHIELDS, RUBBER GLOVES AND APRONS WHEN WORKING WITH ACIDS

FG	14 x 20	74464
AL	7 x 10	40933
AL	10 x 14	40934
PL	7 x 10	22359
PL	10 x 14	22370
SS	7 x 10	84477
SS	10 x 14	84478



FG	14 x 20	69610
AL	7 x 10	40939
AL	10 x 14	40940
PL	7 x 10	22375
PL	10 x 14	22376
SS	7 x 10	84489
SS	10 x 14	84490

CHEMICAL
GOGGLES REQUIRED

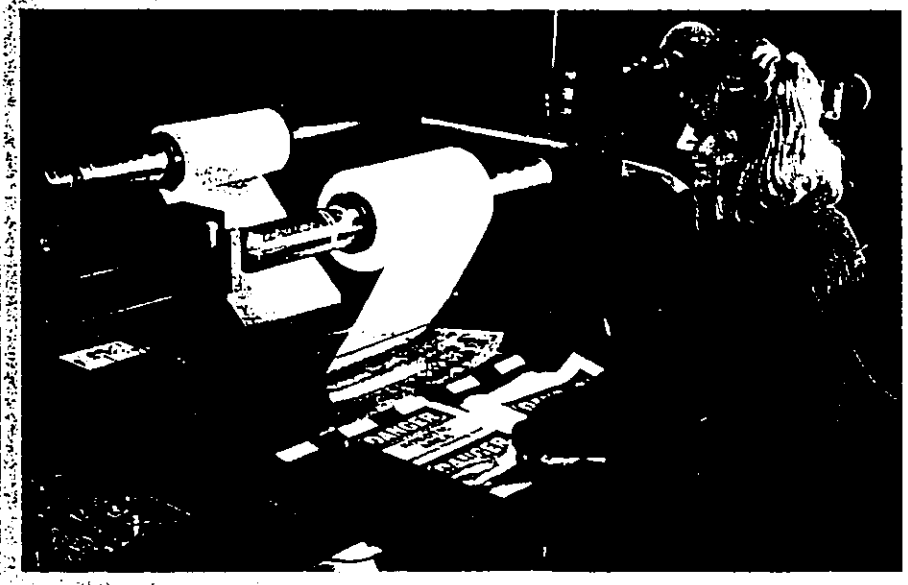
FG	10 x 14	73033
AL	7 x 10	40944
AL	10 x 14	40945
PL	7 x 10	22380
PL	10 x 14	22381
SS	7 x 10	84497
SS	10 x 14	84498

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CALL DAY OR NIGHT

FG	14 x 20	69256
AL	7 x 10	40947
AL	10 x 14	40948
PL	7 x 10	22383
PL	10 x 14	22384
SS	7 x 10	84505
SS	10 x 14	84506

USED OIL

SS	7 x 10	43983



GAS
NO SMOKING, MATCHES OR LIGHTS

FG	10 x 14	69261
AL	7 x 10	40949
PL	7 x 10	22385
SS	7 x 10	84507
SS	10 x 14	84508

WARNING
IF YOU COME IN CONTACT WITH CORROSIVE CHEMICALS GET UNDER A SHOWER IMMEDIATELY —SECONDS COUNT— LARGE VOLUMES OF WATER ARE NECESSARY

FG	14 x 20	72982
AL	7 x 10	40950
PL	7 x 10	22386
SS	7 x 10	84511
SS	10 x 14	84512

SATISFACTION GUARANTEED

A special overlaminating process applied here by Katy Krostag, Graphic Artist, makes every Brady self-sticking sign even more durable.

Find it fast! See the Safety Sign Locator, pages 6-13.

HAZARDOUS MATERIALS

DANGER

H_2S

POISONOUS GAS

FG	10 x 14	72473
AL	7 x 10	41311
AL	10 x 14	41312
PL	7 x 10	22747
PL	10 x 14	22748
SS	7 x 10	85491
SS	10 x 14	85492

DANGER

FG	14 x 20	70473
AL	7 x 10	41305
AL	10 x 14	41307
PL	7 x 10	22755
PL	10 x 14	22756
SS	7 x 10	85519
SS	10 x 14	85520

DANGER

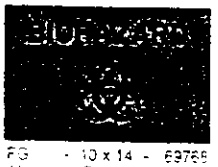
SULFURIC ACID

FG	14 x 20	72557
AL	7 x 10	41335
AL	10 x 14	41336
PL	7 x 10	22774
PL	10 x 14	22775
SS	7 x 10	85507
SS	10 x 14	85508

NOTICE

NON-POTABLE WATER

AL	7 x 10	40925
AL	10 x 14	40926
PL	7 x 10	22021
PL	10 x 14	22022
SS	7 x 10	84469
SS	10 x 14	84470



FG	10 x 14	69769
AL	7 x 10	43319
AL	10 x 14	43320
PL	7 x 10	25742
PL	10 x 14	25743
SS	3½ x 5	69170
SS	7 x 10	85553
SS	10 x 14	85554

EMPTY CYLINDERS

FG	10 x 14	70317
AL	7 x 10	43322
PL	7 x 10	25745
SS	7 x 10	85564
SS	10 x 14	85565

DANGER

HAZARDOUS AREA

FG	10 x 14	69000
AL	7 x 10	41313
AL	10 x 14	41314
PL	7 x 10	22749
PL	10 x 14	22750
SS	7 x 10	85493
SS	10 x 14	85494

DANGER

HYDROCHLORIC ACID

FG	7 x 10	72553
AL	7 x 10	41330
AL	10 x 14	41331
PL	7 x 10	22756
PL	10 x 14	22757
SS	7 x 10	85505
SS	10 x 14	85506

DANGER

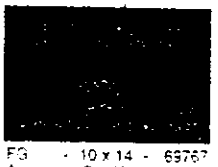
TOXIC MATERIALS

FG	14 x 20	72555
AL	7 x 10	41332
AL	10 x 14	41333
PL	7 x 10	22758
PL	10 x 14	22759
SS	7 x 10	85509
SS	10 x 14	85510

SAFETY FIRST

IF YOU GET CHEMICALS ON YOUR BODY OR EYES WASH THOROUGHLY WITH PLENTY OF WATER

FG	14 x 20	74618
AL	7 x 10	43313
AL	10 x 14	43314
PL	7 x 10	25730
PL	10 x 14	25731
SS	7 x 10	85543
SS	10 x 14	85544



FG	10 x 14	69767
AL	7 x 10	43315
AL	10 x 14	43316
PL	7 x 10	25732
PL	10 x 14	25733
SS	7 x 10	85545
SS	10 x 14	85546

FULL CYLINDERS

FG	10 x 14	70356
AL	7 x 10	43323
PL	7 x 10	25746
SS	7 x 10	85566
SS	10 x 14	85567

DANGER

HAZARDOUS MATERIALS

FG	10 x 14	69002
AL	7 x 10	41315
AL	10 x 14	41316
PL	7 x 10	22751
PL	10 x 14	22752
SS	7 x 10	85497
SS	10 x 14	85498

DANGER

INORGANIC ARSENIC CANCER HAZARD AUTHORIZED PERSONNEL ON NO SMOKING OR EATING RESPIRATOR REQUIRED

AL	10 x 14	43555

NOTICE

CHAIN ALL CYLINDERS SECURELY

PL	10 x 14	70355
AL	7 x 10	41333
AL	10 x 14	41334
PL	7 x 10	22760
PL	10 x 14	22761
SS	7 x 10	85551
SS	10 x 14	85552

FG	10 x 14	69555
AL	7 x 10	43318
AL	10 x 14	43319
PL	7 x 10	25738
PL	10 x 14	25739
SS	7 x 10	85547
SS	10 x 14	85548

CANCER SUSPECT AGENT AREA PROTECTIVE EQUIPMENT REQUIRED AUTHORIZED PERSONNEL ONLY

FG	10 x 14	69781
AL	7 x 10	43345
AL	10 x 14	43346
PL	7 x 10	25881
PL	10 x 14	25882
SS	7 x 10	85557
SS	10 x 14	85558

SPILL CONTROL STATION

SS	7 x 10	43679

DANGER

HAZARDOUS WASTE

FG	10 x 14	69003
AL	7 x 10	41317
AL	10 x 14	41318
PL	7 x 10	22753
PL	10 x 14	22754
SS	7 x 10	85499
SS	10 x 14	85500

DANGER

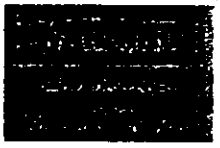
LIVE STEAM

FG	10 x 14	69004
AL	7 x 10	41324
AL	10 x 14	41325
PL	7 x 10	22762
PL	10 x 14	22763
SS	7 x 10	85515
SS	10 x 14	85516

NOTICE

CYLINDERS NOT CONNECTED MUST BE CAPPED

FG	10 x 14	70351
AL	7 x 10	41334
AL	10 x 14	41335
PL	7 x 10	22770
PL	10 x 14	22771
SS	7 x 10	85553
SS	10 x 14	85554



FG	10 x 14	76065
AL	7 x 10	43317
AL	10 x 14	43318
PL	7 x 10	25740
PL	10 x 14	25741
SS	7 x 10	85549
SS	10 x 14	85550

CANCER SUSPECT AGENT EXPOSED IN THIS AREA IMPERVIOUS SUIT INCLUDING GLOVES, BOOTS AND AIR SUPPLIED HOOD REQUIRED AT ALL TIMES. AUTHORIZED PERSONNEL ONLY

FG	20 x 28	69782
AL	7 x 10	43466
AL	10 x 14	43467
PL	7 x 10	25579
PL	10 x 14	25880
SS	7 x 10	85565
SS	10 x 14	85566

WARNING

IF YOU COME IN CONTACT WITH CORROSIVE CHEMICALS GET UNDER A SHOWER IMMEDIATELY -SECONDS COUNT- LARGE VOLUMES OF WATER ARE NECESSARY

FG	14 x 20	72932
AL	7 x 10	40950
PL	7 x 10	22386
SS	7 x 10	84511
SS	10 x 14	84512

DANGER

HIGH PRESSURE GAS LINE

FG	10 x 14	72489
AL	7 x 10	41319
AL	10 x 14	41320
PL	7 x 10	22755
PL	10 x 14	22756
SS	7 x 10	85501
SS	10 x 14	85502

DANGER

PCE

REPORT LEAKS OF SPILL IMMEDIATELY TO MAINTENANCE SUPERINTENDENT

FG	14 x 20	70473
AL	7 x 10	41305
AL	10 x 14	41307
PL	7 x 10	22755
PL	10 x 14	22756
SS	7 x 10	85519
SS	10 x 14	85517

NOTICE

DRUMS MUST BE LABELED

FG	10 x 14	69178
AL	7 x 10	43311
AL	10 x 14	43312
PL	7 x 10	25734
PL	10 x 14	25735
SS	7 x 10	85535
SS	10 x 14	85536

WARNING

ALL PIPE LINES GAS

HIGH PRESSURE BEFORE DIGGING CALL COLLECT

SS	14 x 3	85551

CORROSIVE LIQUIDS

USE IMPERVIOUS PROTECTIVE SUIT

SS	3½ x 10	84499
SS	7 x 10	84500

DANGER - ACIDS WEAR GOGGLES AVOID FUMES AND SKIN CONTACT WASH WITH WATER IMMEDIATELY

FG	10 x 14	72434
AL	7 x 10	43321
PL	7 x 10	25744
SS	7 x 10	85562
SS	10 x 14	85563

DANGER

HIGH PRESSURE OIL LINE

FG	10 x 14	69018
AL	7 x 10	41321
AL	10 x 14	41322
PL	7 x 10	22757
PL	10 x 14	22758
SS	7 x 10	85503
SS	10 x 14	85504

DANGER

POISON

FG	10 x 14	69441
AL	7 x 10	40927
AL	10 x 14	40928
PL	7 x 10	22385
PL	10 x 14	22386
SS	7 x 10	84471
SS	10 x 14	84472

NOTICE

NON-POTABLE WATER NOT FOR DRINKING OR COOKING USE

FG	7 x 10	72546
AL	7 x 10	40927
AL	10 x 14	40928
PL	7 x 10	22385
PL	10 x 14	22364
SS	7 x 10	84471
SS	10 x 14	84472

WARNING

PETROLEUM PIPELINE

BEFORE EXCAVATING OR IN EMERGENCY CALL COLLECT

SS	14 x 3	85552

SATISFACTION GUARANTEED

Make it yourself! See p.156 for Safety Sign Software and Sign Blanks.

RECYCLE & ENVIRONMENT

NOTICE
PLEASE TURN OUT LIGHTS WHEN NOT IN USE

FG	10 x 14	69437
AL	7 x 10	41007
AL	10 x 14	41008
PL	7 x 10	22443
PL	10 x 14	22444
SS	7 x 10	84583
SS	10 x 14	84584

NOTICE
SAVE ENERGY
CLOSE DOORS WHEN NOT IN USE

FG	10 x 14	69493
AL	7 x 10	41009
AL	10 x 14	41010
PL	7 x 10	22445
PL	10 x 14	22446
SS	7 x 10	84585
SS	10 x 14	84586

THINK
CONSERVE ENERGY

FG	10 x 14	69058
AL	7 x 10	41011
AL	10 x 14	41012
PL	7 x 10	22447
PL	10 x 14	22448
SS	7 x 10	84587
SS	10 x 14	84588

THINK
CONSERVE WATER

FG	10 x 14	69060
AL	7 x 10	41013
AL	10 x 14	41014
PL	7 x 10	22449
PL	10 x 14	22450
SS	7 x 10	84589
SS	10 x 14	84590

FG	7 x 10	70623
FG	10 x 14	70624
AL	7 x 10	41968
AL	10 x 14	41969
PL	7 x 10	25943
PL	10 x 14	25944
SS	7 x 10	86023
SS	10 x 14	86024

ALUMINUM CANS ONLY

FG	7 x 10	70627
FG	10 x 14	70628
AL	7 x 10	41972
AL	10 x 14	41973
PL	7 x 10	25947
PL	10 x 14	25948
SS	7 x 10	86027
SS	10 x 14	86028


CLOSE FAUCET TIGHTLY

B-500 2¼ x 2¼ 76289

CONSERVE ENERGY

B-500 2¼ x 2¼ 76288

DON'T WASTE FUEL

B-500 2¼ x 2¼ 76287

DON'T WASTE POWER

B-500 2¼ x 2¼ 76285

FG	12 x 12	76879
AL	7 x 10	41015
PL	7 x 10	22451
SS	10 x 14	84596

GLASS ONLY

FG	7 x 10	70625
FG	10 x 14	70626
AL	7 x 10	41970
AL	10 x 14	41971
PL	7 x 10	25945
PL	10 x 14	25946
SS	7 x 10	86025
SS	10 x 14	86026

HELP SAVE OUR ENVIRONMENT
RECYCLE

FG	10 x 14	69014
AL	7 x 10	41016
PL	7 x 10	22452
SS	7 x 10	84598
SS	10 x 14	84599

per card

B-500 2¼ x 2¼ 76875

NON RECYCLABLE WASTE

FG	7 x 10	70621
FG	10 x 14	70622
AL	7 x 10	41966
AL	10 x 14	41967
PL	7 x 10	25941
PL	10 x 14	25942
SS	7 x 10	86021
SS	10 x 14	86022

PAPER ONLY

FG	7 x 10	70629
FG	10 x 14	70630
AL	7 x 10	41974
AL	10 x 14	41975
PL	7 x 10	25949
PL	10 x 14	25950
SS	7 x 10	86029
SS	10 x 14	86030

RECYCLABLE
ALUMINUM CANS ONLY

FG	7 x 10	70613
FG	10 x 14	70614
AL	7 x 10	41958
AL	10 x 14	41959
PL	7 x 10	25933
PL	10 x 14	25934
SS	7 x 10	86013
SS	10 x 14	86014

RECYCLABLE
BOTTLES ONLY

FG	7 x 10	70605
FG	10 x 14	70606
AL	7 x 10	41950
AL	10 x 14	41951
PL	7 x 10	25925
PL	10 x 14	25926
SS	7 x 10	86005
SS	10 x 14	86006

RECYCLABLE
PLASTIC ONLY

FG	7 x 10	70607
FG	10 x 14	70608
AL	7 x 10	41952
AL	10 x 14	41953
PL	7 x 10	25927
PL	10 x 14	25928
SS	7 x 10	86007
SS	10 x 14	86008

RECYCLABLE
CANS ONLY

FG	7 x 10	70611
FG	10 x 14	70612
AL	7 x 10	41956
AL	10 x 14	41957
PL	7 x 10	25931
PL	10 x 14	25932
SS	7 x 10	86011
SS	10 x 14	86012

RECYCLABLE
WASTE ONLY

FG	7 x 10	70615
FG	10 x 14	70616
AL	7 x 10	41960
AL	10 x 14	41961
PL	7 x 10	25935
PL	10 x 14	25936
SS	7 x 10	86015
SS	10 x 14	86016

RECYCLABLE
METALS ONLY

FG	7 x 10	70617
FG	10 x 14	70618
AL	7 x 10	41962
AL	10 x 14	41963
PL	7 x 10	25937
PL	10 x 14	25938
SS	7 x 10	86017
SS	10 x 14	86018

RECYCLABLE
SAVE OUR RESOURCES
ALUMINUM

SS	10 x 14	84601

RECYCLABLE
SAVE OUR RESOURCES
CARDBOARD

SS	10 x 14	84602

RECYCLABLE
SAVE OUR RESOURCES
GLASS

SS	10 x 14	84603

RECYCLABLE
SAVE OUR RESOURCES
PAPER

SS	10 x 14	84604

RECYCLABLE
NEWSPRINT ONLY

FG	7 x 10	70619
FG	10 x 14	70620
AL	7 x 10	41964
AL	10 x 14	41965
PL	7 x 10	25939
PL	10 x 14	25940
SS	7 x 10	86019
SS	10 x 14	86020

RECYCLABLE
PAPER ONLY

FG	7 x 10	70609
FG	10 x 14	70610
AL	7 x 10	41954
AL	10 x 14	41955
PL	7 x 10	25929
PL	10 x 14	25930
SS	7 x 10	86009
SS	10 x 14	86010

RECYCLABLE
SAVE OUR RESOURCES
PLASTIC

SS	10 x 14	84605

SAVE ENERGY

B-500 1 x 2¼ 76885

SAVE WATER

B-500 1 x 2¼ 76886

Turn it down when you're not around!

B-500 1 x 2¼ 76283

TURN ME
OFF

B-500 3 x 2¼ 76878

Turn off Equipment When Not in Use
SAVE ENERGY

B-500 2¼ x 2¼ 76886

TURN OFF LIGHTS CONSERVE ENERGY

B-500 1 x 2¼ 76290

TURN OFF WHEN NOT IN USE

B-500 1 x 2¼ 76282

WHEN IN DOUBT
TURN ME OUT

FG	12 x 12	76892
B-500	2¼ x 2¼	76285

OVERHEAD Sectional Doors
Selection Guide

		Visual Access	Glazing	Ventilation	Thermal Insulation	Sound Insulation	Air Infiltration Resistance	Windload Resistance	Security	Fire Rated	Pedestrian Pass Door	Oversized Openings	High Usage
Insulated Steel Doors	Thermacore® 592 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 591 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 595 Series	◐	●	○	●	●	●	●	●	○	●	●	●
	Thermacore® 593 Series	◐	●	○	●	●	●	●	●	○	○	○	●
	418 Series	◐	●	○	◐	◐	◐	●	●	○	○	●	◐
	422 Series	◐	●	○	◐	◐	◐	●	●	○	◐	●	◐
	426 Series	◐	●	○	◐	◐	◐	●	●	○	◐	●	◐
	432 Series	◐	●	○	◐	◐	◐	●	●	○	○	◐	◐
	445 Series	◐	◐	○	◐	◐	◐	◐	●	○	○	○	◐
Steel Doors	416 Series	◐	●	○	○	○	◐	●	●	○	○	●	◐
	420 Series	◐	●	○	○	○	◐	●	●	○	◐	●	◐
	424 Series	◐	●	○	○	○	◐	●	●	○	◐	●	◐
	430 Series	◐	●	○	○	○	◐	●	●	○	○	◐	◐
	444 Series	◐	◐	○	○	○	◐	◐	●	○	○	○	◐
Aluminum Doors	520 Series	●	●	◐	○	○	◐	◐	◐	○	○	◐	○
	511 Series	●	●	◐	○	○	◐	◐	◐	○	○	○	○
Special Application Doors		◐	●	◐	◐	◐	◐	●	●	○	◐	●	●

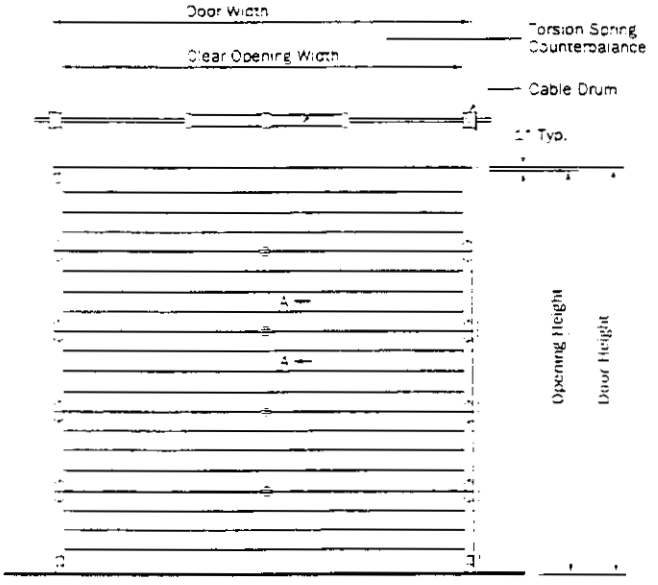
○ Not Applicable
◐ Applicable in Certain Conditions
● Applicable

595 Series

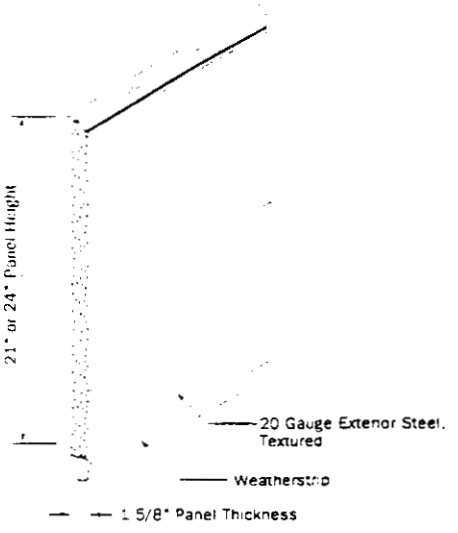
Thermacore® Insulated Steel Doors

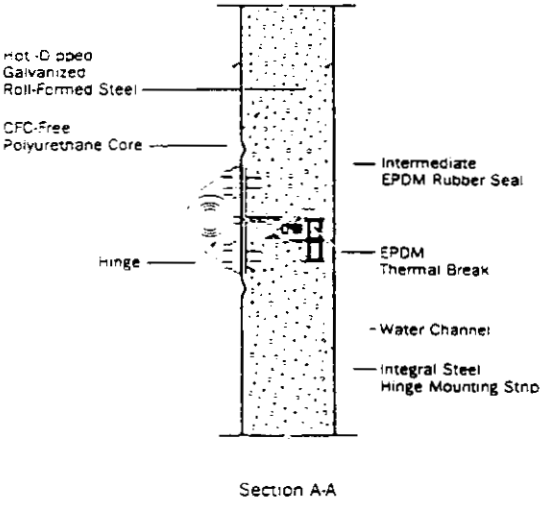
Interior Elevation

For clearance details on electrically operated doors, see Motor Operator detail pages at back of this section.



Panel Detail



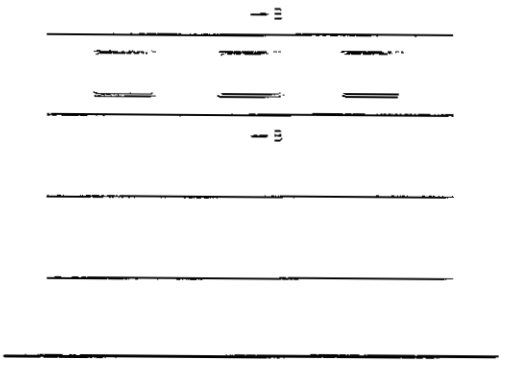


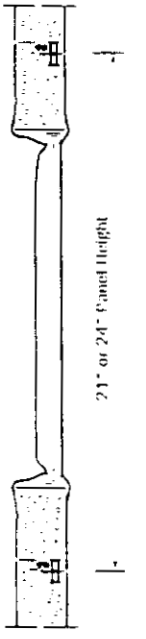
Section A-A

595 Series
Glazing Options

Insulated Thermal Acrylic Window Lite
24" x 11"

Exterior Elevation

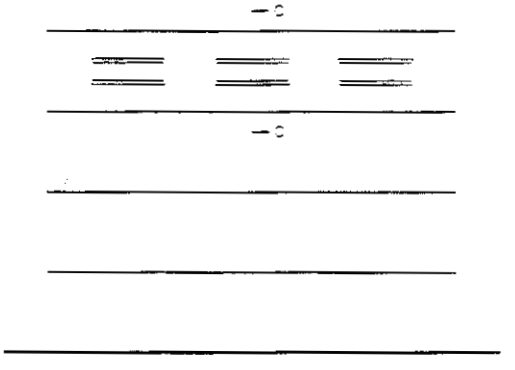


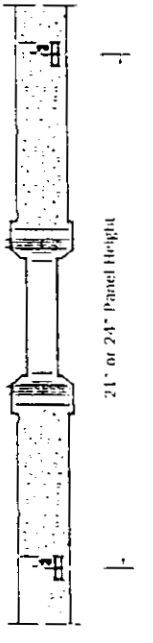


Section B-B

Insulated 1/8" DSB Window Lite
24" x 7"

Exterior Elevation



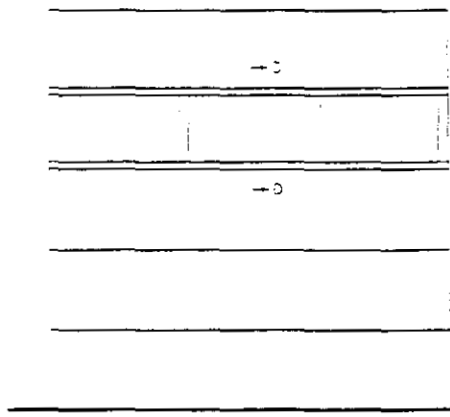


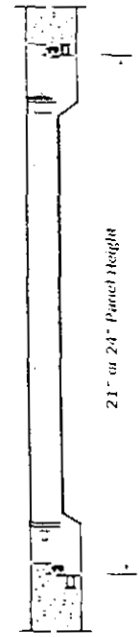
Section C-C

595 Series
Glazing Options

Aluminum Full View Glazing Section

Exterior Elevation





Section D-D

ALASKA WINDOW

The Frame of the Future Is Made in Alaska

ALASKA WINDOW COMPANY is pleased to announce that we are now manufacturing the exciting PRIMO PVC window and patio door systems that have become the *preferred* window products throughout Europe.

Check out these *important* features:

1. The PVC framing sytem is over 1300 times more energy efficient than aluminum systems.

2. This system allows the use of a variety of insulated glass units from 3/4" to 1 3/8" with dead air spaces that range from 3/8" to 3/4" used in conjunction with double and triple pane units.

3. The availability of *Double Sided HEAT MIRROR 88 and KRYPTON Gas* can produce overall "R" values to 5.56.

4. Double weather seal on all units.

5. Unique Tilt and Turn hardware.

6. Clean and re-glaze from inside the building.

7. Custom sizes and styles at *stock prices.*

8. Thoroughly tested and proven under the harshest climatic conditions.

You now have all the advantages of a system that is secure, tested and proven to be energy efficient, with maintenance a breeze. All of our production equipment is of the latest technology so design requirements can be accurately met.

Whether your project is new construction, or remodeling an existing structure, we can produce the units that meet your needs and specifications.

(AW#1)

4141 INGRA, #A ☐ ANCHORAGE, ALASKA 99503 ☐ (907) 563-4141 ☐ FAX: (907) 563-0941 ☐ 1-800-478-4141

ALASKA WINDOW manufactures a Scandinavian designed PVC window system which has excellent cold weather characteristics. These units are extremely well suited for cold and rough use applications. The window has a 1 3/8 inch glazing pocket which allows the use of triple pane glass with 1/2 inch air spaces between the panes or "HEAT MIRROR" with two 9/16 air spaces. They will not freeze shut under any condition, which makes them the most desirable **EGRESS** window available.

Two separate **EPDM** weatherstrips are used in the operating windows which significantly reduces air infiltration. This weatherstripping will not become brittle at temperatures of -70 degrees F.

Maintenance is very low for the following reasons:

1. The sash is fully adjustable. It can be adjusted vertically as well as horizontally at the top and the bottom. The sash also is adjustable for vertical movement. The compression on the weather seals can be increased or decreased.

2. New weather seals can be installed by the homeowner, inexpensively and without the use of tools.

3. In the event of broken glass, a new insulated unit can be installed by the homeowner without the use of special tools or special skills. (The type of glass and the size can be found under the left glazing bead.)

4. Retrofitting and new construction are made easier because windows are available in any size and *almost* any shape. Complete and simple installation instructions accompany each window.

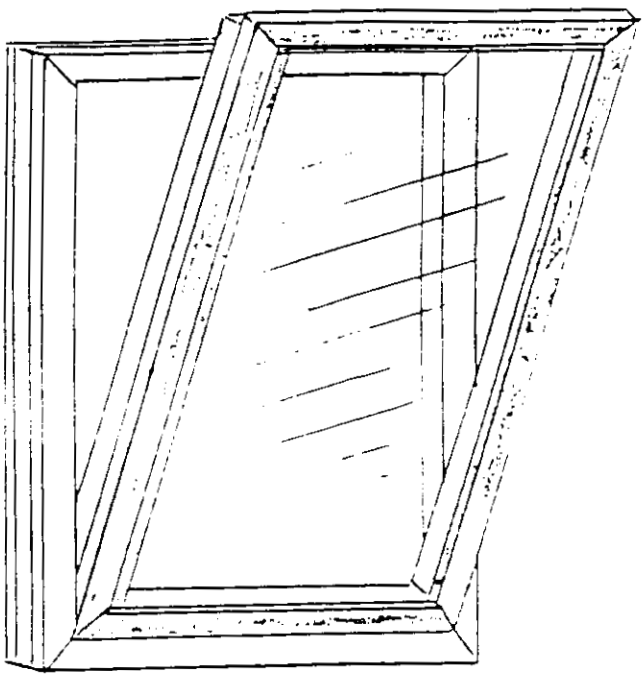
5. The windows will last as long as the building they are installed in and there is no painting or preservation of any kind required.

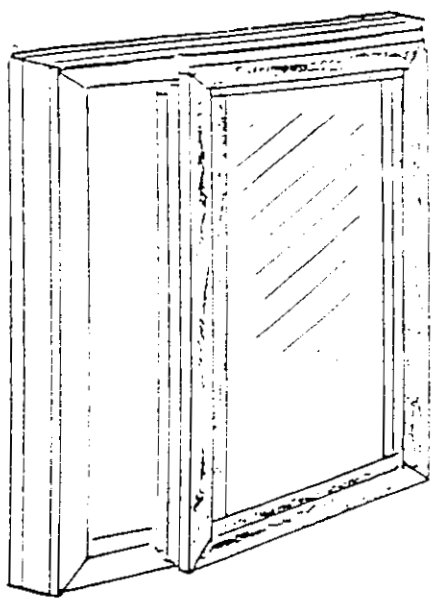
The **ALASKA WINDOW COMPANY** is located at Mile 353.6 on the George Parks Highway, between Fairbanks and Ester. To arrange a tour of the factory please call Monday through Friday, 8:00 AM to 5:00 PM

ALASKA WINDOW Co. is a privately financed Alaskan owned and operated business.

(AW#2)

PRIMO SERIES 400





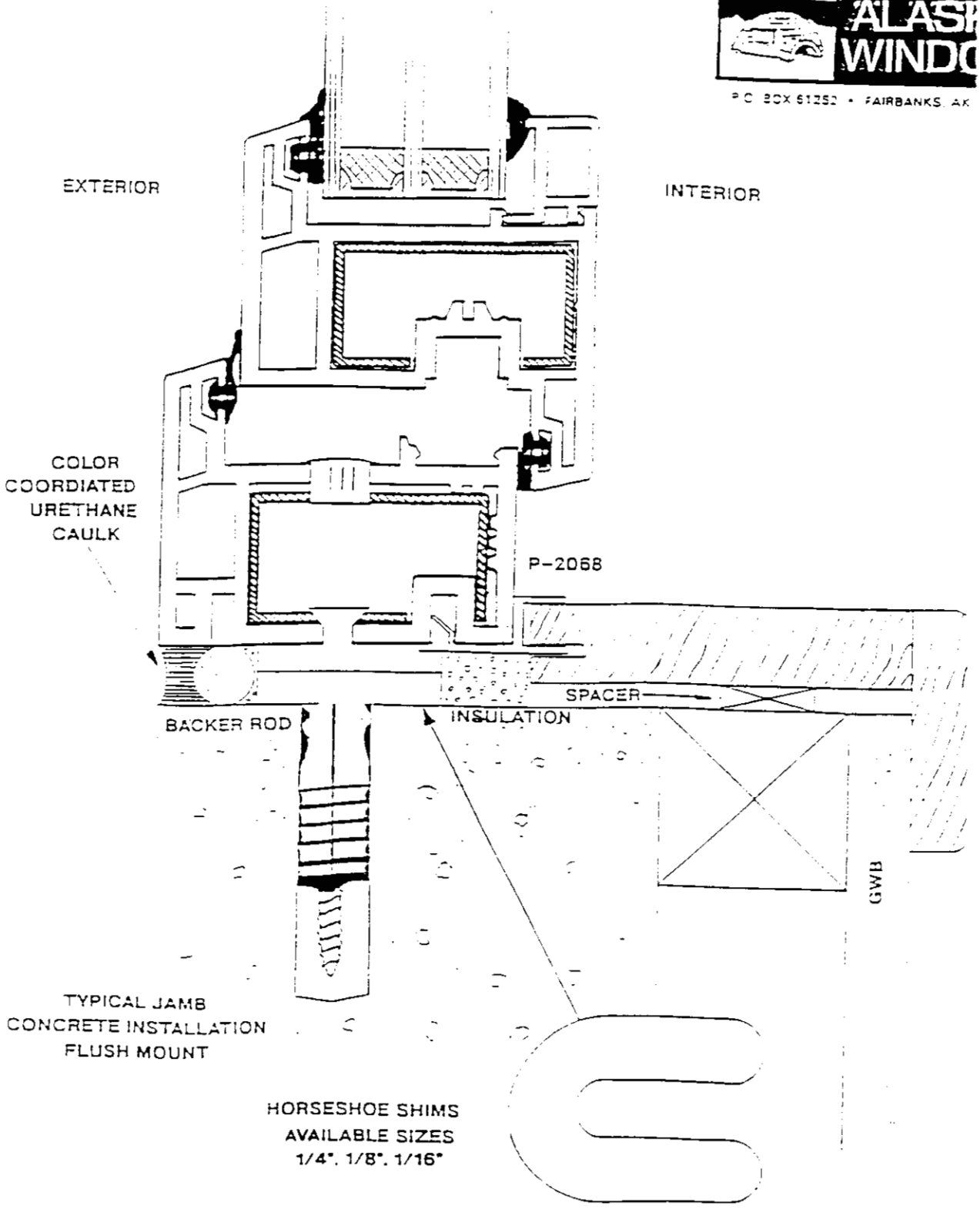
TILT and TURN (T / T)

Minimum Size: 20" x 20"

Maximum Size: 48" wide

This unit should not be
manufactured more than
1.25 times wider than it is tall

ALASK
WINDO
P.O. BOX 61252 • FAIRBANKS, AK



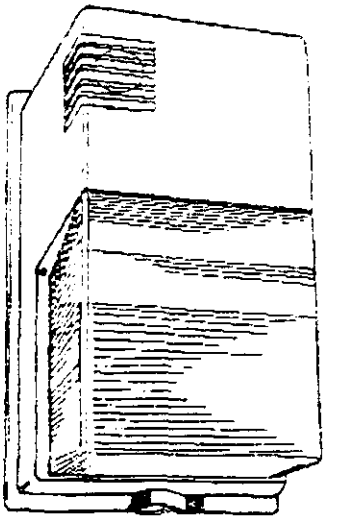
TYPICAL JAMB
CONCRETE INSTALLATION
FLUSH MOUNT

HORSESHOE SHIMS
AVAILABLE SIZES
1/4", 1/8", 1/16"

WALLIGHTER 70 LUMINAIRE

APPLICATIONS

Office and shopping complexes, schools, malls, parking garages, motels, condominiums and residences. Small, aesthetically attractive luminaire with the power saving advantage of high pressure sodium (HPS) lighting



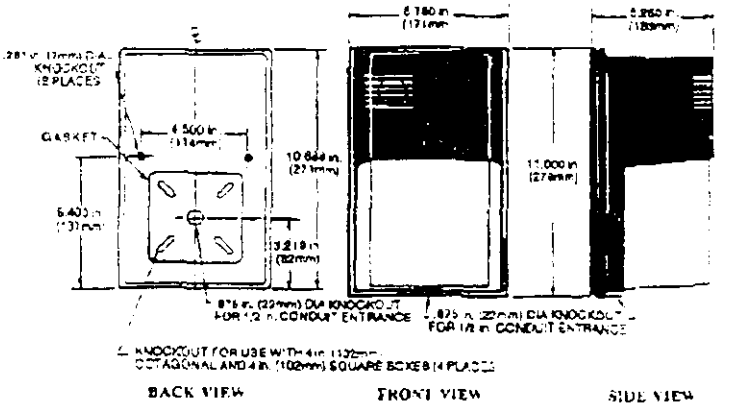
SPECIFICATION FEATURES

- UL1572 Listed SUITABLE FOR WET LOCATIONS
- CSA Certified
- Standard construction is IP55
- Die-cast aluminum mounting base with dark bronze paint finish
- Compact one-piece polycarbonate front housing
- Versatile mounting provisions allow for mounting to standard 3-in. or 4-in. (76mm or 102mm) outlet boxes, 1/2-in. (13mm) conduit, or directly onto any flat surface
- Easy access to optical and electrical compartments affords quick installation and maintenance
- Knockout for field installation of PE control
- Standard and tamper resistant hardware included
- Medium base socket with coated lamp
- NPF reactor ballast

ORDERING NUMBER LOGIC

WL	03	S	1	PE
PRODUCT ID XX	WATTAGE XX	LIGHT SOURCE X	VOLTAGE X	BALLAST TYPE XX
WL = Wallighter 70 Luminaire	03 = 35 05 = 50 07 = 70	S = HPS Standard: Lamp included	1 = 120	PE = PE if required

DIMENSIONS



BALLAST AND PHOTOMETRIC SELECTION TABLE

Voltage	Light Source	Ballast Type 120 Volt	IES Distribution Type	Photometric Curve Number 35-17 - - - -
35, 50, 70	HPS (Coated)	NPF Reactor	Long Non-Cutoff Type IV	7604

DATA

Approximate Net Weight	6 lbs (3 kgs)
Suggested Mounting Height	5-12 ft (2-4M)

REFERENCES

See Page 5980 for Explanation of Options and Other Terms Used

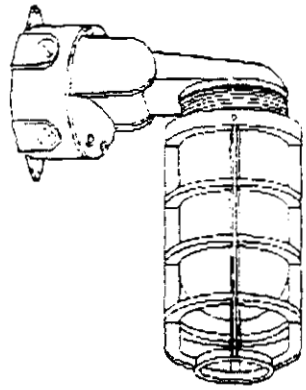
H7 ENCLOSED AND GASKETED LUMINAIRE

APPLICATIONS

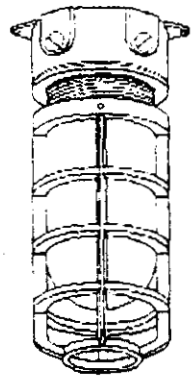
Indoor or outdoor non-hazardous locations where lamp protection from rain and the elements is needed

SPECIFICATION FEATURES

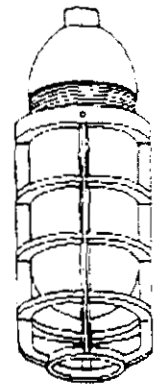
- UL Listed SUITABLE FOR WET LOCATIONS
- Standard construction is IP55
- Low copper aluminum alloy housing with gray paint finish
- Incandescent model up to 150 watts (A-21)
- Fluorescent model uses 13 watt biaxial lamp
- Luminaires are single packed and shipped in one carton



Wall Bracket Mounted



Ceiling Mounted



Pendant Mounted

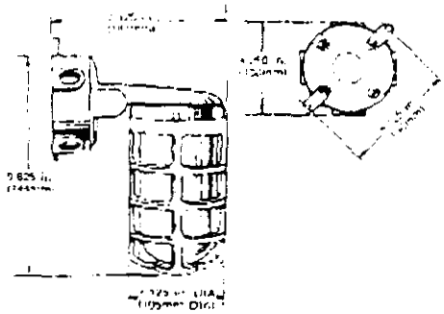
ORDERING NUMBER LOGIC

UL LISTED

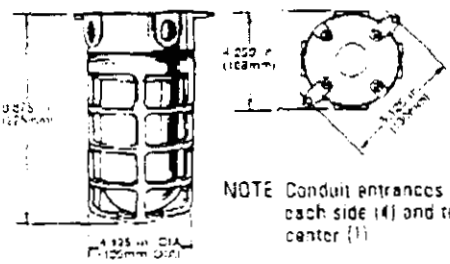
H7	1	13B	3C	DD

PRODUCT ID XX	VOLTAGE X	LAMP TYPE XXX	MOUNTING XX	OPTIONS XX
H7 = An Enclosed and Gasketed Luminaire	1 = 120 X = 250 volt maximum	13B = 13 watt Biaxial Fluorescent 120 volt (Standard: Lamp included) 150 = 150 watt Medium Base Incandescent A-21 Bulb 250 volt max (Standard: Lamp not included)	3C = 3/4-in. Ceiling 3P = 3/4-in. Pendant 3W = 3/4-in. Wall	DD = Clear Globe with Guard

DIMENSIONS

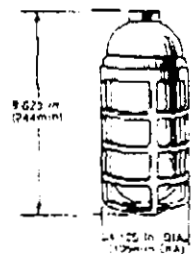


WALL MOUNTED



NOTE Conduit entrances on each side (4) and top center (1)

CEILING MOUNTED



PENDANT MOUNTED

DATA

NOTE Operating amperes is 0.3 for 13 watt fluorescent

Approximate Net Weight:		
Pendant with Guard	2.75 lbs	(1.25 kgs)
Ceiling with Guard	2.75 lbs	(1.25 kgs)
Wall Bracket with Guard	3.30 lbs	(1.50 kgs)

REFERENCES

See Page 2900 for start of Accessories

APPENDIX I

Environmental Assessment for Cordova, Alaska Environmental Operations and Used Oil Management System
April 13, 1997

Environmental Assessment
for
Cordova, Alaska
Environmental Operations and Used Oil Management System

***Exxon Valdez* Oil Spill Trustee Council Project #97115**
May 13, 1997

Responsible Agency: USDA Forest Service
Alaska Region
709 West 9th Street; Room 543
Juneau, Alaska 99802

Cooperating Agency: Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, Alaska 99501

For Further Information Contact: Ken Holbrook
U.S. Forest Service
3301 C Street, Suite 300
Anchorage, Alaska 99503
(907)271-2819

Location of Action: Cordova, Alaska, in the *Exxon Valdez* Oil Spill Area

Environmental Assessment
Environmental Operations and Used Oil Management System
Cordova, Alaska

I. Proposed Action

The Exxon Valdez Oil Spill Trustee Council is proposing the construction of a new building in Cordova, for collecting used oil, oily bilge water, household hazardous waste and recyclable products. Construction is planned for the summer of 1997. Similar facilities are being proposed in Tatitlek, Valdez, Whittier and Chenega Bay. The proposed action constitutes Phase II of the Sound Waste Management Plan (SWMP) project.

The Sound Waste Management Plan project consists of two phases. During Phase I, a plan was completed that identified waste sources in Prince William Sound. Phase I is complete. The Phase I plan also identified proposed solutions, one of which was construction of a facility in Cordova. Phase II of the project, that is currently underway and consists of design and construction of a new building and equipment in Cordova.

This project will create a waste oil collection and disposal facility, bilge water collection and disposal facility, recycling storage, and household hazardous waste collection and storage facility in Cordova, Alaska. A single building will be built in Cordova to house equipment and storage containers. The new building will be located adjacent to the City's solid waste baler, in an already developed area of Cordova. The building is proposed to be an approximately 1200 square foot concrete building with a concrete floor. The new building will be served with electricity, water and sewer service.

On August 29, 1996, the *Exxon Valdez* Oil Spill Trustee Council approved $1,167,900 for Project 97115/Implementation of the Sound Waste Management Plan: Environmental Operations and Used Oil Management System. To meet the requirements for EVOS funded projects, this document is being prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service (USFS) NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project and find that the project has no significant impact. The project is not located on USFS land.

II. Purpose and Need for Action

The purpose and need of the proposed action is to reduce the amount of used oil, oily bilge water and household hazardous waste entering Prince William Sound near Cordova. The new facility will be operated by the City of Cordova. They will be responsible for seeing that the collection, containment, energy recovery and storing of used oil and the collection and disposal of household hazardous waste is performed in an approved manner. There has been extensive public involvement in the development and design of this project.

III. Technical Background

One method of helping to restore the resources and services injured by the 1989 *Exxon Valdez* Spill is to protect the injured resources and services from further stress. While protective actions themselves do not accelerate recovery, they help to ensure that natural recovery will proceed with a minimum of interference.

A wide range of waste streams are generated within Prince William Sound (PWS) communities. These include used oil generated from vehicles and vessels and hazardous wastes generated by households.

Communities currently face serious problems with managing these wastes, including inadequate facilities to properly manage used oil and hazardous household wastes disposed of in community landfills where they may leach into surrounding land and water. As a result of these problems, pollution from these sources is entering PWS on an on-going basis.

The communities of Prince William Sound worked together to prepare a Sound Waste Management Plan (SWMP) to identify both the nature of wastes generated and potential solutions to manage those wastes.

The proposed facility will contain: waste oil collection day tanks for public disposal of oil; a waste oil storage tank; a waste oil heating unit; a bilge water storage tank; an oil/water separator unit; an oily rag and material burner; an oil filter crusher; a recycling and household hazardous waste collection bins. The facility will have a built-in sump to contain spills and washdown water. Equipment to pump oily bilge water from boats will also be provided with the facility. Construction of the new facility is planned for the summer of 1997.

The waste streams generated within communities and which are entering PWS on an ongoing basis are affecting fish, wildlife, and human uses injured by the spill, including disruption of important habitat. Any decrease in local pollution would have the effect of decreasing the stress on injured fish and wildlife that rely on clean water. The fish and wildlife likely to benefit the most are those that feed in the intertidal or near-shore waters in the vicinity of community waterfronts and small boat harbors. The services most likely to benefit are subsistence and recreation, both of which are adversely affected by marine pollution and would benefit from pollution reduction.

Chronic pollution from community sources is believed to have significant adverse effects on the marine environment: refined petroleum products are very toxic to fish and wildlife; and the cumulative effects of chronic marine pollution can substantially increase the stress on fish and wildlife resources, With regard to the mortality of seabirds, chronic marine pollution is believed to be at least as important as large-scale spills.

Implementation of the project will help assure that marine-generated oil pollution generated in the vicinity of Cordova does not further degrade the marine habitat of PWS. By assuring that wastes are properly handled and do not contaminate the marine environment, natural recovery of the resources and services can be enhanced.

IV. Issues and Concerns

No significant issues were identified during scoping for this project.

V. Public Involvement

During completion of the Sound Waste Management Plan (SWMP) in Phase I, there were numerous meetings with the public and with community representatives. The Sound Waste Management Plan was developed through a regional planning process coordinated by the Prince William Sound Economic Development Council (PWSEDC). Public officials and private sector representatives from each of the PWS communities met monthly over the course of a year to develop the SWMP Plan.

During this process, the SWMP Committee was formed. It consists of 12 individuals from the five communities, ADEC and the private sector. This committee will continue to function in Phase II and provide valuable input into how the buildings will look and be operated.

When Phase II of this project was presented to the Exxon Valdez Oil Spill Trustee Council for funding during April, 1996 the public was given an opportunity to comment on the proposal. No comments were received.

Phase II of this project is currently underway. During completion of Phase II of this project which is implementation of design and construction, two meetings were held with the SWMP committee to evaluate the design. These meetings were held on January 28, 1997 and March 17, 1997. A third meeting would be held in the fall of 1997, after construction is completed, to provide committee members and appropriate staff with training to operate the new equipment.

In Cordova, the local planning commission has approved the Environmental Operation Station (EVOS Station) site. Local building officials will review and approve the building plans.

VI. Community Responsibility

As part of this project, Cordova will be required to document that they are prepared to accept responsibility of operation of the new facilities. Prior to receiving ADEC authorization to proceed with construction of the new facilities, Cordova will provide a legally binding, notarized Letter of Agreement. This agreement must be signed by an executive officer of the community. The agreement will contain, at a minimum, the

following conditions:

A) The community will obtain all titles, easements and permits necessary to provide clear title and authority to construct and maintain the proposed projects.

B) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management and maintenance of the EVOS facility. Accidental discharge of waste products from the facilities is the sole responsibility of the community.

C) Construction contractors may enter onto the communities property to construct the project.

D) The location, construction, and management of the building will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream or body of water.

VII. Alternatives Including the Proposed Action

A. No Action Alternative. The No Action Alternative represents no change from the current situation. Oil and household waste will continue to be disposed of as it is now, with some of the material entering the local marine environment. At present, federal and state law requires that oil and other hazardous waste be disposed of in an environmentally safe manner. Most of the towns in the spill area lack waste facilities capable of properly and efficiently handling waste oil. Most of these are unlikely to receive these facilities without government funding.

In Cordova, waste oil is collected at the boat harbor. Useable waste oil is transported to various locations in the community for energy recovery in used oil furnaces. The existing collection and transfer facilities do not have adequate spill containment equipment and are not housed inside a warm building. Separation of water and emulsified product from the collected oil is inefficient with the single collection tank located outdoors. Therefore, much of the used oil product is not recovered adequately. Oil that is unsuitable for use in the local heat recovery furnaces is stored in Cordova and eventually shipped out of town to a certified disposer. In addition, the 300-gallon collection tank at the harbor is undersized for the amount collected. The City collects approximately 15,000 gallons of used oil per year. It is currently stored at a number of various locations in the community.

With the absence of an adequate local treatment facility, the only way to comply with federal law is to ship unusable waste oil to a larger community, and for individuals to bear the inconvenience and cost of that transport.

The City is currently collecting recyclable products at their solid waste baler facility. The City will continue to process recyclable materials at the baler site.

The City is currently collecting household hazardous waste (HHW) products at their solid waste baler facility. Accumulated HHW is currently shipped to locations outside of Cordova for disposal.

B. The Proposed Action - EVOS Stations. The Environmental Operations Stations (EVOS) Station will be located adjacent to the City's solid waste baler facility on Whitshed Road. The building will be placed inside the fenced area surrounding the baler building. This will allow the City to control public access to and from the EVOS Station area. Appendix A and B show the proposed site location and building floor plan.

The Cordova EVOS Station will contain a 1,000-gallon used oil storage tank, a 175,000 BTU used oil burner, and an oil filter crusher. An oily water separator and a 500-gallon buffer tank to store and pre-treat bilge water and control flow through the oily water separator will also be placed in the new building.

Separate bins will be provided for the various types of collected materials. A drop-off area will be capable of containing oil filters, oily rags, old oil containers and used oil. The general public will not be allowed in the used oil and oily material processing area. Only qualified City staff will be allowed to operate the equipment and process oily material. The household hazardous waste collection and storage area will only be open to accept waste from the public during scheduled City crew work hours.

The bilge water pumping system will be installed at the City's marine ferry terminal. Oily bilge water will be collected at the ferry dock and hauled to the new EVOS Station for processing.

Used oil will be collected at the City's small boat harbor and at the new EVOS Station. Oil collected at the boat harbor will be transported in the City's 2000-gallon tanker truck for approximately 2 miles to the EVOS Station for processing. Bilge water collected at the ferry terminal will be collected in a 400-gallon tank. The bilge water will be transferred into the City's 2000-gallon tank truck and transported to the EVOS Station for processing.

The new EVOS Station will be used as a new convenient drop off site for recyclable materials. The City will continue to process recyclable materials at the baler site.

The new EVOS Station will be used as a new convenient drop-off site for HHW. The City will continue to process HHW materials at the baler site. Building codes will limit the amount of HHW that can be stored in the EVOS building at one time. The City will move HHW from the new EVOS Station to their existing permanent storage building when these limits are reached.

Operation of the EVOS Station

Used oil would be collected and disposed in a few different ways. One option available to residents is to dispose of the oil at the EVOS Station. A second option is to dispose of the oil at the existing City waste oil collection tank located near the small boat harbor.

Oil taken directly to the EVOS Station for disposal would be poured into a 55-gallon drum that is marked as the used oil disposal drum. The collection drum would be located inside the EVOS station. A plastic drum funnel would be in place over the top of the collection drum. Used oil would be discharged into the drum funnel which drains into the drum. Any oil that is spilled during this process would be collected in a sump that is part of the EVOS Station floor. Once the collection drum is full, the cap would be inserted and the drum would be placed on a hand cart and carried to the processing side of the EVOS Station. Once inside the processing area, oil would be transferred from the drum to a 1000-gallon storage tank. An electric drum pump would be used to transfer the oil. The processing room also has a floor sump to contain spills. The sump has a 1200-gallon capacity and is therefore capable of containing not only a drum spill but also a spill from the 1000-gallon storage tank.

Oil would also be collected at the City's existing collection tank at the small boat harbor. The City would empty this tank periodically and transfer the collected oil to the EVOS Station. The City owns a tank truck that has been, and would continue to be, used for this purpose. The transfer between the truck and containers would be performed with an electric pump and hoses. The City would register with the EPA as a "transporter" and be given an identification number.

Only oil products approved under Title 40, Part 279 would be approved for used oil collection. Some products would not be accepted as used oil products, such as; used oil that has been mixed with regulated hazardous waste, chlorinated solvents, antifreeze and soil contaminated with oil. All containers used in the process would be marked as containing (USED OIL).

Persons disposing of materials in the EVOS Station and at the small boat harbor collection site would fill out a form that includes their name, address, vessel, phone number, date, quantity of material disposed, source, and type of oil (motor, hydraulic, gear, diesel, etc.) or type of oily material (rags, sorbents, filters, etc.).

Oil collected in the 55-gallon collection drums and at the boat harbor, as well as oil contained in the 1000-gallon storage tank, would be tested periodically to determine; 1) if it is on-specification used oil, or 2) if it is off-specification used oil. Oil would be tested to identify if it is on or off-specification oil per 40 CFR 279.11. Used oil collected in the community would be used for energy recovery and burned in a used oil furnace. Oil that has too low of a flash point is not acceptable for burning in a used oil furnace. If oil contained in the collection drums is found acceptable, it would be pumped into the 1000-gallon storage tank. If oil contained in the collection drums is found unacceptable, the oil

would either be blended into the 1000-gallon tank to bring it within specification or it would be stored onsite in an approved container and subsequently shipped to a waste disposal facility. There are two facilities in Anchorage that can accept and process this oily material. If oil in the 1000 gallon tank is found to be "off-specification", it would be shipped to an Anchorage processor for disposal.

After the oil has time to settle in the 1000 gallon tank, it would be pumped from the storage tank and into the City's tank truck for transportation to a used oil burner site in the community. Trained staff would be responsible for transferring and transporting the oil to the burners located elsewhere in the community. Once the drum reaches the burner area, oil would be pumped into a permanent fuel tank. The used oil would also fuel the used oil burner located in the EVOS Station.

VIII. Environmental Consequences

A. No Action Alternative. As a result of the lack of adequate local facilities and the cost and inconvenience of transport, some waste oil in Cordova is probably not disposed of in compliance with federal and state law. In spite of regulations and enforcement actions to the contrary, a substantial (but unknown) amount of this waste oil finds its way into the marine environment. This would not change under the no action alternative. Under the no action alternative, there would be no change from the current status.

The no action alternative would require that the City continue its current practice of storing oil in large capacity, single wall tanks that do not have dual containment capabilities. In this case, the potential for an oil spill is higher with the no action alternative.

The no action alternative would require that some oily products be shipped out of the community for disposal. In this case, the potential for an oil spill is higher during transportation with the no action alternative. In addition, transporting the material elsewhere requires energy to move the product.

Under the no action alternative, boat owners have limited disposal alternatives, and may be reluctant to properly dispose of oily bilge water.

If the proposed facility is not built, there is a potential that oily bilge water will continue to be discharged into the Cordova harbor. If it is not built, there is a possibility that the existing oil collection system will not have the capacity to accept used oil. Some of the oil destined for disposal may be disposed in an illegal manner, poured onto the ground or placed in the community landfill. As more boats enter and reside in the harbor, the discharge of oily bilge water could get worse over time.

Any decrease in local pollution would have the effect of decreasing the stress on injured resources and services that rely on clean water, Those resources and services likely to benefit the most are those that feed in the intertidal or near shore waters in the vicinity of

small boat harbors. Those resources most likely to benefit include harlequin ducks, black oystercatchers, sea otters, harbor seals, seabirds, shorebirds and marine mammals.

B. Proposed Action. The proposed action would decrease the amount of oil that finds its way into the marine environment. The amount of the decrease is unknown, but could be locally significant.

The decrease in local pollution is unlikely to have an area-wide effect. That is, the amount of the decrease in marine oil pollution is unlikely to be large enough to have a measurable effect on the area-wide population of a injured resource in the spill area. However, the decrease may have an important local effect. It may increase marine mammal or seabird use of habitat near a community, or increase a local population of an injured resource.

There is a potential for oil spills during the oil collection, treatment and disposal process. The City would operate the facility in a manner to reduce this potential. They would also be responsible for cleaning up spills. Spills outside the EVOS Stations would be cleaned up immediately and in accordance with state regulations. Spills inside the EVOS Station would accumulate in the sump. This oil would be pumped back into the large storage tank. City staff are very familiar with oil spill cleanup technology. Larger spills would be cleaned up with the emergency spill equipment that is stored in the community.

There is a possibility the 1000-gallon tank would fill faster than the City can burn the used oil, i.e.: the community is collecting more used oil than it can burn. The City has three options in this case: 1) purchase an additional dual-wall oil storage tank and place it outside the EVOS facility, 2) add another used oil furnace in the community to increase the energy recovery capacity, and 3) ship the extra oil to one of the oil disposal facilities in Anchorage.

Oily bilge water would be collected from boats, with a 400-gallon tank and attached pump specially designed for this purpose. Authorized community staff would operate the bilge pumping equipment. This operation would occur at the ferry dock. Oily bilge water collected in the tank would be transferred into the City's tank truck and transported to the EVOS Station where it would be pumped into a 500-gallon bilge water storage tank located inside the station.

At the EVOS Station, the oily bilge water would be treated with an oil/water separator. The separator is capable of treating water to less than 10 parts per million (ppm) of free oil and grease at a flow rate of 10 gallons per minute (gpm). The oily bilge water would be pumped through the separator and discharged into the City sewer collection system. Oil collected in the separator would be transferred into the 1000 gallon storage tank in the EVOS Station.

Household hazardous waste (HHW) and recyclable products would also be collected at the EVOS Station. The City currently has an ongoing and permitted HHW collection

and disposal program at the solid waste baler facility. The City also has an ongoing recycle materials collection and disposal program. The EVOS Station would provide a more convenient location for accepting these materials.

Oil filters and oily rags would also be collected at the new building. Oil would be removed from the filters with a filter crusher and the remaining material would be disposed at the City's landfill.

IX. Other Disclosures.

Threatened, Endangered and Sensitive Species

A biological evaluation was completed as part of this environmental assessment. The United States Forest Service was contacted during this evaluation. There are no threatened or endangered plant species documented to occur in the Cordova areas (Duffy, 1993).

The only threatened or endangered animal species in the Cordova area are the Steller sea lion (threatened), a local resident of the coastal waters (West, 1993), and the American Peregrine Falcon (endangered), a rare migrant in coastal wetland areas such as the Copper River Delta (Forest Service, 1984). Steller sea lions would not be affected by construction or operation of the proposed facility because the site is not located on the shoreline. The American Peregrine Falcon would not be expected to be affected due to its limited presence in the general area and the lack of habitat in the immediate area of the facility.

Sensitive species in the general area include the Dusky Canada goose, a small race of the Canada goose which nests in the Copper River Delta, and the Peale's peregrine falcon, a non-migratory coastal race of the peregrine falcon. Neither of these species would be expected to occur in the immediate vicinity of the proposed project. No eagle nests have been documented at the site. However, they do visit the area on occasion.

Adverse effects on threatened, endangered or sensitive species could potentially be reduced through a reduction in marine pollution related to better management of used oil and other waste products.

Cultural Resources

Section 106 of the National Historic Preservation Act requires that any activities proposed or authorized by the federal government be reviewed for their potential to impact properties listed in or eligible for listing in the National Register of Historic Places. The Alaska Department of Natural Resources, Office of History and Archaeology, was consulted to meet the cultural resource review requirements under Section 106.

There is not expected to be an adverse effect on cultural resources from construction or operation of the EVOS Station. The Station is proposed to be co-located with the existing City solid waste baler facility. The proposed site has been reviewed by the State Office of History and Archaeology and there are no known cultural resources on the site (Smith, personal communication, 1997). The State confirmed that since the site has already been developed, there is a low potential for discovery of additional resources. If any are found during construction, all work would be stopped and the State Historic Preservation Officer (SHPO) would be contacted to determine the appropriate actions to be taken.

Coastal Management

The overall goal of the Alaska Coastal Zone Management Program is to achieve a proper balance between resource development and protection. Activities proposed within the coastal zone must be consistent with state standards adopted in Part 6 of Chapter 80 of the Alaska Administrative Code (6 AAC 80) and with the policies adopted in the Cordova Coastal Management Program. The proposed project is expected to be consistent with state and district coastal management standards, as described below.

State coastal management policies require that coastal lands be reserved primarily for water-dependent and water-related uses, where there is significant competition for coastal lands. In Cordova, the proposed site is not located on the shoreline and is not expected to reduce available coastal lands or displace other water dependent uses.

The current Cordova Coastal Management Program was adopted in 1986 and the boundaries of the program were based on the City limits at that time. The proposed site is located just outside the old City limits and therefore is not technically within the boundaries of the Coastal Management Program. Because the proposed site is just outside the old boundary, and is now within the City limits, the project was evaluated against the Program policies. The site is adjacent to an area designated as Development I Zone under the Cordova Coastal Management Program.

The proposed site is within an area designated as Development I Zone under the Cordova Coastal Management Program. The Program allows for development within this zone subject to the protection of important surrounding resources. In accordance with objectives in the program, the proposed facilities are to be located in areas already developed with similar facilities. The EVOS Station will be co-located with the existing City solid waste baler facility and will complement activities currently occurring at the site. The proposed facilities are designed to remove potential contaminants from the waste stream, reducing the potential for discharge to coastal waters and thereby protecting coastal resources from degradation by petroleum products. The facility will be designed, constructed, and operated in a manner which protects Eccles Creek and other sensitive resources in the area. The proposed site is not located within an Area Meriting Special Attention (AMSA) and is not located within a geophysical hazard area. Historic and archaeologic concerns were addressed through consultation with the State.

Subsistence

Subsistence harvest is important in Cordova's local economy and contributes substantially to the food supplies of local families, although the community is primarily tied into a cash economy (MMS, 1992). Subsistence resources of primary importance are associated with the marine and freshwater environments of the areas and to a lesser extent the coastal terrestrial environments. The proposed facility would be built in a previously developed area adjacent to the City's solid waste baler facility and would not affect any area used for gathering subsistence resources. The proposed facility site is located near Eccles Creek, an anadromous fish stream. This stream, located approximately 200 feet south of the proposed site, supports a small run of pink salmon (low hundreds) and very few chum salmon (Moorestead, personal communication, 1997). The proposed EVOS Station will be designed to prevent any spills associated with the facility from reaching Eccles Creek or adversely impacting these habitats or resources. Availability or access to the traditional subsistence resources would not be affected by the proposed project.

The reduction in improper disposal of wastes may result in a reduction of potential adverse effects on subsistence resources in the area.

Long-Term Productivity and Short-Term Uses

There are no actions associated with the alternatives which sacrifice long-term productivity or short-term uses of the human environment. There would be no irreversible or irretrievable impacts to soils or other resources in the area as a result of implementing the preferred alternative. There would be no effect on consumers except for the greater convenience and lower cost of being able to legally dispose of waste oil without shipping it outside their community. There would be no effect on minority groups or women, or civil rights programs in general. There will be no effect on prime farmland, forestland, or rangeland.

Permits Required to Carry Out the Project.

The Alaska Department of Environmental Conservation (ADEC) has reviewed and approved of the Phase I Sound Waste Management Plan. Approval will be obtained from a number of local, state and federal agencies before Phase II construction begins.

A City of Cordova building permit will be required.

A Coastal Questionnaire will be filled out and submitted to the Department of Governmental Coordination (DGC) for a review of the project's consistency with State coastal management regulations and the Cordova Coastal Management Program. An approval will be required from the ADEC for discharge of treated water from oil water separator.

Final plans and specifications will be submitted to the State of Alaska Fire Marshall's office for review and approval.

X. Consulted Persons and Agencies

Pete Kompkoff, IRA Village Council, Chenega Bay
George Keeney, Director of Public Works, Cordova
Gary Kompkoff, IRA Village Council, Tatitlek
Bill Wilcox, Director of Public Work, Valdez
Stan Gilfillan, Solid Waste Manager, Valdez
Chris Overbeck, City Council, Whittier
Jerry Durnil, Harbormaster, Whittier
John Fannin, Alyeska Pipeline Service Corporation
Chuck Totemoff, Chenega Corporation
Mark Stahl, Chugach Alaska Corporation
S. Moorestead, Alaska Department of Fish &Game, Cordova
Dan Lawn, Alaska Department of Environmental Conservation, Juneau
David Wigglesworth, Alaska Department of Environmental Conservation, Anchorage
Tim Smith, Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage

XI. References

ADF&G, USFWS, NMFS, BLM, and USDA, Forest Service. 1994. Alaska's threatened and endangered species. Eds. Michelle Sydeman. 29p.

West, E.W. 1993. Rare vertebrate species of the Chugach and Tongass National Forests. Alaska Natural Heritage Program and the U.S. Department of Agriculture, Forest Service, Region 10. Anchorage, AK. 253 p.

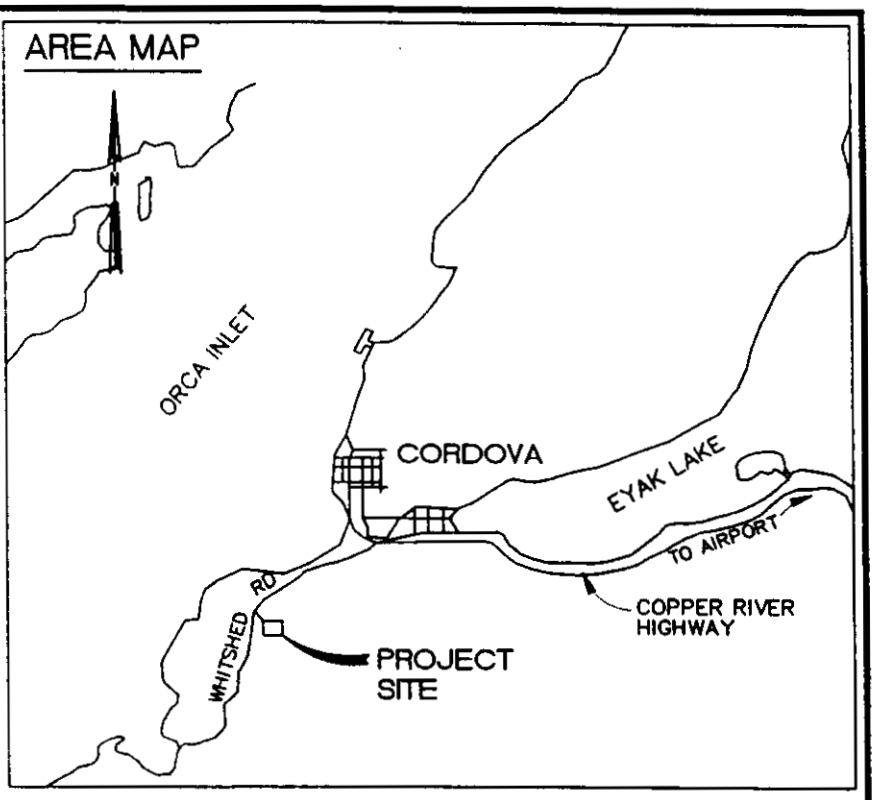
Duffy, M. 1993. Results of the 1993 rare plant survey, U.S. Forest Service, Alaska Region. Alaska Natural Heritage Program, Environment and Natural Resources Institute, University of Alaska, Anchorage, Anchorage, AK.

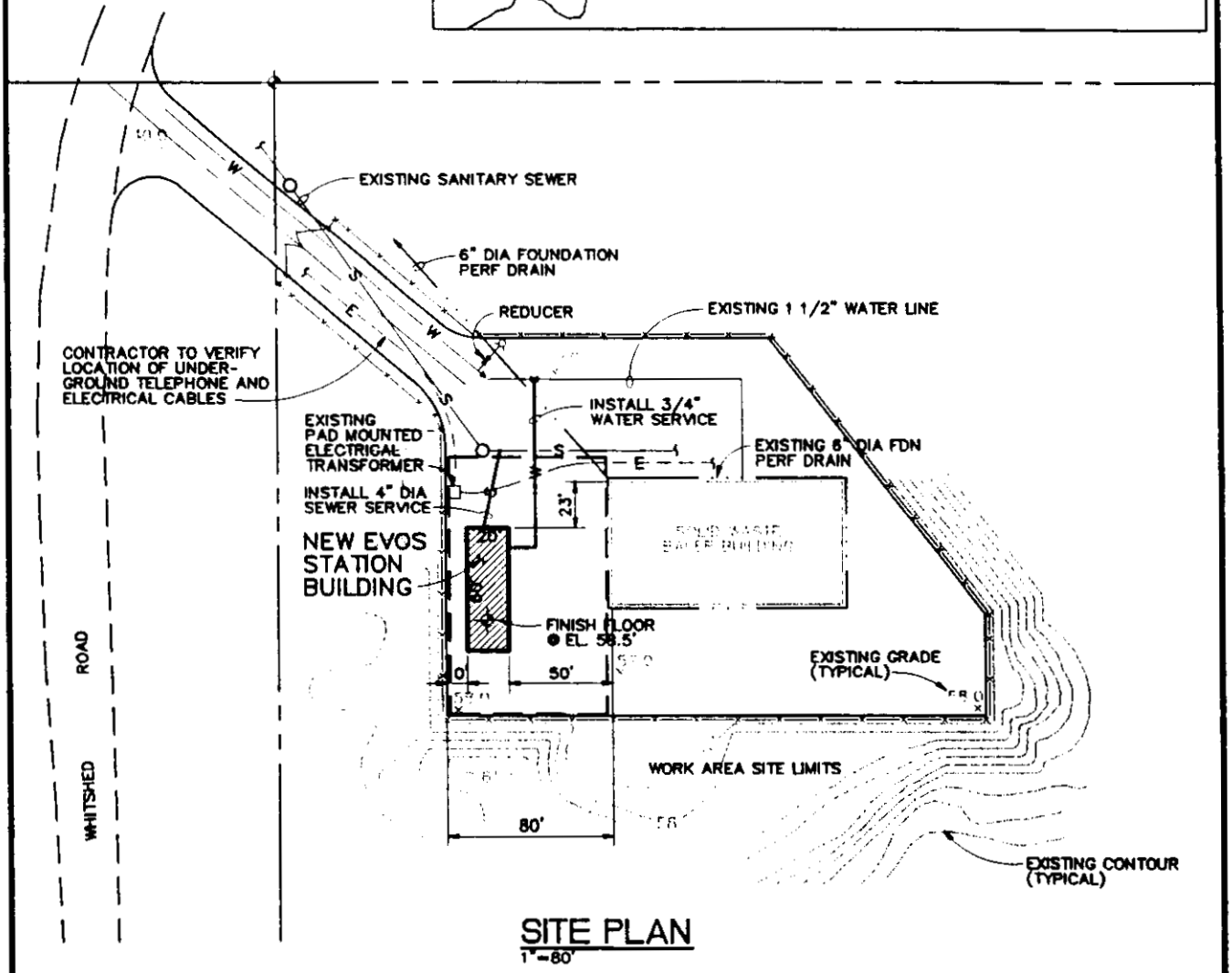
Moorested, S. 1997. Fisheries Biologist, Alaska Department of Fish and Game, Cordova, AK. Personal Communication.

MMS, 1995. An investigation of the sociocultural consequences of Outer Continental Shelf Development in Alaska. U.S. Department of the Interior, Minerals Management Service, Alaska Outer Continental Shelf Region. OCS Study - MMS 95-010.

Smith, Tim. 1997. Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage, AK. Personal Communication.

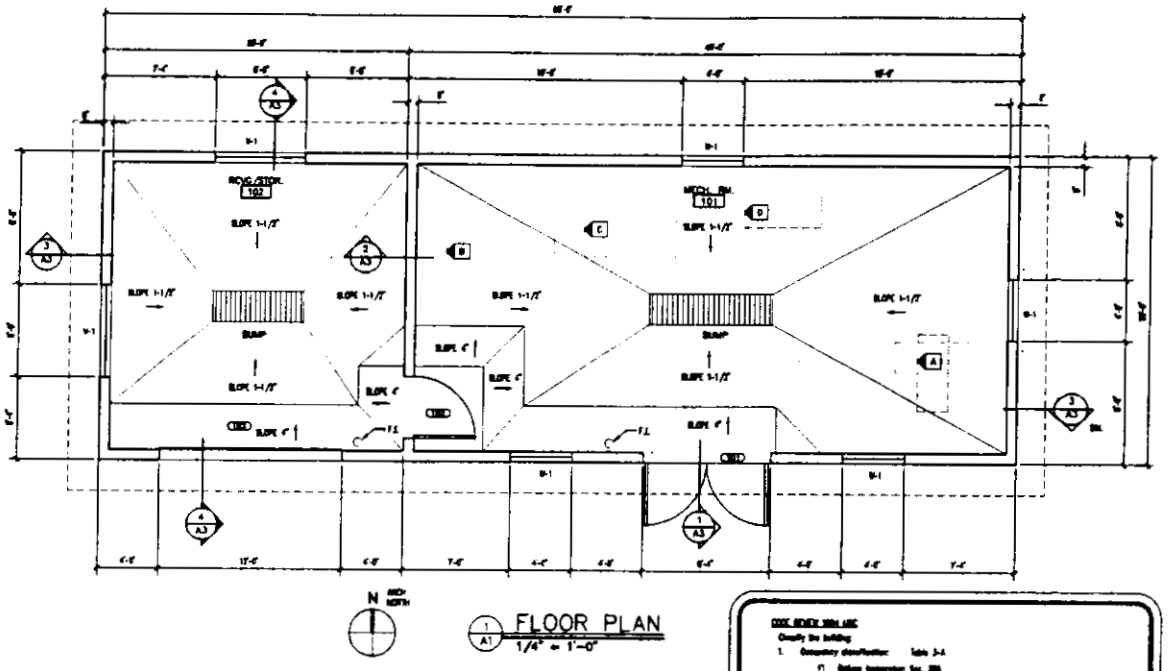
24-Mar-1997





SITE PLAN
1"=80'

CORDOVA EVOS STATION



FLOOR PLAN
1/4" = 1'-0"

EQUIPMENT SCHEDULE

- (A) USED OIL BURNER : 18" ø x 81" L (SEE MECHANICAL)
- (B) 1000 GALLON USED OIL STORAGE TANK: 6'-0" ø x 7'-0" L (N.I.C.)
- (D) OIL WATER SEPARATOR: 2'-0" ø x 5'-0" L (N.I.C.)
- (E) 500 GALLON BILGE WATER BUFFER TANK: 4'-0" ø x 6'-0" L (N.I.C.) WITH BOTTOM OF TANK 3.5' ABOVE FLOOR ELEVATION

CODE REVIEW SUMMARY

Classify the building

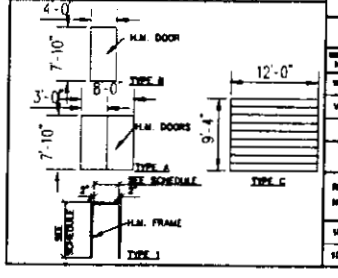
1. Occupancy classification: Table 3-A
   - F1 Refuse transportation Sec. 309
     Quantity of wood at (9-0) is less than quantity allowed in Table 3-D (13,350 Pallets), therefore occupancy is not a H2 (hazardous) occupancy
   - S1 Storage - combustible materials

   Table 3-B Required Separation in Buildings of Mixed Occupancy Hazards

   F1 to S1 = 0 (no requirements for fire resistance)
2. Type of Construction: II-N
   F1 and S1: II N
3. Location on property: Table 3-A
   Exterior walls, bearing = 1 hr < 30 ft.
   Exterior walls, nonbearing = 1 hr < 30 ft.
   Openings: Not permitted < 3 ft.
   Protected < 10 ft.
4. Allowable Floor Area: Table 3-E
   F-1, S-1, II-N = 13,500 sq.ft.
   Actual floor area: 1,350 sq.ft.

   Therefore, the actual area is less than the allowable area and the building complies. Area limitations are not required and walls/or are does separation exists.
5. Allowable Height and number of stories: Table 3-E
   F-1, S-1, II N Max Height = 2 stories 65 ft.
   The building complies.

DOOR/FRAME TYPES



WINDOW/OPENING SCHEDULE

WINDOW NO.	SIZE	OPERABLE		REMARKS
W-1	4'-0"x3'-4"	YES		
Y-1	8'-0"x3'-4"			GALVANIZED STEEL MESH

DOOR SCHEDULE

DOOR NO.	SIZE	DOOR TYPE	FRAME TYPE	HARDWARE GROUP	REMARKS
101	3'-0"x7'-0"x1 3/4"	A	1	HW-1	PAINT DOOR & FRAME
102	6'-0"x7'-10"	B	1	HW-2	PAINT DOOR & FRAME
103	12'-0"x9'-4"	C	1	HW-3	PAINT FRAME

FINISH SCHEDULE

RM. NO.	RM. NAME	FLOOR MATERIAL	FLOOR FINISH	BASE FINISH	WALLS NORTH FINISH	WALLS EAST FINISH	WALLS SOUTH FINISH	WALLS WEST FINISH	CEILING FINISH	REMARKS SPECIFICATIONS
101	MECH.	CONCRETE	BROOM	4" CONC.	PAINT	PAINT	PAINT	PAINT	EXPOSED	
102	RECEIVING /STOR.	CONCRETE	BROOM	4" CONC.	PAINT	PAINT	PAINT	PAINT	EXPOSED	

80%
SUBMITTAL
3/7/97

Date Stamped

STEPHL ENGINEERS
3838 Shoreham, Ste. 203
Anchorage, Alaska 99503
(907) 274-7175
(907) 277-4723 FAX

USKH
Architecture • Engineering
Land Surveying • Planning
3518 'A' Street
Anchorage, Alaska 99503
(907) 276-4366
(907) 561-4653 FAX

Project:
ENVIRONMENTAL OPERATIONS STATIONS CORDOVA
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.
Drawn	PCF
Drawn	
Checked	
Date	3-7-97

Sheet Contents:
FLOOR PLAN
FOUNDATION PLAN
ROOF FRAMING PLAN

Sheet No.:
A1

STEPHL W.O. 9615
USKH W.O. 510604

FILE NAME: 510604A1.DWG PLOT SCALE: 1=1

APPENDIX J

Environmental Assessment for Valdez, Alaska Environmental Operations and Used Oil Management System
April 13, 1997

Environmental Assessment
for
Valdez, Alaska
Environmental Operations and Used Oil Management System

***Exxon Valdez* Oil Spill Trustee Council Project # 97115**
May 27, 1997

Responsible Agency: USDA Forest Service
Alaska Region
709 West 9th Street; Room 543
Juneau, Alaska 99802

Cooperating Agency: Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, Alaska 99501

For Further Information Contact: Ken Holbrook
U.S. Forest Service
3301 C Street, Suite 300
Anchorage, Alaska 99503
(907)271-2819

Location of Action: Valdez, Alaska, in the *Exxon Valdez* Oil Spill Area

Environmental Assessment
Environmental Operations and Used Oil Management System
Valdez, Alaska

I. Proposed Action

The Exxon Valdez Oil Spill Trustee Council is proposing the construction of a new building in Valdez, for collecting used oil, oily bilge water, household hazardous waste and recyclable products. Construction is planned for the summer of 1997. Similar facilities are being proposed in Tatitlek, Cordova, Whittier and Chenega Bay. The proposed action constitutes Phase II of the Sound Waste Management Plan (SWMP) project.

The Sound Waste Management Plan project consists of two phases. During Phase I, a plan was completed that identified waste sources in Prince William Sound. Phase I is complete. The Phase I plan also identified proposed solutions, one of which was construction of a facility in Valdez. Phase II of the project, that is currently underway and consists of design and construction of a new building and equipment in Valdez.

This project will create a waste oil collection and disposal facility, bilge water collection and disposal facility, recycling storage, and household hazardous waste collection and storage facility in Valdez, Alaska. A single building will be built in Valdez to house equipment and storage containers. The new building will be located adjacent to the City's solid waste baler, in an already developed area of Valdez. The building is proposed to be an approximately 1200 square foot concrete building with a concrete floor.

On August 29, 1996, the *Exxon Valdez* Oil Spill Trustee Council approved $1,167,900 for Project 97115/Implementation of the Sound Waste Management Plan: Environmental Operations and Used Oil Management System. To meet the requirements for EVOS funded projects, this document is being prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service (USFS) NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project and find that the project has no significant impact. The project is not located on USFS land.

II. Purpose and Need for Action

The purpose and need of the proposed action is to reduce the amount of used oil, oily bilge water and household hazardous waste entering Prince William Sound near Valdez. The new facility will be operated by the City of Valdez. They will be responsible for seeing that the collection, containment, energy recovery and storing of used oil and the collection and disposal of household hazardous waste is performed in an approved manner. There has been extensive public involvement in the development and design of this project.

III. Technical Background

One method of helping to restore the resources and services injured by the 1989 *Exxon Valdez* Spill is to protect the injured resources and services from further stress. While protective actions themselves do not accelerate recovery, they help to ensure that natural recovery will proceed with a minimum of interference.

A wide range of waste streams are generated within Prince William Sound (PWS) communities. These include used oil generated from vehicles and vessels and hazardous wastes generated by households.

Communities currently face serious problems with managing these wastes, including inadequate facilities to properly manage used oil and hazardous household wastes disposed of in community landfills where they may leach into surrounding land and water. As a result of these problems, pollution from these sources is entering PWS on an on-going basis.

The communities of Prince William Sound worked together to prepare a Sound Waste Management Plan (SWMP) to identify both the nature of wastes generated and potential solutions to manage those wastes.

The proposed facility will contain: waste oil collection day tanks for public disposal of oil; a waste oil storage tank; a waste oil heating unit; a bilge water storage tank; an oil/water separator unit; an oil filter crusher; a recycling and household hazardous waste collection bins. The facility will have a built-in sump to contain spills and washdown water. Equipment to pump oily bilge water from boats will also be provided with the facility. Construction of the new facility is planned for the summer of 1997.

The waste streams generated within communities and which are entering PWS on an ongoing basis are affecting fish, wildlife, and human uses injured by the spill, including disruption of important habitat. Any decrease in local pollution would have the effect of decreasing the stress on injured fish and wildlife that rely on clean water. The fish and wildlife likely to benefit the most are those that feed in the intertidal or near-shore waters in the vicinity of community waterfronts and small boat harbors. The services most likely to benefit are subsistence and recreation, both of which are adversely affected by marine pollution and would benefit from pollution reduction.

Chronic pollution from community sources is believed to have significant adverse effects on the marine environment: refined petroleum products are very toxic to fish and wildlife; and the cumulative effects of chronic marine pollution can substantially increase the stress on fish and wildlife resources, With regard to the mortality of seabirds, chronic marine pollution is believed to be at least as important as large-scale spills.

Implementation of the project will help assure that marine-generated oil pollution

generated in the vicinity of Valdez does not further degrade the marine habitat of PWS. By assuring that wastes are properly handled and do not contaminate the marine environment, natural recovery of the resources and services can be enhanced.

IV. Issues and Concerns

No significant issues were identified during scoping for this project.

V. Public Involvement

During completion of the Sound Waste Management Plan (SWMP) in Phase I, there were numerous meetings with the public and with community representatives. The Sound Waste Management Plan was developed through a regional planning process coordinated by the Prince William Sound Economic Development Council (PWSEDC). Public officials and private sector representatives from each of the PWS communities met monthly over the course of a year to develop the SWMP Plan.

During this process, the SWMP Committee was formed. It consists of 12 individuals from the five communities, ADEC and the private sector. This committee will continue to function in Phase II and provide valuable input into how the buildings will look and be operated.

When Phase II of this project was presented to the Exxon Valdez Oil Spill Trustee Council for funding during April, 1996 the public was given an opportunity to comment on the proposal. No comments were received.

Phase II of this project is currently underway. During completion of Phase II of this project which is implementation of design and construction, two meetings were held with the SWMP committee to evaluate the design. These meetings were held on January 28, 1997 and March 17, 1997. A third meeting would be held in the fall of 1997, after construction is completed, to provide committee members and appropriate staff with training to operate the new equipment.

In Valdez, the local planning commission has approved the Environmental Operations Station (EVOS Station) site. Local building officials will review and approve the building plans.

VI. Community Responsibility

As part of this project, Valdez will be required to document that they are prepared to accept responsibility of operation of the new facilities. Prior to receiving ADEC authorization to proceed with construction of the new facilities, Valdez will provide a legally binding, notarized Letter of Agreement. This agreement must be signed by an executive officer of the community. The agreement will contain, at a minimum, the following conditions:

A) The community will obtain all titles, easements and permits necessary to provide clear title and authority to construct and maintain the proposed projects.

B) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management and maintenance of the EVOS facility. Accidental discharge of waste products from the facilities is the sole responsibility of the community.

C) Construction contractors may enter onto the communities property to construct the project.

D) The location, construction, and management of the building will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream or body of water.

VII. Alternatives Including the Proposed Action

A. No Action Alternative. The No Action Alternative represents no change from the current situation. Oil and household waste will continue to be disposed of as it is now, with some of the material entering the local marine environment. At present, federal and state law requires that oil and other hazardous waste be disposed of in an environmentally safe manner. Most of the towns in the spill area lack waste facilities capable of properly and efficiently handling waste oil. Most of these are unlikely to receive these facilities without government funding.

In Valdez, waste oil is collected at the boat harbor. Useable waste oil is transported to various locations in the community for energy recovery in used oil furnaces. The existing collection and transfer facilities are not housed inside a warm building. Separation of water and emulsified product from the collected oil is inefficient with the single collection tank located outdoors. Therefore, much of the used oil product is not recovered adequately. Oil that is unsuitable for use in the local heat recovery furnaces is stored in Valdez and eventually shipped out of town to a certified disposer. In addition, the 300-gallon collection tank at the harbor is undersized for the amount collected. The City collects approximately 15,000 gallons of used oil per year. It is currently stored at the collection site and at a number of various locations in the community.

With the absence of an adequate local treatment facility, the only way to comply with federal law is to ship unusable waste oil to a larger community, and for individuals to bear the inconvenience and cost of that transport.

The City is currently collecting recyclable products at their solid waste baler facility. The City will continue to process recyclable materials at the baler site.

The City is currently collecting household hazardous waste (HHW) products at their solid

waste baler facility. Accumulated HHW is currently shipped to locations outside of Valdez for disposal.

B. The Proposed Action - EVOS Stations. The Environmental Operations Stations (EVOS) Station will be located adjacent to the City's solid waste baler facility on the Richardson Highway. The building will be placed inside the fenced area surrounding the baler building. This will allow the City to control public access to and from the EVOS Station area. Appendix A and B show the proposed site location and building floor plan.

The Valdez EVOS Station will contain a 1,000-gallon used oil storage tank, a 175,000 BTU used oil burner, and an oil filter crusher. An oily water separator and a 500-gallon buffer tank to store and pre-treat bilge water and control flow through the oily water separator will also be placed in the new building.

Separate bins will be provided for the various types of collected materials. A drop-off area will be capable of containing oil filters, oily rags, old oil containers and used oil. The general public will not be allowed in the used oil and oily material processing area. Only qualified City staff will be allowed to operate the equipment and process oily material. The household hazardous waste collection and storage area will only be open to accept waste from the public during scheduled City crew work hours.

The bilge water pumping system will be installed at the City's small boat harbor. Oily bilge water will be collected and hauled to the new EVOS Station for processing.

Used oil will be collected at the City's small boat harbor and at the new EVOS Station. Oil collected at the boat harbor will be transported in the City's truck for approximately 3 miles to the EVOS Station for processing. Bilge water will be collected in a 400-gallon tank. The bilge water will be transferred into the City's truck and transported to the EVOS Station for processing.

The new EVOS Station will be used as a new convenient drop off site for recyclable materials. The City will continue to process recyclable materials at the baler site.

The new EVOS Station will be used as a new convenient drop-off site for HHW. The City will continue to process HHW materials at the baler site. Building codes will limit the amount of HHW that can be stored in the EVOS building at one time. The City will move HHW from the new EVOS Station to their existing permanent storage building when these limits are reached.

Operation of the EVOS Station

Used oil would be collected and disposed in a few different ways. One option available to residents is to dispose of the oil at the EVOS Station. A second option is to dispose of the oil at the existing City waste oil collection tank located near the small boat harbor.

Oil taken directly to the EVOS Station for disposal would be poured into a 55-gallon drum that is marked as the used oil disposal drum. The collection drum would be located inside the EVOS station. A plastic drum funnel would be in place over the top of the collection drum. Used oil would be discharged into the drum funnel which drains into the drum. Any oil that is spilled during this process would be collected in a sump that is part of the EVOS Station floor. Once the collection drum is full, the cap would be inserted and the drum would be placed on a hand cart and carried to the processing side of the EVOS Station. Once inside the processing area, oil would be transferred from the drum to a 1000-gallon storage tank. An electric drum pump would be used to transfer the oil. The processing room also has a floor sump to contain spills. The sump has a 1200-gallon capacity and is therefore capable of containing not only a drum spill but also a spill from the 1000-gallon storage tank.

Oil would also be collected at the City's existing collection tank at the small boat harbor. The City would empty this tank periodically and transfer the collected oil to the EVOS Station. The City tank truck would be used for carry the oil to the EVOS building. The transfer between the truck and containers would be performed with an electric pump and hoses. The City would register with the EPA as a "transporter" and be given an identification number.

Only oil products approved under Title 40, Part 279 would be approved for used oil collection. Some products would not be accepted as used oil products, such as; used oil that has been mixed with regulated hazardous waste, chlorinated solvents, antifreeze and soil contaminated with oil. All containers used in the process would be marked as containing (USED OIL).

Persons disposing of materials in the EVOS Station and at the small boat harbor collection site would fill out a form that includes their name, address, vessel, phone number, date, quantity of material disposed, source, and type of oil (motor, hydraulic, gear, diesel, etc.) or type of oily material (rags, sorbents, filters, etc.).

Oil collected in the 55-gallon collection drums and at the boat harbor, as well as oil contained in the 1000-gallon storage tank, would be tested periodically to determine; 1) if it is on-specification used oil, or 2) if it is off-specification used oil. Oil would be tested to identify if it is on or off-specification oil per 40 CFR 279.11. Used oil collected in the community would be used for energy recovery and burned in a used oil furnace. Oil that has too low of a flash point is not acceptable for burning in a used oil furnace. If oil contained in the collection drums is found acceptable, it would be pumped into the 1000-gallon storage tank. If oil contained in the collection drums is found unacceptable, the oil would either be blended into the 1000-gallon tank to bring it within specification or it would be stored onsite in an approved container and subsequently shipped to a waste disposal facility. There are two facilities in Anchorage that can accept and process this oily material. If oil in the 1000 gallon tank is found to be "off-specification", it would be shipped to an Anchorage processor for disposal.

After the oil has time to settle in the 1000 gallon tank, it would be pumped from the storage tank and into the City's tank truck for transportation to a used oil burner site in the community. Trained staff would be responsible for transferring and transporting the oil to the burners located elsewhere in the community. Once the drum reaches the burner area, oil would be pumped into a permanent fuel tank. The used oil would also fuel the used oil burner located in the EVOS Station.

VIII. Environmental Consequences

A. No Action Alternative. As a result of the lack of adequate local facilities and the cost and inconvenience of transport, some waste oil in Valdez is probably not disposed of in compliance with federal and state law. In spite of regulations and enforcement actions to the contrary, a substantial (but unknown) amount of this waste oil finds its way into the marine environment. This would not change under the no action alternative. Under the no action alternative, there would be no change from the current status.

The no action alternative would require that the City continue its current practice of storing oil in large capacity, single wall tanks that do not have dual containment capabilities. In this case, the potential for an oil spill is higher with the no action alternative.

The no action alternative would require that some oily products be shipped out of the community for disposal. In this case, the potential for an oil spill is higher during transportation with the no action alternative. In addition, transporting the material elsewhere requires energy to move the product.

Under the no action alternative, boat owners have limited disposal alternatives, and may be reluctant to properly dispose of oily bilge water.

If the proposed facility is not built, there is a potential that oily bilge water will continue to be discharged into the Valdez harbor. If it is not built, there is a possibility that the existing oil collection system will not have the capacity to accept used oil. Some of the oil destined for disposal may be disposed in an illegal manner, poured onto the ground or placed in the community landfill. As more boats enter and reside in the harbor, the discharge of oily bilge water could get worse over time.

Any decrease in local pollution would have the effect of decreasing the stress on injured resources and services that rely on clean water, Those resources and services likely to benefit the most are those that feed in the intertidal or near shore waters in the vicinity of small boat harbors. Those resources most likely to benefit include harlequin ducks, black oystercatchers, sea otters, harbor seals, seabirds, shorebirds and marine mammals.

B. Proposed Action. The proposed action would decrease the amount of oil that finds its way into the marine environment. The amount of the decrease is unknown, but could be locally significant.

The decrease in local pollution is unlikely to have an area-wide effect. That is, the amount of the decrease in marine oil pollution is unlikely to be large enough to have a measurable effect on the area-wide population of a injured resource in the spill area. However, the decrease may have an important local effect. It may increase marine mammal or seabird use of habitat near a community, or increase a local population of an injured resource.

There is a potential for oil spills during the oil collection, treatment and disposal process. The City would operate the facility in a manner to reduce this potential. They would also be responsible for cleaning up spills. Spills outside the EVOS Stations would be cleaned up immediately and in accordance with state regulations. Spills inside the EVOS Station would accumulate in the sump. This oil would be pumped back into the large storage tank. City staff are very familiar with oil spill cleanup technology. Larger spills would be cleaned up with the emergency spill equipment that is stored in the community.

There is a possibility the 1000-gallon tank would fill faster than the City can burn the used oil, i.e.: the community is collecting more used oil than it can burn. The City has three options in this case: 1) purchase an additional dual-wall oil storage tank and place it outside the EVOS facility, 2) add another used oil furnace in the community to increase the energy recovery capacity, and 3) ship the extra oil to one of the oil disposal facilities in Anchorage.

Oily bilge water would be collected from boats, with a 400-gallon tank and attached pump specially designed for this purpose. Authorized community staff would operate the bilge pumping equipment. This operation would occur at the ferry dock. Oily bilge water collected in the tank would be transferred into the City's tank truck and transported to the EVOS Station where it would be pumped into a 500-gallon bilge water storage tank located inside the station.

At the EVOS Station, the oily bilge water would be treated with an oil/water separator. The separator is capable of treating water to less than 10 parts per million (ppm) of free oil and grease at a flow rate of 10 gallons per minute (gpm). The oily bilge water would be pumped through the separator and discharged into the City sewer collection system. Oil collected in the separator would be transferred into the 1000 gallon storage tank in the EVOS Station.

Household hazardous waste (HHW) and recyclable products would also be collected at the EVOS Station. The City currently has an ongoing and permitted HHW collection and disposal program at the solid waste baler facility. The City also has an ongoing recycle materials collection and disposal program. The EVOS Station would provide a more convenient location for accepting these materials.

Oil filters and oily rags would also be collected at the new building. Oil would be removed from the filters with a filter crusher and the remaining material would be disposed at the City's landfill.

IX. Other Disclosures.

Threatened, Endangered and Sensitive Species

A biological evaluation was completed as part of this environmental assessment. The United States Forest Service was contacted during this evaluation. There are no threatened or endangered plant species documented to occur in the Valdez area (Duffy 1993).

The only threatened or endangered animal species in the Valdez area are the Steller sea lion (threatened), a local resident of the coastal waters (West, 1993), and the American Peregrine Falcon (endangered), a rare migrant in coastal wetland areas such as Duck Flats (ADF&G, et al. 1994). Steller sea lions would not be affected by construction or operation of the proposed facility because the site is inland from the coast and the facility will be designed, constructed and operated in a manner which would prevent any oil from getting into the nearshore waters. The American Peregrine Falcon would not be expected to be affected by construction or operation of a facility due to the limited amount of time these birds would potentially be in the general area and the lack of habitat in the immediate area of the site.

Sensitive species, as designated by the Forest Service, include only the Peale's Peregrine Falcon, a non-migratory coastal race of the Peregrine Falcon (ADF&G, et al. 1994). Other species in the general area which are considered candidate species by the U.S. Fish and Wildlife Service include the Marbled Murrelet, Kittlitz's Murrelet and Harlequin Duck (ADF&G, et al. 1994). None of these species would be expected to occur in the vicinity of the proposed project location and therefore are not expected to be adversely affected.

Cultural Resources

Section 106 of the National Historic Preservation Act requires that any activities proposed or authorized by the federal government be reviewed for their potential to impact properties listed in or eligible for listing in the National Register of Historic Places. The Alaska Department of Natural Resources, Office of History and Archaeology, was consulted to meet the cultural resource review requirements under Section 106.

There is not expected to be an adverse effect on cultural resources from construction or operation of the EVOS Station. The proposed site has been reviewed by the State Office of History and Archaeology and there are no known cultural resources on the site (Smith, personal communication, 1997). The site is located northwest of the Old Valdez

Townsite, adjacent to the City's wastewater treatment facility. Since the site has already been developed, there is a low potential for discovery of additional cultural resources. If any cultural resources are found during construction, all work would be stopped and the State Historical Preservation Officer (SHPO) would be contacted to determine the appropriate actions to be taken.

Coastal Management

The overall goal of the Alaska Coastal Zone Management Program is to achieve a proper balance between resource development and protection. Activities proposed within the coastal zone must be consistent with state standards adopted in Part 6 of Chapter 80 of the Alaska Administrative Code (6 AAC 80). District specific plans can be adopted which provide more detail and guidance on development within the districts. The Valdez Coastal Management Program boundaries encompass all areas within the municipal boundary up to an elevation of 1500 feet.

The proposed facilities are classified as a marine industrial use, since most of the wastes generated are expected to be from marine uses. This use would be considered to be "water-related", since it is not directly dependent on access to water, but which provides services directly associated with water-dependent uses. State coastal management policies require that coastal lands be reserved primarily for water dependent and water related uses, where there is significant competition for coastal lands.

The site is located adjacent to the wastewater treatment facility, near the Old Valdez Townsite. This site is not located on the shoreline and is not expected to reduce available coastal lands or displace other water dependent uses.

The Valdez Coastal Management Program also includes specific policies related to industrial sites and to air and water quality. The proposed project specifically contributes toward achieving some of the policies in regard to consolidation of similar facilities, prevention of spills, maintenance of water quality, and proper handling, storage, and disposal of refuse in the harbor area. The site near the Old Valdez Townsite is located near an area designated as a high liquefaction area. The coastal management program states that facilities within this area should be engineered to withstand effects of liquefaction. The proposed sites are not located within any Area Meriting Special Attention (AMSA). Historic and archeological concerns were addressed through consultation with the State.

Subsistence

Subsistence harvest is less important in Valdez's cash economy than in some other PWS communities, although it likely does contribute substantially to the food supplies of some local families (MMS, 1992). Subsistence resources of primary importance are associated with the marine and freshwater environments of the area, and to a lesser extent, the coastal terrestrial environments. The proposed facility location near the wastewater

treatment plant would be built in previously disturbed areas and would not affect any areas used for gathering subsistence resources. The site would not be near any anadromous fish stream or areas used for subsistence fishing. Design, construction, and operation features of the proposed facility would prevent any adverse impacts on important resources in adjacent areas and would not affect the availability or access to the traditional subsistence resources.

The reduction of improper disposal of wastes may result in a reduction of potential adverse effects on subsistence resources in the area.

Permits Required to Carry Out the Project.

The Alaska Department of Environmental Conservation (ADEC) has reviewed and approved of the Phase I Sound Waste Management Plan. Approval will be obtained from a number of local, state and federal agencies before Phase II construction begins.

A City of Valdez building permit will be required.

A Coastal Questionnaire will be filled out and submitted to the Department of Governmental Coordination (DGC) for a review of the project's consistency with State coastal management regulations and the Valdez Coastal Management Program. An approval will be required from the ADEC for discharge of treated water from the oil water separator.

Final plans and specifications will be submitted to the State of Alaska Fire Marshall's office for review and approval.

X. Consulted Persons and Agencies

Pete Kompkoff, IRA Village Council, Chenega Bay
George Keeney, Director of Public Works, Cordova
Gary Kompkoff, IRA Village Council, Tatitlek
Bill Wilcox, Director of Public Work, Valdez
Stan Gilfillan, Solid Waste Manager, Valdez
Chris Overbeck, City Council, Whittier
Jerry Durnil, Harbormaster, Whittier
John Fannin, Alyeska Pipeline Service Corporation
Chuck Totemoff, Chenega Corporation
Mark Stahl, Chugach Alaska Corporation
S. Moorestead, Alaska Department of Fish &Game, Cordova
Dan Lawn, Alaska Department of Environmental Conservation, Juneau
David Wigglesworth, Alaska Department of Environmental Conservation, Anchorage
Tim Smith, Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage

XI. References

ADF&G, USFWS, NMFS, BLM, and USDA, Forest Service. 1994. Alaska's threatened and endangered species. Eds. Michelle Sydeman. 29p.

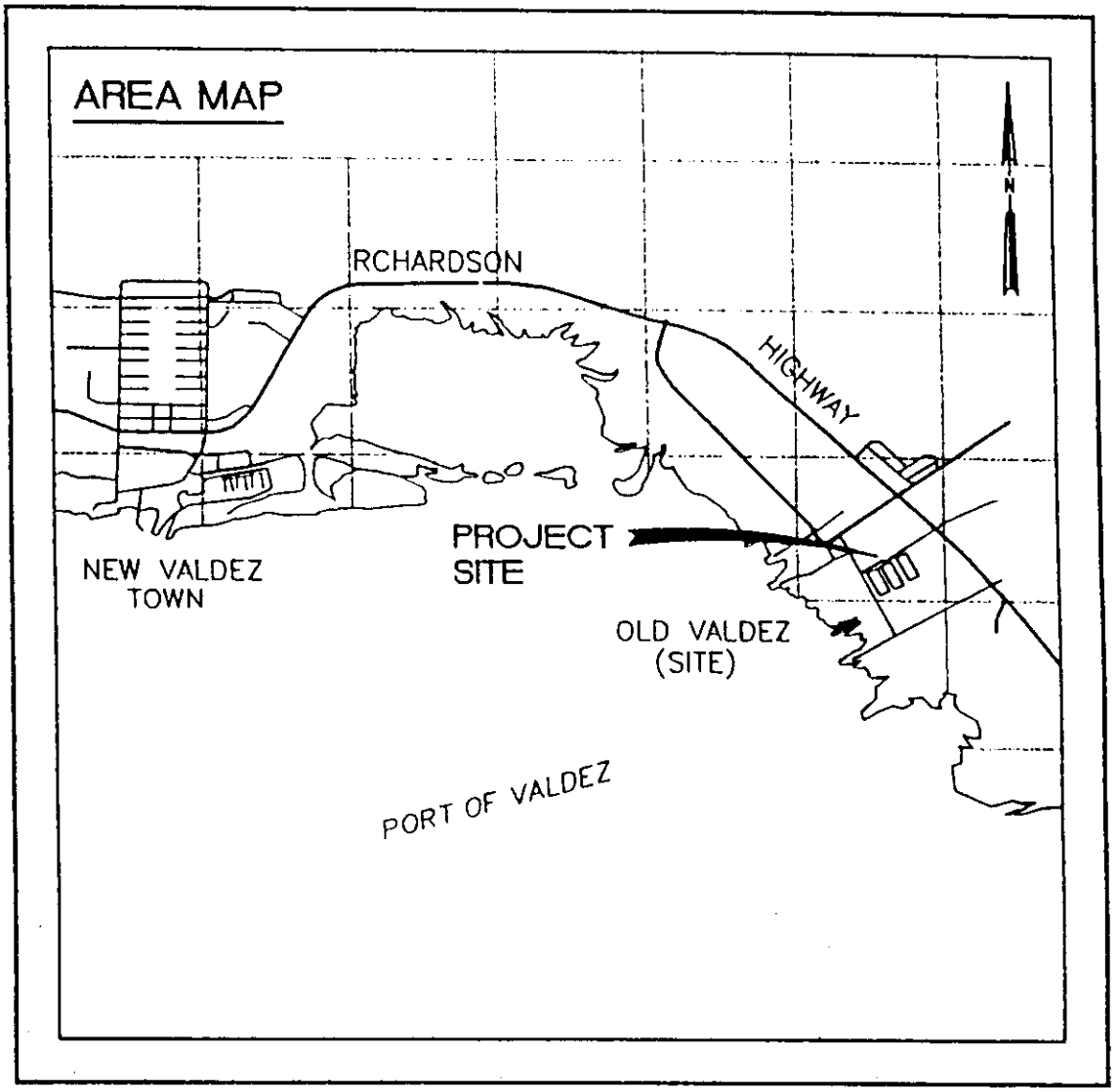
West, E.W. 1993. Rare vertebrate species of the Chugach and Tongass National Forests. Alaska Natural Heritage Program and the U.S. Department of Agriculture, Forest Service, Region 10. Anchorage, AK. 253 p.

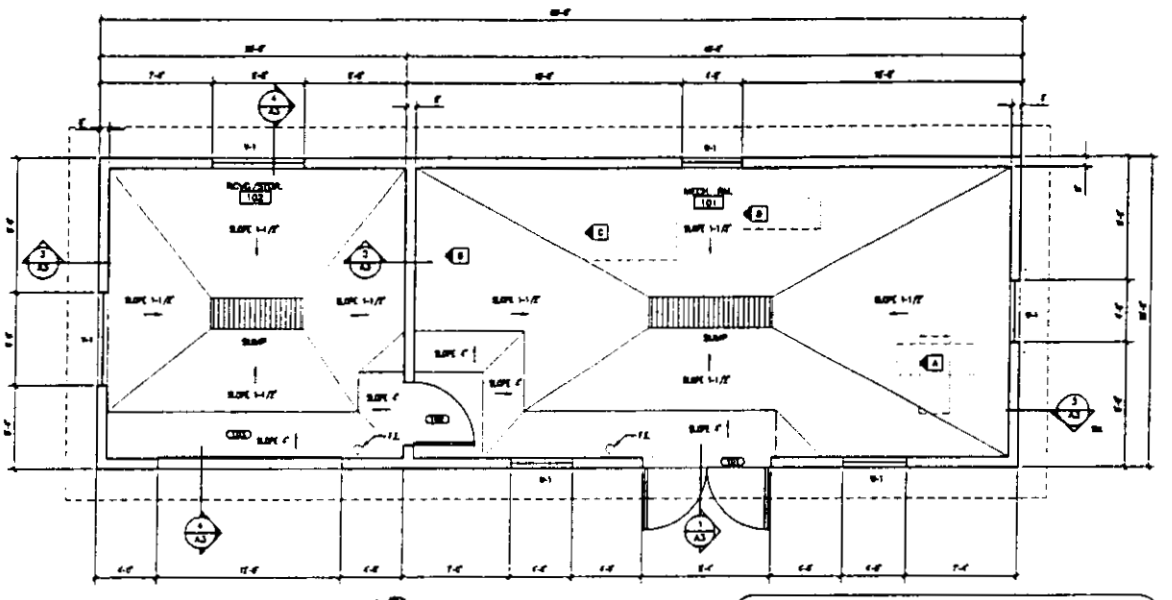
Duffy, M. 1993. Results of the 1993 rare plant survey, U.S. Forest Service, Alaska Region. Alaska Natural Heritage Program, Environment and Natural Resources Institute, University of Alaska, Anchorage, Anchorage, AK.

Moorested, S. 1997. Fisheries Biologist, Alaska Department of Fish and Game, Valdez, AK. Personal Communication.

MMS, 1995. An investigation of the sociocultural consequences of Outer Continental Shelf Development in Alaska. U.S. Department of the Interior, Minerals Management Service, Alaska Outer Continental Shelf Region. OCS Study - MMS 95-010.

Smith, Tim. 1997. Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage, AK. Personal Communication.


AREA MAP
N
RCHARDSON
HIGHWAY
PROJECT
SITE
NEW VALDEZ
TOWN
OLD VALDEZ
(SITE)
PORT OF VALDEZ



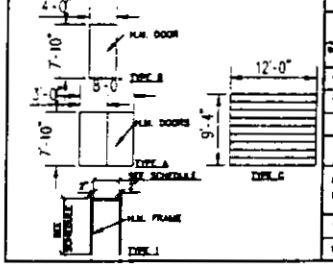
N

FLOOR PLAN
1/4" = 1'-0"

EQUIPMENT SCHEDULE

- A — USED OIL BURNER : 18" ø x 81" L (SEE MECHANICAL)
- B — 1000 GALLON USED OIL STORAGE TANK. 8'-0" ø x 7'-0" L (N.I.C.)
- D — OILY WATER SEPARATOR: 2'-0" ø x 5'-0" L (N.I.C.)
- C — 500 GALLON BILGE WATER BUFFER TANK. 4'-0" ø x 8'-0" L (N.I.C.) WITH BOTTOM OF TANK 3.5' ABOVE FLOOR ELEVATION

DOOR/FRAME TYPES



WINDOW/OPENING SCHEDULE

WINDOW NO.	SIZE	OPERABLE		REMARKS
W-1	4'-0" x 3'-4"	YES		
W-1	5'-0" x 3'-4"			GALVANIZED STEEL MESH

DOOR SCHEDULE

DOOR NO.	SIZE	DOOR TYPE	FRAME TYPE	HARDWARE GROUP	REMARKS
101	3'-0" x 7'-0" x 1 3/4"	A	1	HDW-1	PAINT DOOR & FRAME
102	6'-0" x 7'-0" x 1 3/4"	B	1	HDW-2	PAINT DOOR & FRAME
103	3'-0" x 7'-0" x 1 3/4" GALVANIZED STEEL MESH	C	1	HDW-3	PAINT FRAME

FINISH SCHEDULE

RM. NO.	RM NAME	FLOOR MATERIAL	FLOOR FINISH	BASE FINISH	WALLS NORTH FINISH	WALLS EAST FINISH	WALLS SOUTH FINISH	WALLS WEST FINISH	CEILING FINISH	REMARKS SPECIFICATIONS
101	MECH.	CONCRETE	BROOM	4" CONC.						
102	RECEIVING/STOR.	CONCRETE	BROOM	4" CONC.						

DOOR SCHEDULE VALUES

Classify the building

1. Occupancy classification: Table 3-A
   - F1 — Motor Vehicle Fuel Dispensing Stations (Table 3-D)
   - S1 — Storage - moderate hazard (Table 3-D)
   - Table 3-G Required Separation in Buildings of Mixed Occupancy Groups
   - F1 to S1 = 0 (no requirements for fire resistance)
2. Type of Construction: II-N
   - F1 and S1: II-N
3. Location on property: Table 3-I
   - Exterior walls, bearing = 1 hr < 30 ft.
   - Exterior walls, nonbearing = 1 hr < 30 ft.
   - Openings: Not permitted < 3 ft. Protected < 10 ft.
4. Allowable Floor Area: Table 3-H
   - F-1, S-1, II-N = 12,000 sq.ft.
   - Actual floor area: 1,200 sq.ft.
   - Therefore, the actual area is less than the allowable area and the building complies. Area increases are not required and omitted on this schematic study.
5. Allowable height and number of stories: Table 3-I
   - F-1, S-1, II-N: Max height = 2 stories 30 ft.
   - The building complies.

80%
SUBMITTAL
3/7/97

Date Stamped:

Mk | Revision | Date

STEPHL ENGINEERS
3320 Sherwerry, Ste. 200
Anchorage, Alaska 99503
(907) 274-7170
(907) 277-4722 Fax

USKH
Architecture • Engineering
Land Surveying • Planning
310 "K" Street
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Project:
ENVIRONMENTAL OPERATIONS STATIONS
~~PORT VALDEZ~~ VALDEZ
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.
Drawn	PCF
Drawn	
Checked	
Date	3-7-97

Sheet Contents:
FLOOR PLAN
FOUNDATION PLAN
ROOF FRAMING PLAN

Sheet No.:
A1

STEPHL W.O. 9615
USKH W.O. 510604

PLOT SCALE: 1=1
FILE NAME: 510604.DWG

APPENDIX K

Environmental Assessment for Whittier, Alaska Environmental Operations and Used Oil Management System
April 27, 1997

Environmental Assessment
for
Whittier, Alaska
Environmental Operations and Used Oil Management System

***Exxon Valdez* Oil Spill Trustee Council Project # 97115**

May 27, 1997

Responsible Agency: USDA Forest Service
Alaska Region
709 West 9th Street; Room 543
Juneau, Alaska 99802

Cooperating Agency: Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, Alaska 99501

For Further Information Contact: Ken Holbrook
U.S. Forest Service
3301 C Street, Suite 300
Anchorage, Alaska 99503
(907)271-2819

Location of Action: Whittier, Alaska, in the *Exxon Valdez* Oil Spill Area

Environmental Assessment
Environmental Operations and Used Oil Management System
Whittier, Alaska

I. Proposed Action

The Exxon Valdez Oil Spill Trustee Council is proposing the construction of a new building in Whittier, for collecting used oil and oily bilge water. Construction is planned for the summer of 1997. Similar facilities are being proposed in Tatitlek, Valdez, Cordova and Chenega Bay. The proposed action constitutes Phase II of the Sound Waste Management Plan (SWMP) project.

The Sound Waste Management Plan project consists of two phases. During Phase I, a plan was completed that identified waste sources in Prince William Sound. Phase I is complete. The Phase I plan also identified proposed solutions, one of which was construction of a facility in Whittier. Phase II of the project, is currently underway and consists of design and construction of a new building and equipment in Whittier.

This project will create a waste oil collection and disposal facility and bilge water collection and disposal facility in Whittier, Alaska. A single building will be built in Whittier to house equipment and storage containers. The new building will be located adjacent to the City's boat harbor, in an already developed area of Whittier. The building is proposed to be an approximately 500 square foot building.

On August 29, 1996, the *Exxon Valdez* Oil Spill Trustee Council approved $1,167,900 for Project 97115/Implementation of the Sound Waste Management Plan: Environmental Operations and Used Oil Management System. To meet the requirements for EVOS funded projects, this document is being prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service (USFS) NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project and find that the project has no significant impact. The project is not located on USFS land.

II. Purpose and Need for Action

The purpose and need of the proposed action is to reduce the amount of used oil and oily bilge water entering Prince William Sound, near Whittier. The new facility will be operated by the City of Whittier. They will be responsible for seeing that the collection, containment, energy recovery and storing of used oil is performed in an approved manner. There has been extensive public involvement in the development and design of this project.

III. Technical Background

One method of helping to restore the resources and services injured by the 1989 *Exxon Valdez* Spill is to protect the injured resources and services from further stress. While protective actions themselves do not accelerate recovery, they help to ensure that natural recovery will proceed with a minimum of interference.

A wide range of waste streams are generated within Prince William Sound (PWS) communities. These include used oil generated from vehicles and vessels.

Communities currently face serious problems with managing these wastes, including inadequate facilities to properly manage used oil. As a result of these problems, pollution from these sources is entering PWS on an on-going basis.

The communities of Prince William Sound worked together to prepare a Sound Waste Management Plan (SWMP) to identify both the nature of wastes generated and potential solutions to manage those wastes.

The proposed facility will contain: waste oil collection day tanks for public disposal of oil; a waste oil storage tank; a waste oil heating unit; a bilge water storage tank; an oil/water separator unit; and an oil filter crusher. The facility will have a built-in sump to contain spills and washdown water. Equipment to pump oily bilge water from boats will also be provided with the facility. Construction of the new facility is planned for the summer of 1997.

The waste streams generated within communities and which are entering PWS on an ongoing basis are affecting fish, wildlife, and human uses injured by the spill, including disruption of important habitat. Any decrease in local pollution would have the effect of decreasing the stress on injured fish and wildlife that rely on clean water. The fish and wildlife likely to benefit the most are those that feed in the intertidal or near-shore waters in the vicinity of community waterfronts and small boat harbors. The services most likely to benefit are subsistence and recreation, both of which are adversely affected by marine pollution and would benefit from pollution reduction.

Chronic pollution from community sources is believed to have significant adverse effects on the marine environment: refined petroleum products are very toxic to fish and wildlife; and the cumulative effects of chronic marine pollution can substantially increase the stress on fish and wildlife resources, With regard to the mortality of seabirds, chronic marine pollution is believed to be at least as important as large-scale spills.

Implementation of the project will help assure that marine-generated oil pollution generated in the vicinity of Whittier does not further degrade the marine habitat of PWS. By assuring that wastes are properly handled and do not contaminate the marine environment, natural recovery of the resources and services can be enhanced.

IV. Issues and Concerns

No significant issues were identified during scoping for this project.

V. Public Involvement

During completion of the Sound Waste Management Plan (SWMP) in Phase I, there were numerous meetings with the public and with community representatives. The Sound Waste Management Plan was developed through a regional planning process coordinated by the Prince William Sound Economic Development Council (PWSEDC). Public officials and private sector representatives from each of the PWS communities met monthly over the course of a year to develop the SWMP Plan.

During this process, the SWMP Committee was formed. It consists of 12 individuals from the five communities, ADEC and the private sector. This committee will continue to function in Phase II and provide valuable input into how the buildings will look and be operated.

When Phase II of this project was presented to the Exxon Valdez Oil Spill Trustee Council for funding during April, 1996 the public was given an opportunity to comment on the proposal. No comments were received.

Phase II of this project is currently underway. During completion of Phase II of this project, which is implementation of design and construction, two meetings were held with the SWMP committee to evaluate the design. These meetings were held on January 28, 1997 and March 17, 1997. A third meeting would be held in the fall of 1997, after construction is completed, to provide committee members and appropriate staff with training to operate the new equipment.

In Whittier, the local planning commission has approved the Environmental Operation Station (EVOS Station) site.

VI. Community Responsibility

As part of this project, Whittier will be required to document that they are prepared to accept responsibility of operation of the new facilities. Whittier will provide a legally binding, notarized Letter of Agreement. This agreement must be signed by an executive officer of the community. The agreement will contain, at a minimum, the following conditions:

A) The community will obtain all titles, easements and permits necessary to provide clear title and authority to construct and maintain the proposed projects.

B) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management and maintenance of the

EVOS facility. Accidental discharge of waste products from the facilities is the sole responsibility of the community.

C) Construction contractors may enter onto the communities property to construct the project.

D) The location, construction, and management of the building will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream or body of water.

VII. Alternatives Including the Proposed Action

A. No Action Alternative. The No Action Alternative represents no change from the current situation. Oil waste will continue to be disposed of as it is now, with some of the material entering the local marine environment. At present, federal and state law requires that oil be disposed of in an environmentally safe manner. Most of the towns in the spill area lack waste facilities capable of properly and efficiently handling waste oil. Most of these are unlikely to receive these facilities without government funding.

In Whittier, waste oil is collected at the boat harbor. Useable waste oil is transported to various locations in the community for energy recovery in used oil furnaces. The existing collection and transfer facilities do not have adequate spill containment equipment and are not housed inside a warm building. Separation of water and emulsified product from the collected oil is inefficient with the single collection tank located outdoors. Therefore, much of the used oil product is not recovered adequately. Oil that is unsuitable for use in the local heat recovery furnaces is stored in Whittier and eventually shipped out of town to a certified disposer. In addition, the 300-gallon collection tank at the harbor is undersized for the amount collected. The City collects approximately 10,000 gallons of used oil per year. It is currently stored at a number of various locations in the community.

With the absence of an adequate local treatment facility, the only way to comply with federal law is to ship unusable waste oil to a larger community, and for individuals to bear the inconvenience and cost of that transport.

B. The Proposed Action - EVOS Stations. The Environmental Operations Station (EVOS) Station will be located at the City small boat harbor area. Appendix A and B show the proposed site location and building floor plan. The building is proposed to be an approximately 500 square foot steel frame structure with a concrete slab floor. It will not have a permanent foundation. The new building will be mounted on above-ground beams to allow it to be moved periodically. This will allow some flexibility in where the building is located as the City's harbor continues to grow in the next few years. The new building will be served with electricity. Collected and treated water will be disposed in the City's sewage system or into the marine environment. The general public will not be allowed in the used oil and oily material processing building. Only qualified City staff

will be allowed to operate the equipment and process oily material.

The Whittier EVOS Station will contain a 1000 gallon used oil collection tank, oily water separator to remove oil from bilge water, oil filter crusher, oily material burner and a 500 gallon buffer tank to store bilge water and control flow through the oily water separator.

As part of the EVOS station project, used oil collection mobile buildings will be provided at various locations around the harbor. These small portable buildings will be approximately 8 feet by 8 feet in size and will be prefabricated units designed to house oil collection drums. The mobile buildings will have spill sumps in them to contain spills from the collection drums. They will be accessible for public disposal of oily materials.

A bilge water pumping system will be installed in the boat harbor. The City will also be provided with a smaller portable vacuum pumping system for removing oily bilge water. Bilge water will be collected in a permanent 400 gallon tank located at the dock. Bilge water will also be collected in a portable 75 gallon unit.

Operation of the EVOS Station

Used oil would be collected in 55 gallon drums placed in the three small collection stations at convenient locations throughout the small boat harbor. Oil would be poured into a 55 gallon drum that is clearly marked as the used oil disposal drum. A plastic drum funnel would be in place over the top of the collection drum. The used oil would be poured into the drum funnel which drains into the drum. A sump in the collection station floor would collect any oil that is spilled. Periodically, the drum would be placed on a trailer or forklift and carried to the EVOS Station. Once inside the EVOS Station, oil would be transferred from the drum to a 1000 gallon storage tank. An electric drum pump would be used to transfer the oil. The processing room in the EVOS Station has a floor sump to contain spills. The sump has adequate capacity capable of containing not only a drum spill but also a spill from the 1000 gallon storage tank. The sump capacity exceeds the volume of the 1000 gallon storage tank.

Only oil products approved under Title 40, Part 279 would be approved for used oil collection. Some products would not be accepted as used oil products, such as; used oil that has been mixed with regulated hazardous waste, chlorinated solvents, antifreeze and soil contaminated with oil. All containers used in the process would be marked as containing "USED OIL".

Persons disposing of materials at the small boat harbor collection sites would fill out a form that includes their name, address, vessel, phone number, date, quantity of material disposed of, source, and type of oil (motor, hydraulic, gear, diesel, etc.) or type of oily material (rags, sorbents, filters, etc.).

Oil collected in the 55 gallon collection drums at the boat harbor, as well as oil contained in the 1000 gallon storage tank would be tested periodically to determine; 1) if it is on-

specification used oil, or 2) if it is off-specification used oil. Oil would be tested to identify if it is on or off-specification oil per 40 CFR 279.11. Used oil collected in the community would be used for energy recovery and burned in a used oil furnace. Oil that has too low of a flash point is not acceptable for burning in a used oil furnace. If oil contained in the collection drums is found acceptable, it would be pumped into the 1000 gallon storage tank. If oil contained in the collection drums is found unacceptable, the oil would either be blended into the 1000 gallon tank to bring it within specification or it would be stored onsite in an approved container and subsequently shipped to a waste disposal facility. There are two facilities in Anchorage that can accept and process this oily material. If oil in the 1000 gallon tank is found to be "off-specification", it would be shipped to an Anchorage processor for disposal.

After the oil has time to settle in the 1000 gallon tank, it would be pumped from the storage tank and into the City's tank truck for transportation to a used oil burner site in the community. Trained staff would be responsible for transferring and transporting the oil to the burners located elsewhere in the community. Once the drum reaches the burner area, oil would be pumped into a permanent fuel tank. A considerable amount of the used oil would also fuel the used oil burner located in the EVOS Station. The City would register with the EPA as a "transporter" and be given an identification number.

VIII. Environmental Consequences

A. No Action Alternative. As a result of the lack of adequate local facilities and the cost and inconvenience of transport, some waste oil in Whittier is probably not disposed of in compliance with federal and state law. In spite of regulations and enforcement actions to the contrary, a substantial (but unknown) amount of this waste oil finds its way into the marine environment. This would not change under the no action alternative. Under the no action alternative, there would be no change from the current status.

The no action alternative would require that the City continue its current practice of storing oil in large capacity, single wall tanks that do not have dual containment capabilities. In this case, the potential for an oil spill is higher with the no action alternative.

The no action alternative would require that some oily products be shipped out of the community for disposal. In this case, the potential for an oil spill is higher during transportation with the no action alternative. In addition, transporting the material elsewhere requires energy to move the product.

Under the no action alternative, boat owners have limited disposal alternatives, and may be reluctant to properly dispose of oily bilge water.

If the proposed facility is not built, there is a potential that oily bilge water will continue to be discharged into the Whittier harbor. If it is not built, there is a possibility that the existing oil collection system will not have the capacity to accept used oil. Some of the

oil destined for disposal may be disposed in an illegal manner, poured onto the ground or placed in the community landfill. As more boats enter and reside in the harbor, the discharge of oily bilge water could get worse over time.

Any decrease in local pollution would have the effect of decreasing the stress on injured resources and services that rely on clean water, Those resources and services likely to benefit the most are those that feed in the intertidal or near shore waters in the vicinity of small boat harbors. Those resources most likely to benefit include harlequin ducks, black oystercatchers, sea otters, harbor seals, seabirds, shorebirds and marine mammals.

B. Proposed Action. The proposed action would decrease the amount of oil that finds its way into the marine environment. The amount of the decrease is unknown, but could be locally significant.

The decrease in local pollution is unlikely to have an area-wide effect. That is, the amount of the decrease in marine oil pollution is unlikely to be large enough to have a measurable effect on the area-wide population of a injured resource in the spill area. However, the decrease may have an important local effect. It may increase marine mammal or seabird use of habitat near a community, or increase a local population of an injured resource.

There is a potential for oil spills during the oil collection, treatment and disposal process. The City would operate the facility in a manner to reduce this potential. They would also be responsible for cleaning up spills. Spills outside the EVOS Stations would be cleaned up immediately and in accordance with state regulations. Spills inside the EVOS Station would accumulate in the sump. This oil would be pumped back into the large storage tank. City staff are very familiar with oil spill cleanup technology. Larger spills would be cleaned up with the emergency spill equipment that is stored in the community.

There is a possibility the 1000-gallon tank would fill faster than the City can burn the used oil, i.e.: the community is collecting more used oil than it can burn. The City has three options in this case: 1) purchase an additional dual-wall oil storage tank and place it outside the EVOS facility, 2) add another used oil furnace in the community to increase the energy recovery capacity, and 3) ship the extra oil to one of the oil disposal facilities in Anchorage.

Oily bilge water would be collected from boats, with a 400-gallon tank and attached pump specially designed for this purpose. Authorized community staff would operate the bilge pumping equipment. This operation would occur at the small boat harbor. Oily bilge water collected in the tank would be transported to the EVOS Station where it would be pumped into a 500-gallon bilge water storage tank located inside the station.

At the EVOS Station, the oily bilge water would be treated with an oil/water separator. The separator is capable of treating water to less than 10 parts per million (ppm) of free oil and grease at a flow rate of 10 gallons per minute (gpm). The oily bilge water would

be pumped through the separator and discharged into the City sewer collection system or into the marine waters. Oil collected in the separator would be transferred into the 1000 gallon storage tank in the EVOS Station.

Oil filters and oily rags would also be collected at the new building. Oil would be removed from the filters with a filter crusher and the remaining material would be disposed at the City's landfill.

IX. Other Disclosures.

Threatened, Endangered and Sensitive Species

A biological evaluation was completed as part of this environmental assessment. The United States Forest Service was contacted during this evaluation. There are no threatened or endangered plant species documented to occur in the Whittier areas (Duffy, 1993).

The only threatened or endangered animal species in the Whittier area are the Steller sea lion (threatened), a resident of the coastal waters of Prince William Sound (West, 1993), and the American Peregrine Falcon (endangered), a rare migrant in coastal areas of this region (Forest Service, 1984). The proposed facility would be located on a upland site in the Whittier small boat harbor, adjacent to the City dock. Careful design, construction and operation of the facility is expected to prevent any oil associated with the EVOS Station from reaching their marine environment. Steller sea lions are not expected to be adversely affected by either construction or operation of the proposed facility, because the site is remote from areas regularly used by these animals. The American Peregrine Falcon would not be expected to be adversely affected by the project due to its limited occurrence in the general area and a lack of habitat in the immediate area of the facility. No eagle nests have been documented at the site. However, they do visit the area on occasion.

Sensitive species in the Whittier area, as designated by the Forest Service, include only the Peale's Peregrine Falcon, a non-migratory coastal race which nest in low numbers throughout Prince William Sound. This species is not expected to be adversely affected due to its limited occurrence, the small size of the facility, and the facility's location in a developed area.

In the Whittier area, there are additionally three candidate species; species for which additional information is needed to classify them as threatened or endangered. These species are the Harlequin Duck, Marbled Murrelet, and Kittlitz's Murrelet (ADF&G et al., 1994). All three of these species occur in nearshore marine waters of Passage Canal near Whittier. Careful design, construction and operation of the facility is expected to prevent any oil associated with the EVOS Station from reaching the marine environment; therefore, the potential for adverse affects on these species should be negligible.

Reduction of improperly waste disposal within Whittier may result in a reduction of adverse effects on threatened, endangered, and sensitive species in the area.

Cultural Resources

Section 106 of the National Historic Preservation Act requires that any activities proposed or authorized by the federal government be reviewed for their potential to impact properties listed in or eligible for listing in the National Register of Historic Places. The Alaska Department of Natural Resources, Office of History and Archaeology, was consulted to meet the cultural resource review requirements under Section 106.

There is not expected to be an adverse effect on cultural resources from construction or operation of the EVOS Station. The facility is proposed to be located within the existing boat harbor, a developed area. The proposed site has been reviewed by the State Office of History and Archaeology and there are no known cultural resources on the site (Smith, personal communication, 1997). The State confirmed that since the site has already been developed, there is a low potential for discovery of additional resources. If cultural resources are found during construction, all work would be stopped and the State Historical Preservation Officer (SHPO) would be contacted to determine the appropriate actions to be taken.

Coastal Management

The overall goal of the Alaska Coastal Zone Management Program is to achieve a proper balance between resource development and protection. Activities proposed within the coastal zone must be consistent with state standards adopted in Part 6 of Chapter 80 of the Alaska Administrative Code (6 AAC 80) and with the Whittier Coastal Management Program policies. The Whittier District boundaries encompass all of the City of Whittier. The proposed project is expected to be consistent with state and district coastal management standards, as described below.

The proposed facilities are classified as a marine industrial use, since most of the wastes generated are expected to be from marine uses. This use would be considered to be water-related, since it is not directly dependent on access to water, but which provides services directly associated with water-dependent uses. State coastal management policies require that coastal lands be reserved primarily for water dependent and water related uses, where there is significant competition for coastal lands. In Whittier, the facilities are proposed to be incorporated into the existing boat harbor, which is expected to be the major source of used oil. The proposed facilities will not displace other water dependent uses, but will complement them.

The proposed Whittier EVOS Station is consistent with many of the goals identified in the Whittier Coastal Management Program, including improvement of the harbor facility, maintaining and protecting sensitive habitats, and maintaining existing water quality.

The proposed project will meet the performance standards included in the Program policies. The facility will be designed, constructed, and operated to assure the proper storage and disposal of petroleum wastes and to maintain and protect nearby coastal resources. The facilities are compatible with adjacent uses in the boat harbor area and will be developed in accordance with the City's zoning ordinance and all other City, State, and Federal regulations.

The proposed site is located within the Port and Harbor Area Meriting Special Attention (AMSA). This area was designated as an AMSA due to potential conflicts associated with the mixture and intensity of uses in the area which result in traffic circulation and land use concerns. The AMSA policies require close coordination between the various agencies that manage lands and facilities within this area. The proposed facility complements existing uses and is not expected to intensify any of the existing conflicts.

Subsistence

Subsistence harvests in the Whittier area are not as extensive as in other areas of Prince William Sound and the community is primarily tied to a cash economy (MMS, 1992). Subsistence resources in the area are primarily associated with the marine and freshwater environments. The proposed project is to be sited in a developed upland area and is not expected to adversely affect marine subsistence resources. A reduction in improper waste disposal may result in some reduction in adverse effects on subsistence resources in the area. Access to and the availability of traditional subsistence resources in adjacent areas are not expected to be adversely affected.

Long-Term Productivity and Short-Term Uses

There are no actions associated with the alternatives which sacrifice long-term productivity or short-term uses of the human environment. There would be no irreversible or irretrievable impacts to soils or other resources in the area as a result of implementing the preferred alternative. There would be no effect on consumers except for the greater convenience and lower cost of being able to legally dispose of waste oil without shipping it outside their community. There would be no effect on minority groups or women, or civil rights programs in general. There will be no effect on prime farmland, forestland, or rangeland.

Permits Required to Carry Out the Project.

The Alaska Department of Environmental Conservation (ADEC) has reviewed and approved of the Phase I Sound Waste Management Plan. Approval will be obtained from a number of local, state and federal agencies before Phase II construction begins.

A City of Whittier planning commission approval will be required.

A Coastal Questionnaire will be filled out and submitted to the Department of

Governmental Coordination (DGC) for a review of the project's consistency with State coastal management regulations and the Whittier Coastal Management Program. An approval will be required from the ADEC for discharge of treated water from the oil water separator.

Final plans and specifications will be submitted to the State of Alaska Fire Marshall's office for review and approval.

X. Consulted Persons and Agencies

Pete Kompkoff, IRA Village Council, Chenega Bay
George Keeney, Director of Public Works, Cordova
Gary Kompkoff, IRA Village Council, Tatitlek
Bill Wilcox, Director of Public Work, Valdez
Stan Gilfillan, Solid Waste Manager, Valdez
Chris Overbeck, City Council, Whittier
Jerry Durnil, Harbormaster, Whittier
John Fannin, Alyeska Pipeline Service Corporation
Chuck Totemoff, Chenega Corporation
Mark Stahl, Chugach Alaska Corporation
S. Moorestead, Alaska Department of Fish &Game, Cordova
Dan Lawn, Alaska Department of Environmental Conservation, Juneau
David Wigglesworth, Alaska Department of Environmental Conservation, Anchorage
Tim Smith, Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage

XI. References

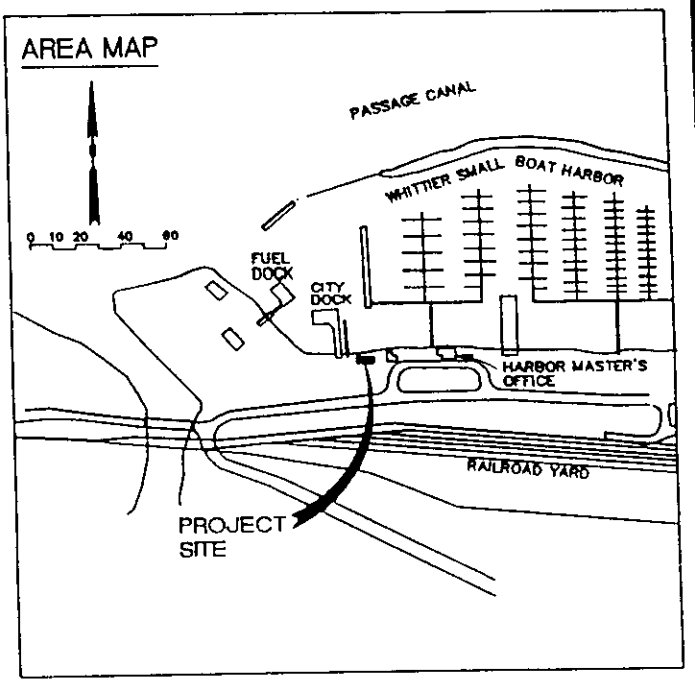
ADF&G, USFWS, NMFS, BLM, and USDA, Forest Service. 1994. Alaska's threatened and endangered species. Eds. Michelle Sydeman. 29p.

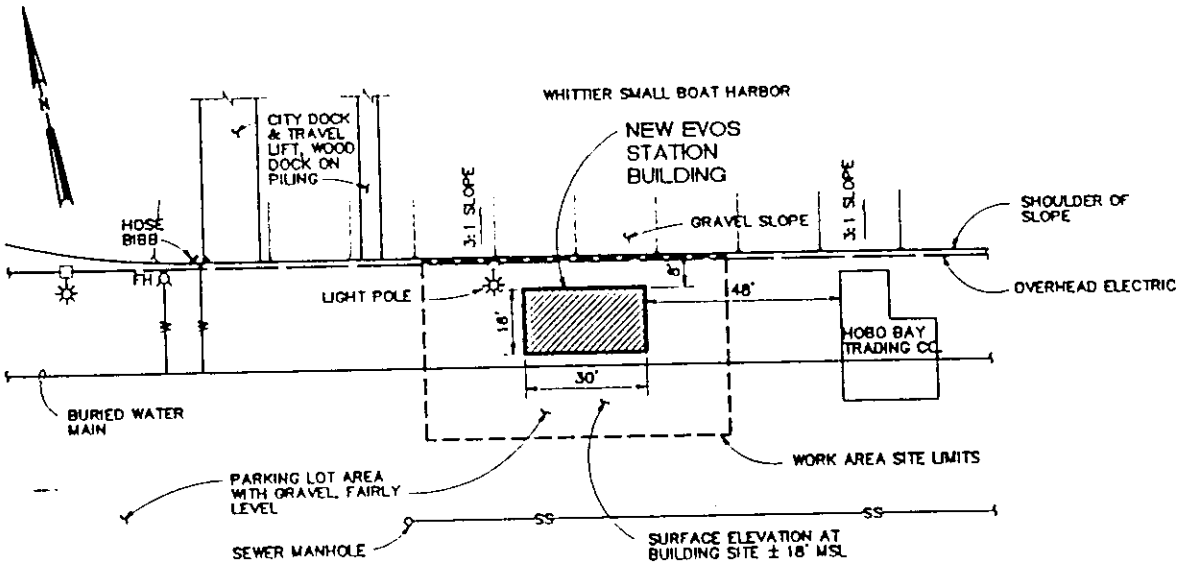
West, E.W. 1993. Rare vertebrate species of the Chugach and Tongass National Forests. Alaska Natural Heritage Program and the U.S. Department of Agriculture, Forest Service, Region 10. Anchorage, AK. 253 p.

Duffy, M. 1993. Results of the 1993 rare plant survey, U.S. Forest Service, Alaska Region. Alaska Natural Heritage Program, Environment and Natural Resources Institute, University of Alaska, Anchorage, Anchorage, AK.

MMS, 1995. An investigation of the sociocultural consequences of Outer Continental Shelf Development in Alaska. U.S. Department of the Interior, Minerals Management Service, Alaska Outer Continental Shelf Region. OCS Study - MMS 95-010.

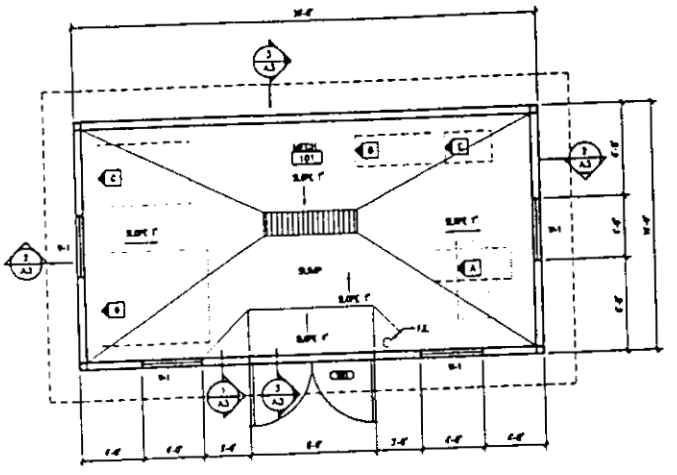
Smith, Tim. 1997. Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage, AK. Personal Communication.





SITE PLAN
NTS

WHITTIER EVOS STATION

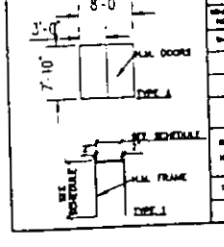


1 A1 FLOOR PLAN
1/4" = 1'-0"

EQUIPMENT SCHEDULE

- A USED OIL BURNER - 18" x x 21" L (SEE MECHANICAL)
- B 1000 GALLON USED OIL STORAGE TANK 6'-0" x x 7'-0" L (N.I.C.)
- D OILY WATER SEPARATOR 2'-0" x x 5'-0" L (N.I.C.)
- C 500 GALLON BILGE WATER BUFFER TANK 4'-0" x x 9'-0" L (N.I.C.) w/ the BOTTOM OF TANK 3.5' ABOVE FLOOR ELEVATION
- E 100 GALLON TANK 3'-0" x 3'-0" (N.I.C.)

DOOR TYPES



WINDOW/OPENING SCHEDULE

WINDOW NO.	SIZE	OPERABLE		REMARKS
W-1	4'-0" x 3'-0"	YES		

DOOR SCHEDULE

DOOR NO.	SIZE	DOOR TYPE	FRAME TYPE	HARDWARE GROUP	REMARKS
101	PAIR 6'-0" x 7'-10"	A	1	HW-1	PAINT DOOR & FRAME

FINISH SCHEDULE

RM. NO.	RM. NAME	FLOOR MATERIAL	FLOOR FINISH	BASE FINISH	WALLS NORTH FINISH	WALLS EAST FINISH	WALLS SOUTH FINISH	WALLS WEST FINISH	CEILING FINISH	REMARKS SPECIFICATIONS
101	MECH	CONCRETE	BROOM	6" CONC. CURB	PAINT	PAINT	PAINT	PAINT		

80% SUBMITTAL 3/7/97

Date Stamped

STEPHL ENGINEERS

USKH

Project:
ENVIRONMENTAL OPERATIONS STATIONS WHITTIER
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.
Drawn	PCF
Drawn	
Checked	
Date	3-7-97

Sheet Contents:
FLOOR PLAND
FOUNDATION PLAN
ROOF FRAMING PLAN

Sheet No.:
A1

STEPHL W.O. 9615
USKH W.O. 510604

PLOT SCALE: 1=1
FILE NAME: S:\DRAWING\FMC

APPENDIX L

Environmental Assessment for Chenega, Alaska Environmental Operations and Used Oil Management System
April 27, 1997

Environmental Assessment
for
Chenega Bay, Alaska
Environmental Operations and Used Oil Management System

***Exxon Valdez* Oil Spill Trustee Council Project # 97115**
May 27, 1997

Responsible Agency: USDA Forest Service
Alaska Region
709 West 9th Street; Room 543
Juneau, Alaska 99802

Cooperating Agency: Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, Alaska 99501

For Further Information Contact: Ken Holbrook
U.S. Forest Service
3301 C Street, Suite 300
Anchorage, Alaska 99503
(907)271-2819

Location of Action: Chenega Bay, Alaska, in the *Exxon Valdez* Oil Spill Area

Environmental Assessment
Environmental Operations and Used Oil Management System
Chenega Bay, Alaska

I. Proposed Action

The Exxon Valdez Oil Spill Trustee Council is proposing the construction of a new building in Chenega Bay, for collecting used oil and oily bilge water. Construction is planned for the summer of 1997. Similar facilities are being proposed in Whittier, Valdez, Cordova and Tatitlek. The proposed action constitutes Phase II of the Sound Waste Management Plan (SWMP) project.

The Sound Waste Management Plan project consists of two phases. During Phase I, a plan was completed that identified waste sources in Prince William Sound. Phase I is complete. The Phase I plan also identified proposed solutions, one of which was construction of a facility in Chenega Bay. Phase II of the project, is currently underway and consists of design and construction of a new building and equipment in Chenega Bay.

This project will create a waste oil collection and disposal facility and bilge water collection and disposal facility in Chenega Bay, Alaska. A single building will be built in Chenega Bay to house equipment and storage containers. The new building will be located adjacent to the Village's ferry dock, in an already developed area of Chenega Bay. The building size is proposed to be approximately 180 square feet.

On August 29, 1996, the *Exxon Valdez* Oil Spill Trustee Council approved $1,167,900 for Project 97115/Implementation of the Sound Waste Management Plan: Environmental Operations and Used Oil Management System. To meet the requirements for EVOS funded projects, this document is being prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service (USFS) NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project and find that the project has no significant impact. The project is not located on USFS land.

II. Purpose and Need for Action

The purpose and need of the proposed action is to reduce the amount of used oil and oily bilge water entering Prince William Sound, near Chenega Bay. The new facility will be operated by the Village of Chenega Bay. They will be responsible for seeing that the collection, containment, energy recovery and storing of used oil is performed in an approved manner. There has been extensive public involvement in the development and design of this project.

III. Technical Background

One method of helping to restore the resources and services injured by the 1989 *Exxon Valdez* Spill is to protect the injured resources and services from further stress. While protective actions themselves do not accelerate recovery, they help to ensure that natural recovery will proceed with a minimum of interference.

A wide range of waste streams are generated within Prince William Sound (PWS) communities. These include used oil generated from vehicles and vessels.

Communities currently face serious problems with managing these wastes, including inadequate facilities to properly manage used oil. As a result of these problems, pollution from these sources is entering PWS on an on-going basis.

The communities of Prince William Sound worked together to prepare a Sound Waste Management Plan (SWMP) to identify both the nature of wastes generated and potential solutions to manage those wastes.

The proposed facility will contain: waste oil collection day tanks for public disposal of oil; a waste oil storage tank; a bilge water storage tank; and an oil/water separator unit. The facility will have a built-in sump to contain spills and washdown water. Equipment to pump oily bilge water from boats will also be provided with the facility. Construction of the new facility is planned for the summer of 1997.

The waste streams generated within communities and which are entering PWS on an ongoing basis are affecting fish, wildlife, and human uses injured by the spill, including disruption of important habitat. Any decrease in local pollution would have the effect of decreasing the stress on injured fish and wildlife that rely on clean water. The fish and wildlife likely to benefit the most are those that feed in the intertidal or near-shore waters in the vicinity of community waterfronts and small boat harbors. The services most likely to benefit are subsistence and recreation, both of which are adversely affected by marine pollution and would benefit from pollution reduction.

Chronic pollution from community sources is believed to have significant adverse effects on the marine environment: refined petroleum products are very toxic to fish and wildlife; and the cumulative effects of chronic marine pollution can substantially increase the stress on fish and wildlife resources, With regard to the mortality of seabirds, chronic marine pollution is believed to be at least as important as large-scale spills.

Implementation of the project will help assure that marine-generated oil pollution generated in the vicinity of Chenega Bay does not further degrade the marine habitat of PWS. By assuring that wastes are properly handled and do not contaminate the marine environment, natural recovery of the resources and services can be enhanced.

IV. Issues and Concerns

No significant issues were identified during scoping for this project.

V. Public Involvement

During completion of the Sound Waste Management Plan (SWMP) in Phase I, there were numerous meetings with the public and with community representatives. The Sound Waste Management Plan was developed through a regional planning process coordinated by the Prince William Sound Economic Development Council (PWSEDC). Public officials and private sector representatives from each of the PWS communities met monthly over the course of a year to develop the SWMP Plan.

During this process, the SWMP Committee was formed. It consists of 12 individuals from the five communities, ADEC and the private sector. This committee will continue to function in Phase II and provide valuable input into how the buildings will look and be operated.

When Phase II of this project was presented to the Exxon Valdez Oil Spill Trustee Council for funding during April, 1996 the public was given an opportunity to comment on the proposal. No comments were received.

Phase II of this project is currently underway. During completion of Phase II of this project, which is implementation of design and construction, two meetings were held with the SWMP committee to evaluate the design. These meetings were held on January 28, 1997 and March 17, 1997. A third meeting would be held in the fall of 1997, after construction is completed, to provide committee members and appropriate staff with training to operate the new equipment.

In Chenega Bay, the IRA Council has approved the Environmental Operation Station (EVOS Station) site.

VI. Community Responsibility

As part of this project, Chenega Bay will be required to document that they are prepared to accept responsibility of operation of the new facilities. Chenega Bay will provide a legally binding, notarized Letter of Agreement. This agreement must be signed by an executive officer of the community. The agreement will contain, at a minimum, the following conditions:

A) The community will obtain all titles, easements and permits necessary to provide clear title and authority to construct and maintain the proposed projects.

B) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management and maintenance of the

EVOS facility. Accidental discharge of waste products from the facilities is the sole responsibility of the community.

C) Construction contractors may enter onto the communities property to construct the project.

D) The location, construction, and management of the building will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream or body of water.

E) The agreement will contain the clause: "By signing this agreement, Chenega Bay waives sovereign immunity it may have for claims arising out of its activities under this agreement".

VII. Alternatives Including the Proposed Action

A. No Action Alternative. The No Action Alternative represents no change from the current situation. Oil waste will continue to be disposed of as it is now, with some of the material entering the local marine environment or entering the local landfill. At present, federal and state law requires that oil be disposed of in an environmentally safe manner. Most of the towns in the spill area lack waste facilities capable of properly and efficiently handling waste oil. Most of these are unlikely to receive these facilities without government funding.

In Chenega Bay, waste oil is not collected at this time. Oil is either disposed elsewhere or improperly placed in the Chenega Bay landfill.

With the absence of an adequate local treatment facility, the only way to comply with federal law is to ship unusable waste oil to a larger community, and for individuals to bear the inconvenience and cost of that transport.

B. The Proposed Action - EVOS Stations. The purpose of the EVOS Station in Chenega Bay is to handle used oil. The building is proposed to be an approximately 180 square foot steel frame structure. It will not have a permanent foundation. The new building will be mounted on above ground beams. The new building will be served with electricity. Collected and treated water will be disposed of into marine waters. The general public will not be allowed in the used oil and oily material processing building. Only qualified staff will be allowed to operate the equipment and process oily material.

The Chenega Bay EVOS Station will contain a 500 gallon used oil collection tank and an oily water separator to remove oil from bilge water.

The community will also have a portable bilge water pumping and storage system for removing oily bilge water.

The new EVOS Station building will be located adjacent to the new ferry dock and oil spill response facility. Appendix A and B show the proposed site location and building floor plan.

Bilge water will be collected in a portable 75 gallon unit. Water collected in the portable unit will be treated with a portable oily water separator. The treated clean water will be discharged into the marine waters.

A new used oil heating unit will be purchased and installed in a community building. Some of the oil collected in the new EVOS Station will be used to fuel this new heating unit.

Operation of the EVOS Station

Used oil would be collected and disposed of in a few different ways. Residents would carry oil in a small container to the EVOS stations for disposal. Residents would pour the oil into a 55 gallon drum that is marked as the used oil disposal drum. The collection drum would be located inside the EVOS station. A plastic drum funnel would be installed over the top of the designated collection drum. The used oil would be discharged into the drum funnel which drains into the drum. Any oil that is spilled during this process would be collected in a sump that is part of the EVOS station floor. As needed, on a periodic basis, the collection drum would be emptied. Used oil in the drum would be transferred to a 500 gallon storage tank located in the processing area of the EVOS Station. An electric drum pump would be used to transfer the oil. The processing room also has a floor sump to contain spills. The sump has a 830 gallon capacity and is therefore capable of containing not only a drum spill but also a spill from the 500 gallon storage tank.

Only oil products approved under Title 40, Part 279 would be approved for used oil collection. Some products would not be accepted as used oil products, such as; used oil that has been mixed with regulated hazardous waste, chlorinated solvents, antifreeze and soil contaminated with oil. All containers used in the process would be marked as containing "USED OIL".

Persons disposing of materials in the EVOS Station would fill out a form that includes their name, address, vessel, phone number, date, quantity of material disposed, source, and type of oil (motor, hydraulic, gear, diesel, etc.) or type of oily material (rags, sorbents, filters, etc.).

Oil collected in the 55 gallon collection drums as well as oil contained in the 500 gallon storage tank would be tested periodically to determine; 1) if it is on-specification used oil, or 2) if it is off-specification used oil. Oil would be tested to identify if it is on or off-specification oil per 40 CFR 279.11. Used oil collected in the community would be used for energy recovery and burned in a used oil furnace. Oil that has too low of a flash point is not acceptable for burning in a used oil furnace. If oil contained in the collection drum is found acceptable, it would be pumped into the 500 gallon storage tank. If oil contained

in the collection drum is found unacceptable, the oil would either be blended into the 500 gallon tank to bring it within specification or it would be stored onsite in an approved container and subsequently shipped to a waste disposal facility. There are two facilities in Anchorage that can accept and process this oily material. If oil in the 500 gallon tank is found to be "off-specification", it would be shipped to an Anchorage processor for disposal.

After the oil has time to settle in the 500 gallon tank, it would be pumped from the storage tank and into a clean 55 gallon drum for transportation to the community's used oil burner. Trained staff would be responsible for transferring and transporting the oil to the burner located elsewhere in the community. Once the drum reaches the burner area, oil would be pumped from the 55 gallon drum into a permanent fuel tank. A drum pump would be used to transfer the oil.

VIII. Environmental Consequences

A. No Action Alternative. As a result of the lack of adequate local facilities and the cost and inconvenience of transport, some waste oil in Chenega Bay is probably not disposed of in compliance with federal and state law. In spite of regulations and enforcement actions to the contrary, a substantial (but unknown) amount of this waste oil finds its way into the marine environment. This would not change under the no action alternative. Under the no action alternative, there would be no change from the current status.

The no action alternative would require that the Village continue its current practice of storing oil in large capacity, single wall tanks that do not have dual containment capabilities. In this case, the potential for an oil spill is higher with the no action alternative.

The no action alternative would require that some oily products be shipped out of the community for disposal. In this case, the potential for an oil spill is higher during transportation with the no action alternative. In addition, transporting the material elsewhere requires energy to move the product.

Under the no action alternative, boat owners have limited disposal alternatives, and may be reluctant to properly dispose of oily bilge water.

If the proposed facility is not built, there is a potential that oily bilge water will continue to be discharged into the Chenega Bay harbor. If it is not built, there is a possibility that the existing oil collection system will not have the capacity to accept used oil. Some of the oil destined for disposal may be disposed in an illegal manner, poured onto the ground or placed in the community landfill. As more boats enter and reside in the harbor, the discharge of oily bilge water could get worse over time.

Any decrease in local pollution would have the effect of decreasing the stress on injured

resources and services that rely on clean water, Those resources and services likely to benefit the most are those that feed in the intertidal or near shore waters in the vicinity of small boat harbors. Those resources most likely to benefit include harlequin ducks, black oystercatchers, sea otters, harbor seals, seabirds, shorebirds and marine mammals.

B. Proposed Action. The proposed action would decrease the amount of oil that finds its way into the marine environment. The amount of the decrease is unknown, but could be locally significant.

The decrease in local pollution is unlikely to have an area-wide effect. That is, the amount of the decrease in marine oil pollution is unlikely to be large enough to have a measurable effect on the area-wide population of a injured resource in the spill area. However, the decrease may have an important local effect. It may increase marine mammal or seabird use of habitat near a community, or increase a local population of an injured resource.

There is a potential for oil spills during the oil collection, treatment and disposal process. The village IRA Council would operate the facility in a manner to reduce this potential. They would also be responsible for cleaning up spills. Spills outside the EVOS Stations would be cleaned up immediately and in accordance with state regulations. Spills inside the EVOS Station would accumulate in the sump. This oil would be pumped back into the large storage tank. Most members of the community are very familiar with oil spill cleanup technology. Larger spills would be cleaned up with the emergency spill equipment that is stored in the community.

There is a possibility the 500 gallon tank would fill faster than the community can burn the used oil, i.e.: the community is collecting more used oil than it can use for energy recovery. The community has three options in this case: 1) purchase an additional dual wall oil storage tank and place it outside the EVOS facility, 2) add another used oil furnace in the community to increase the energy recovery capacity, and 3) ship the extra oil to one of the oil disposal facilities in Anchorage.

Oily bilge water would be collected from boats in the community. A portable tank and attached pump would be used for this purpose. Authorized community staff would operate the bilge pumping equipment. The boat's bilge water would be pumped into a wheel mounted 75 gallon holding tank. This operation would likely occur at the small boat harbor or at the ferry dock. The oily bilge water would be treated with a mobile oil/water separator also mounted on wheels. The separator is capable of treating water to less than 1 part per million (ppm) of hydrocarbons at a flow rate of 2 to 3 gallons per minute (gpm). The oily bilge water would be pumped through the separator and discharged back into the marine waters. The OILTRAP separator contains a settling container and a series of spin-on filters. Oil collected in the settling chamber would eventually be discharged into the 500 gallon storage tank at the EVOS Station. Over time, the filters would load-up with oil and become inoperative. They have a 15,000 gallon filtration capacity and are expected to be replaced every 2 to 4 years. When they

reach the end of their useful life, the used filters would be shipped to a proper disposal site.

IX. Other Disclosures.

Threatened, Endangered and Sensitive Species

A biological evaluation was completed as part of this environmental assessment. The United States Forest Service was contacted during this evaluation. There are no threatened or endangered plant species documented to occur in the Chenega Bay area areas (Duffy, 1993).

The only threatened or endangered animal species in the Chenega Bay area are the Humpback Whale (endangered), a common summer resident of the surrounding waters, Steller sea lion (threatened), a local resident of the surrounding waters, and the American Peregrine Falcon (endangered), a rare migrant in coastal wetland areas in Prince William Sound (West, 1993). The Humpback whales or Steller sea lions are not expected to be adversely affected by construction or operation of the proposed facility because the site would be located on previously filled and developed area near the new oil spill response dock and proper design, construction, and operation of the facility should result in little likelihood of oil getting into the nearshore marine waters . The American Peregrine Falcon would not be affected due to the short time period these birds would potentially be in the general area and the lack of habitat in the immediate area of the proposed site.

Sensitive species in the general area, as defined by the Forest Service, include only the Peale's Peregrine Falcon, a non-migratory coastal race of the Peregrine Falcon. This species occurs in small numbers throughout the sound but would not be expected to occur in the vicinity of the proposed project. Construction and operation of the proposed facility is not expected to adversely affect this species.

Several other species are classified as candidate species by the U.S. Fish and Wildlife Service and include the Harlequin Duck, Marbled Murrelet and Kittlitz's Murrelet. There is presently not enough data on this species to determine if they should be categorized as threatened or endangered. The construction of the proposed facility would not be expected to have any effect on these species since there is expected to be little chance of oil getting into the nearshore marine environment.

Adverse effects on threatened, endangered or sensitive species could potentially be reduced through a reduction in marine pollution related to better management of used oil and other waste products.

Cultural Resources

Section 106 of the National Historic Preservation Act requires that any activities proposed or authorized by the federal government be reviewed for their potential to

impact properties listed in or eligible for listing in the National Register of Historic Places. The Alaska Department of Natural Resources, Office of History and Archaeology, was consulted to meet the cultural resource review requirements under Section 106.

The facility is proposed to be located near the oil spill response facility in the newly developed dock area. The proposed site has been reviewed by the State Office of History and Archaeology and there are no known cultural resources on the site (Smith, personal communication, 1997). The State has confirmed that there is a low potential for discovery of additional resources on the site. If any are found during construction, all work would be stopped and the State Historic Preservation Officer (SHPO) would be contacted to determine the appropriate actions to be taken.

Coastal Management

The overall goal of the Alaska Coastal Zone Management Program is to achieve a proper balance between resource development and protection. Activities proposed within the coastal zone must be consistent with state standards adopted in Part 6 of Chapter 80 of the Alaska Administrative Code (6 AAC 80). Since Chenega Bay has not adopted a district plan, the state coastal management program regulates uses within the coastal area of Chenega Bay.

The proposed facilities are classified as a marine industrial use, since most of the wastes generated are expected to be from marine uses. This use would be considered to be "water-related", since it is not directly dependent on access to water, but which provides services directly associated with water-dependent uses. State coastal management policies require that coastal lands be reserved primarily for water dependent and water related uses, where there is significant competition for coastal lands. The proposed site in Chenega Bay is near the new oil spill response facility and dock. The proposed facilities will not displace other water dependent uses, but will complement them.
The proposed site is not located within an Area Meriting Special Attention (AMSA). Historic and archaeologic concerns are addressed above.

Subsistence

Subsistence harvests are very important in Chenega Bay's local economy and contribute substantially to the food supplies of local families, although the community is also tied into a cash economy (MMS, 1992). Subsistence resources of primary importance are associated with the marine and freshwater environments of the area, and the terrestrial environments along the coast. The proposed facility would be built in a previously developed area near the oil spill response dock and would not affect any areas used for gathering subsistence resources. There are no anadromous fish stream near the proposed site or any areas of major importance for subsistence fishing. Design, construction, and operation features of the proposed facility are expected to prevent impacts on adjacent

habitats or resources. Availability or access to the traditional subsistence resources would also not be affected.

Permits Required to Carry Out the Project.

The Alaska Department of Environmental Conservation (ADEC) has reviewed and approved of the Phase I Sound Waste Management Plan. Approval will be obtained from a number of local, state and federal agencies before Phase II construction begins.

A Chenega Bay IRA Council approval will be required.

A Coastal Questionnaire will be filled out and submitted to the Department of Governmental Coordination (DGC) for a review of the project's consistency with State coastal management regulations and the Coastal Management Program. An approval will be required from the ADEC for discharge of treated water from the oil water separator.

Final plans and specifications will be submitted to the State of Alaska Fire Marshall's office for review and approval.

X. Consulted Persons and Agencies

Pete Kompkoff, IRA Village Council, Chenega Bay
George Keeney, Director of Public Works, Cordova
Gary Kompkoff, IRA Village Council, Tatitlek
Bill Wilcox, Director of Public Works, Valdez
Stan Gilfillan, Solid Waste Manager, Valdez
Chris Overbeck, Village Council, Whittier
Jerry Durnil, Harbormaster, Whittier
John Fannin, Alyeska Pipeline Service Corporation
Chuck Totemoff, Chenega Bay Corporation
Mark Stahl, Chugach Alaska Corporation
S. Moorestead, Alaska Department of Fish &Game, Cordova
Dan Lawn, Alaska Department of Environmental Conservation, Juneau
David Wigglesworth, Alaska Department of Environmental Conservation, Anchorage
Tim Smith, Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage

XI. References

ADF&G, USFWS, NMFS, BLM, and USDA, Forest Service. 1994. Alaska's threatened and endangered species. Eds. Michelle Sydeman. 29p.

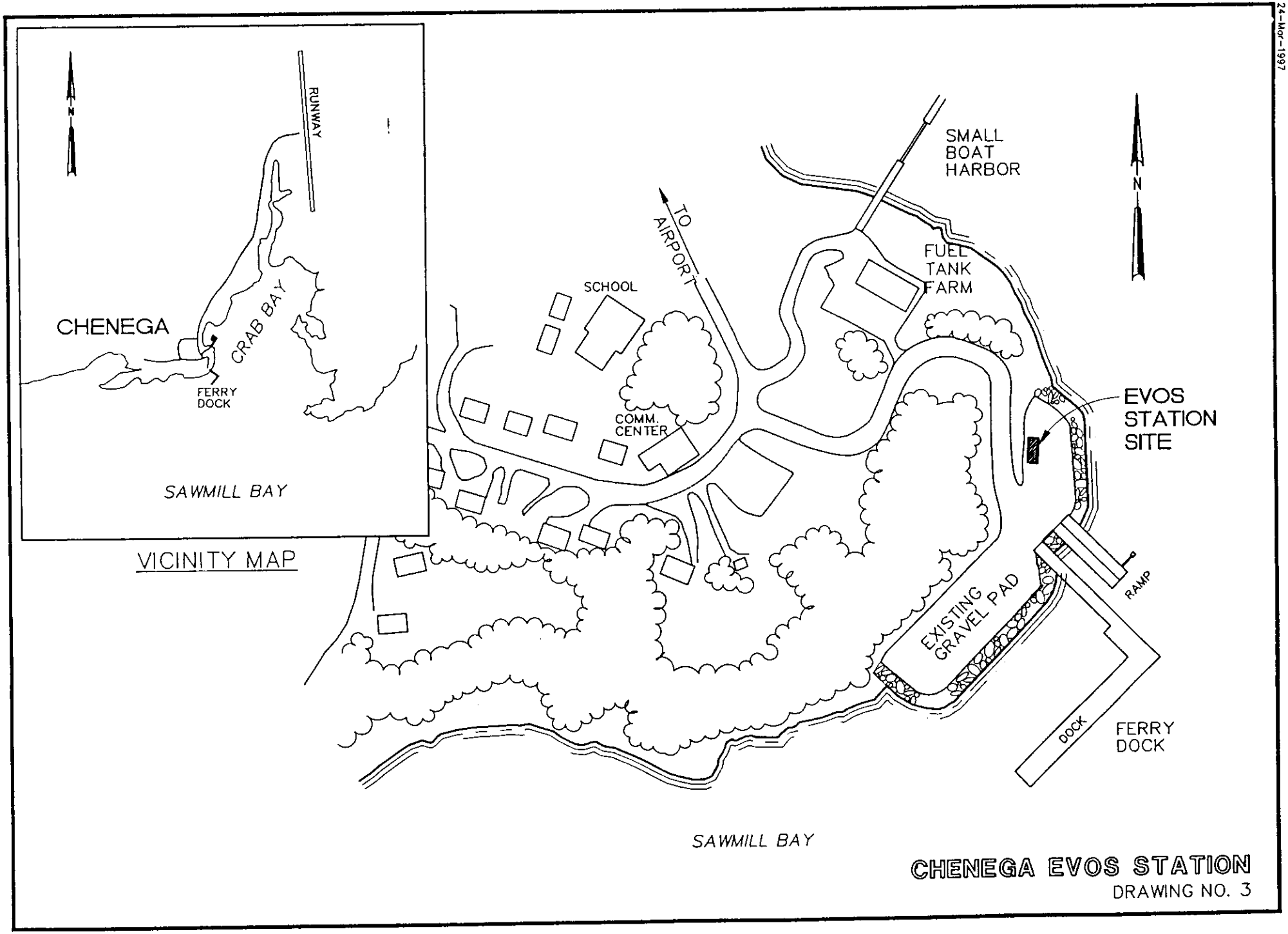
West, E.W. 1993. Rare vertebrate species of the Chugach and Tongass National Forests. Alaska Natural Heritage Program and the U.S. Department of Agriculture, Forest

Service, Region 10. Anchorage, AK. 253 p.

Duffy, M. 1993. Results of the 1993 rare plant survey, U.S. Forest Service, Alaska Region. Alaska Natural Heritage Program, Environment and Natural Resources Institute, University of Alaska, Anchorage, Anchorage, AK.

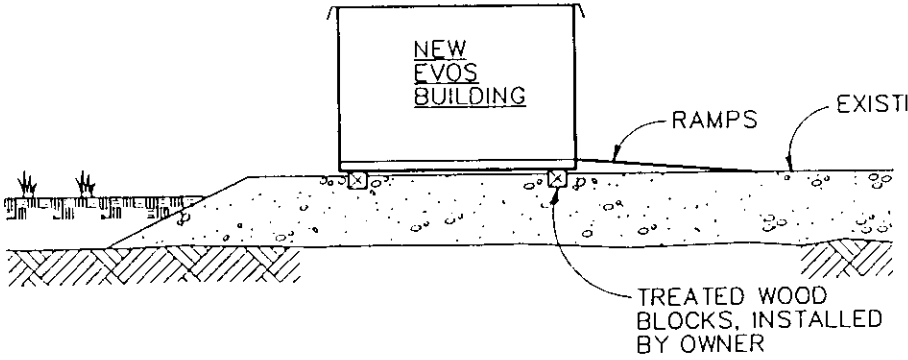
MMS, 1995. An investigation of the sociocultural consequences of Outer Continental Shelf Development in Alaska. U.S. Department of the Interior, Minerals Management Service, Alaska Outer Continental Shelf Region. OCS Study - MMS 95-010.

Smith, Tim. 1997. Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage, AK. Personal Communication.

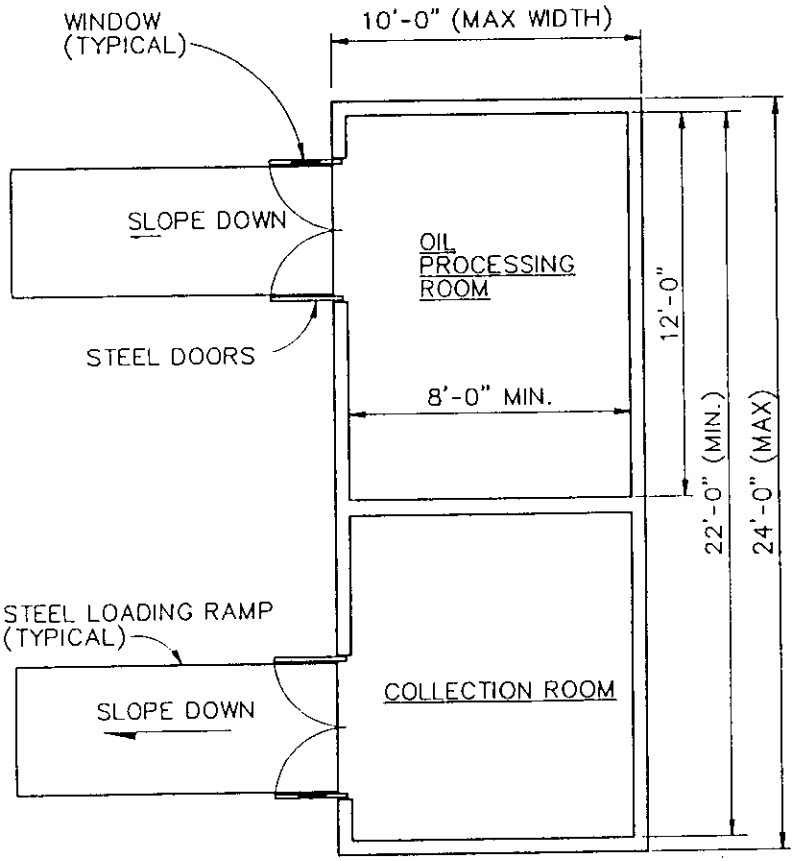


CHENEGA EVOS STATION

DRAWING NO. 3



TYPICAL FOUNDATION
NTS



NOTE:
MINIMUM 176 SQ. FT.
INTERIOR SPACE.

EVOS STATION BUILDING
NTS

CHENEGA AND TATITLEK EVOS STATION

DRAWING NO. 4

APPENDIX M

Environmental Assessment for Tatitlek, Alaska Environmental Operations and Used Oil Management System
April 27, 1997

Environmental Assessment
for
Tatitlek, Alaska
Environmental Operations and Used Oil Management System

***Exxon Valdez* Oil Spill Trustee Council Project # 97115**
May 27, 1997

Responsible Agency: USDA Forest Service
Alaska Region
709 West 9th Street; Room 543
Juneau, Alaska 99802

Cooperating Agency: Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, Alaska 99501

For Further Information Contact: Ken Holbrook
U.S. Forest Service
3301 C Street, Suite 300
Anchorage, Alaska 99503
(907)271-2819

Location of Action: Tatitlek, Alaska, in the *Exxon Valdez* Oil Spill Area

Environmental Assessment
Environmental Operations and Used Oil Management System
Tatitlek, Alaska

I. Proposed Action

The Exxon Valdez Oil Spill Trustee Council is proposing the construction of a new building in Tatitlek, for collecting used oil and oily bilge water. Construction is planned for the summer of 1997. Similar facilities are being proposed in Whittier, Valdez, Cordova and Chenega Bay. The proposed action constitutes Phase II of the Sound Waste Management Plan (SWMP) project.

The Sound Waste Management Plan project consists of two phases. During Phase I, a plan was completed that identified waste sources in Prince William Sound. Phase I is complete. The Phase I plan also identified proposed solutions, one of which was construction of a facility in Tatitlek. Phase II of the project, is currently underway and consists of design and construction of a new building and equipment in Tatitlek.

This project will create a waste oil collection and disposal facility and bilge water collection and disposal facility in Tatitlek, Alaska. A single building will be built in Tatitlek to house equipment and storage containers. The new building will be located adjacent to the Village's ferry dock, in an already developed area of Tatitlek. The building size is proposed to be approximately 180 square feet.

On August 29, 1996, the *Exxon Valdez* Oil Spill Trustee Council approved $1,167,900 for Project 97115/Implementation of the Sound Waste Management Plan: Environmental Operations and Used Oil Management System. To meet the requirements for EVOS funded projects, this document is being prepared demonstrating the project's compliance with the National Environmental Policy Act (NEPA). The United States Forest Service (USFS) NEPA process will be followed in demonstrating the project's compliance. Before construction can begin, the USFS must approve this project and find that the project has no significant impact. The project is not located on USFS land.

II. Purpose and Need for Action

The purpose and need of the proposed action is to reduce the amount of used oil and oily bilge water entering Prince William Sound, near Tatitlek. The new facility will be operated by the Village of Tatitlek. They will be responsible for seeing that the collection, containment, energy recovery and storing of used oil is performed in an approved manner. There has been extensive public involvement in the development and design of this project.

III. Technical Background

One method of helping to restore the resources and services injured by the 1989 *Exxon Valdez* Spill is to protect the injured resources and services from further stress. While protective actions themselves do not accelerate recovery, they help to ensure that natural recovery will proceed with a minimum of interference.

A wide range of waste streams are generated within Prince William Sound (PWS) communities. These include used oil generated from vehicles and vessels.

Communities currently face serious problems with managing these wastes, including inadequate facilities to properly manage used oil. As a result of these problems, pollution from these sources is entering PWS on an on-going basis.

The communities of Prince William Sound worked together to prepare a Sound Waste Management Plan (SWMP) to identify both the nature of wastes generated and potential solutions to manage those wastes.

The proposed facility will contain: waste oil collection day tanks for public disposal of oil; a waste oil storage tank; a bilge water storage tank; and an oil/water separator unit. The facility will have a built-in sump to contain spills and washdown water. Equipment to pump oily bilge water from boats will also be provided with the facility. Construction of the new facility is planned for the summer of 1997.

The waste streams generated within communities and which are entering PWS on an ongoing basis are affecting fish, wildlife, and human uses injured by the spill, including disruption of important habitat. Any decrease in local pollution would have the effect of decreasing the stress on injured fish and wildlife that rely on clean water. The fish and wildlife likely to benefit the most are those that feed in the intertidal or near-shore waters in the vicinity of community waterfronts and small boat harbors. The services most likely to benefit are subsistence and recreation, both of which are adversely affected by marine pollution and would benefit from pollution reduction.

Chronic pollution from community sources is believed to have significant adverse effects on the marine environment: refined petroleum products are very toxic to fish and wildlife; and the cumulative effects of chronic marine pollution can substantially increase the stress on fish and wildlife resources, With regard to the mortality of seabirds, chronic marine pollution is believed to be at least as important as large-scale spills.

Implementation of the project will help assure that marine-generated oil pollution generated in the vicinity of Tatitlek does not further degrade the marine habitat of PWS. By assuring that wastes are properly handled and do not contaminate the marine environment, natural recovery of the resources and services can be enhanced.

IV. Issues and Concerns

No significant issues were identified during scoping for this project.

V. Public Involvement

During completion of the Sound Waste Management Plan (SWMP) in Phase I, there were numerous meetings with the public and with community representatives. The Sound Waste Management Plan was developed through a regional planning process coordinated by the Prince William Sound Economic Development Council (PWSEDC). Public officials and private sector representatives from each of the PWS communities met monthly over the course of a year to develop the SWMP Plan.

During this process, the SWMP Committee was formed. It consists of 12 individuals from the five communities, ADEC and the private sector. This committee will continue to function in Phase II and provide valuable input into how the buildings will look and be operated.

When Phase II of this project was presented to the Exxon Valdez Oil Spill Trustee Council for funding during April, 1996 the public was given an opportunity to comment on the proposal. No comments were received.

Phase II of this project is currently underway. During completion of Phase II of this project, which is implementation of design and construction, two meetings were held with the SWMP committee to evaluate the design. These meetings were held on January 28, 1997 and March 17, 1997. A third meeting would be held in the fall of 1997, after construction is completed, to provide committee members and appropriate staff with training to operate the new equipment.

In Tatitlek, the IRA Council has approved the Environmental Operation Station (EVOS Station) site.

VI. Community Responsibility

As part of this project, Tatitlek will be required to document that they are prepared to accept responsibility of operation of the new facilities. Tatitlek will provide a legally binding, notarized Letter of Agreement. This agreement must be signed by an executive officer of the community. The agreement will contain, at a minimum, the following conditions:

A) The community will obtain all titles, easements and permits necessary to provide clear title and authority to construct and maintain the proposed projects.

B) The community will adopt a resolution requesting this project and agreeing to accept ownership and full responsibility for operation, management and maintenance of the

EVOS facility. Accidental discharge of waste products from the facilities is the sole responsibility of the community.

C) Construction contractors may enter onto the communities property to construct the project.

D) The location, construction, and management of the building will be such that in the event of a spill or accident, the waste product cannot enter a gully, stream or body of water.

E) The agreement will contain the clause: "By signing this agreement, Tatitlek waives sovereign immunity it may have for claims arising out of its activities under this agreement".

VII. Alternatives Including the Proposed Action

A. No Action Alternative. The No Action Alternative represents no change from the current situation. Oil waste will continue to be disposed of as it is now, with some of the material entering the local marine environment or entering the local landfill. At present, federal and state law requires that oil be disposed of in an environmentally safe manner. Most of the towns in the spill area lack waste facilities capable of properly and efficiently handling waste oil. Most of these are unlikely to receive these facilities without government funding.

In Tatitlek, waste oil is not collected at this time. Oil is either disposed elsewhere or improperly placed in the Tatitlek landfill.

With the absence of an adequate local treatment facility, the only way to comply with federal law is to ship unusable waste oil to a larger community, and for individuals to bear the inconvenience and cost of that transport.

B. The Proposed Action - EVOS Stations. The purpose of the EVOS Station in Tatitlek is to handle used oil. The building is proposed to be an approximately 180 square foot steel frame structure. It will not have a permanent foundation. The new building will be mounted on above ground beams. The new building will be served with electricity. Collected and treated water will be disposed of into marine waters. The general public will not be allowed in the used oil and oily material processing building. Only qualified staff will be allowed to operate the equipment and process oily material.

The Tatitlek EVOS Station will contain a 500 gallon used oil collection tank and an oily water separator to remove oil from bilge water.

The community will also have a portable bilge water pumping and storage system for removing oily bilge water.

The new EVOS Station building will be located adjacent to the new ferry dock and oil spill response facility. Appendix A and B show the proposed site location and building floor plan.

Bilge water will be collected in a portable 75 gallon unit. Water collected in the portable unit will be treated with a portable oily water separator. The treated clean water will be discharged into the marine waters.

A new used oil heating unit will be purchased and installed in a community building. Some of the oil collected in the new EVOS Station will be used to fuel this new heating unit.

Operation of the EVOS Station

Used oil would be collected and disposed of in a few different ways. Residents would carry oil in a small container to the EVOS stations for disposal. Residents would pour the oil into a 55 gallon drum that is marked as the used oil disposal drum. The collection drum would be located inside the EVOS station. A plastic drum funnel would be installed over the top of the designated collection drum. The used oil would be discharged into the drum funnel which drains into the drum. Any oil that is spilled during this process would be collected in a sump that is part of the EVOS station floor. As needed, on a periodic basis, the collection drum would be emptied. Used oil in the drum would be transferred to a 500 gallon storage tank located in the processing area of the EVOS Station. An electric drum pump would be used to transfer the oil. The processing room also has a floor sump to contain spills. The sump has a 830 gallon capacity and is therefore capable of containing not only a drum spill but also a spill from the 500 gallon storage tank.

Only oil products approved under Title 40, Part 279 would be approved for used oil collection. Some products would not be accepted as used oil products, such as; used oil that has been mixed with regulated hazardous waste, chlorinated solvents, antifreeze and soil contaminated with oil. All containers used in the process would be marked as containing "USED OIL".

Persons disposing of materials in the EVOS Station would fill out a form that includes their name, address, vessel, phone number, date, quantity of material disposed, source, and type of oil (motor, hydraulic, gear, diesel, etc.) or type of oily material (rags, sorbents, filters, etc.).

Oil collected in the 55 gallon collection drums as well as oil contained in the 500 gallon storage tank would be tested periodically to determine; 1) if it is on-specification used oil, or 2) if it is off-specification used oil. Oil would be tested to identify if it is on or off-specification oil per 40 CFR 279.11. Used oil collected in the community would be used for energy recovery and burned in a used oil furnace. Oil that has too low of a flash point is not acceptable for burning in a used oil furnace. If oil contained in the collection drum is found acceptable, it would be pumped into the 500 gallon storage tank. If oil contained

in the collection drum is found unacceptable, the oil would either be blended into the 500 gallon tank to bring it within specification or it would be stored onsite in an approved container and subsequently shipped to a waste disposal facility. There are two facilities in Anchorage that can accept and process this oily material. If oil in the 500 gallon tank is found to be "off-specification", it would be shipped to an Anchorage processor for disposal.

After the oil has time to settle in the 500 gallon tank, it would be pumped from the storage tank and into a clean 55 gallon drum for transportation to the community's used oil burner. Trained staff would be responsible for transferring and transporting the oil to the burner located elsewhere in the community. Once the drum reaches the burner area, oil would be pumped from the 55 gallon drum into a permanent fuel tank. A drum pump would be used to transfer the oil.

VIII. Environmental Consequences

A. No Action Alternative. As a result of the lack of adequate local facilities and the cost and inconvenience of transport, some waste oil in Tatitlek is probably not disposed of in compliance with federal and state law. In spite of regulations and enforcement actions to the contrary, a substantial (but unknown) amount of this waste oil finds its way into the marine environment. This would not change under the no action alternative. Under the no action alternative, there would be no change from the current status.

The no action alternative would require that the Village continue its current practice of storing oil in large capacity, single wall tanks that do not have dual containment capabilities. In this case, the potential for an oil spill is higher with the no action alternative.

The no action alternative would require that some oily products be shipped out of the community for disposal. In this case, the potential for an oil spill is higher during transportation with the no action alternative. In addition, transporting the material elsewhere requires energy to move the product.

Under the no action alternative, boat owners have limited disposal alternatives, and may be reluctant to properly dispose of oily bilge water.

If the proposed facility is not built, there is a potential that oily bilge water will continue to be discharged into the Tatitlek harbor. If it is not built, there is a possibility that the existing oil collection system will not have the capacity to accept used oil. Some of the oil destined for disposal may be disposed in an illegal manner, poured onto the ground or placed in the community landfill. As more boats enter and reside in the harbor, the discharge of oily bilge water could get worse over time.

Any decrease in local pollution would have the effect of decreasing the stress on injured resources and services that rely on clean water, Those resources and services likely to

benefit the most are those that feed in the intertidal or near shore waters in the vicinity of small boat harbors. Those resources most likely to benefit include harlequin ducks, black oystercatchers, sea otters, harbor seals, seabirds, shorebirds and marine mammals.

B. Proposed Action. The proposed action would decrease the amount of oil that finds its way into the marine environment. The amount of the decrease is unknown, but could be locally significant.

The decrease in local pollution is unlikely to have an area-wide effect. That is, the amount of the decrease in marine oil pollution is unlikely to be large enough to have a measurable effect on the area-wide population of a injured resource in the spill area. However, the decrease may have an important local effect. It may increase marine mammal or seabird use of habitat near a community, or increase a local population of an injured resource.

There is a potential for oil spills during the oil collection, treatment and disposal process. The village IRA Council would operate the facility in a manner to reduce this potential. They would also be responsible for cleaning up spills. Spills outside the EVOS Stations would be cleaned up immediately and in accordance with state regulations. Spills inside the EVOS Station would accumulate in the sump. This oil would be pumped back into the large storage tank. Most members of the community are very familiar with oil spill cleanup technology. Larger spills would be cleaned up with the emergency spill equipment that is stored in the community.

There is a possibility the 500 gallon tank would fill faster than the community can burn the used oil, i.e.: the community is collecting more used oil than it can use for energy recovery. The community has three options in this case: 1) purchase an additional dual wall oil storage tank and place it outside the EVOS facility, 2) add another used oil furnace in the community to increase the energy recovery capacity, and 3) ship the extra oil to one of the oil disposal facilities in Anchorage.

Oily bilge water would be collected from boats in the community. A portable tank and attached pump would be used for this purpose. Authorized community staff would operate the bilge pumping equipment. The boat's bilge water would be pumped into a wheel mounted 75 gallon holding tank. This operation would likely occur at the small boat harbor or at the ferry dock. The oily bilge water would be treated with a mobile oil/water separator also mounted on wheels. The separator is capable of treating water to less than 1 part per million (ppm) of hydrocarbons at a flow rate of 2 to 3 gallons per minute (gpm). The oily bilge water would be pumped through the separator and discharged back into the marine waters. The OILTRAP separator contains a settling container and a series of spin-on filters. Oil collected in the settling chamber would eventually be discharged into the 500 gallon storage tank at the EVOS Station. Over time, the filters would load-up with oil and become inoperative. They have a 15,000 gallon filtration capacity and are expected to be replaced every 2 to 4 years. When they

reach the end of their useful life, the used filters would be shipped to a proper disposal site.

IX. Other Disclosures.

Threatened, Endangered and Sensitive Species

A biological evaluation was completed as part of this environmental assessment. The United States Forest Service was contacted during this evaluation. There are no threatened or endangered plant species documented to occur in the Tatitlek area (Duffy, 1993). The proposed site is an unvegetated upland gravel fill area, therefore, would not pose a concern for any listed plant species.

The only threatened or endangered animal species in the Tatitlek are the Steller sea lion (threatened), a local resident of the coastal waters (West, 1993), and the American Peregrine Falcon (endangered), a rare migrant in coastal wetland areas in the Prince William Sound region (ADF&G, et al., 1984). Steller sea lions would not be affected by construction or operation of the proposed facility because the site is inland from the shoreline and would not affect the marine environment. The American Peregrine Falcon would not be expected to be affected due to the short time they are present in the general area and the lack of appropriate habitat in the immediate area of the facility.

Sensitive species in the general area include the Peale's Peregrine Falcon, a non-migratory coastal race of the Peregrine Falcon (ADF&G, et al., 1984). This species nests in low numbers in on cliffs and bluffs around Prince William Sound but would not be expected to occur near the proposed site due to lack of appropriate habitat. No eagle nests have been documented at the site. However, they do visit or fly through the area on occasion.

Adverse effects on threatened, endangered or sensitive species could potentially be reduced through a reduction in marine pollution related to better management of used oil and other waste products.

Cultural Resources

Section 106 of the National Historic Preservation Act requires that any activities proposed or authorized by the federal government be reviewed for their potential to impact properties listed in or eligible for listing in the National Register of Historic Places. The Alaska Department of Natural Resources, Office of History and Archaeology, was consulted to meet the cultural resource review requirements under Section 106.

Construction and operation of the new facility is not expected to have an adverse effect on cultural resources. The facility is proposed to be co-located with the Oil Spill Response facility at the new dock located south of the community. The proposed site has been reviewed by the State Office of History and Archaeology. The area was surveyed

prior to development of the adjacent oil spill response facility and dock and therefore there is a low potential for the inadvertent discovery of cultural resources on the site (Smith, personal communication, 1997). In the unlikely event that any cultural resources are found during construction, all work would be stopped and the State Historic Preservation Officer (SHPO) would be contacted to determine the appropriate actions to be taken.

Coastal Management

The overall goal of the Alaska Coastal Zone Management Program is to achieve a proper balance between resource development and protection. Activities proposed within the coastal zone must be consistent with state standards adopted in Part 6 of Chapter 80 of the Alaska Administrative Code (6 AAC 80). Since Tatitlek has not adopted a district plan, the state coastal management program regulates uses within the coastal area of Tatitlek.

The proposed facility is classified as a marine industrial use, since most of the wastes generated are expected to be from marine uses. This use would be considered to be "water-related", since it is not directly dependent on access to water, but which provides services directly associated with water-dependent uses. State coastal management policies require that coastal lands be reserved primarily for water dependent and water related uses, where there is significant competition for coastal lands.

The proposed site in Tatitlek is adjacent to the recently completed oil spill response facility. The proposed facility will not displace other water dependent uses, but will complement them.

The proposed site is not located within an Area Meriting Special Attention (AMSA) and is not located within a geophysical hazard area. Historic and archaeologic concerns were addressed as described above.

Subsistence

Subsistence harvests are important in the Tatitlek local economy and contribute substantially to the food supplies of local families (MMS, 1992). Subsistence resources of primary importance are associated with the marine and freshwater environments of the area, and to a lesser extent the terrestrial environments. The proposed facility would be built on an upland gravel fill area and would not affect any areas used for gathering subsistence resources. The site is not within the drainage of any anadromous fish stream or near any sites used for subsistence hunting or fishing. Design and operation features of the proposed facility would be expected to prevent adverse impacts on adjacent areas. The reduction in improper disposal of wastes may result in a reduction of potential adverse effects on subsistence resources in the area.

Long-Term Productivity and Short-Term Uses

There are no actions associated with the alternatives which sacrifice long-term productivity or short-term uses of the human environment. There would be no irreversible or irretrievable impacts to soils or other resources in the area as a result of implementing the preferred alternative. There would be no effect on consumers except for the greater convenience and lower cost of being able to legally dispose of waste oil without shipping it outside their community. There would be no effect on minority groups or women, or civil rights programs in general. There will be no effect on prime farmland, forestland, or rangeland.

Permits Required to Carry Out the Project.

The Alaska Department of Environmental Conservation (ADEC) has reviewed and approved of the Phase I Sound Waste Management Plan. Approval will be obtained from a number of local, state and federal agencies before Phase II construction begins.

A Tatitlek IRA Council approval will be required.

A Coastal Questionnaire will be filled out and submitted to the Department of Governmental Coordination (DGC) for a review of the project's consistency with State coastal management regulations and the Coastal Management Program. An approval will be required from the ADEC for discharge of treated water from the oil water separator.

Final plans and specifications will be submitted to the State of Alaska Fire Marshall's office for review and approval.

X. Consulted Persons and Agencies

Pete Kompkoff, IRA Village Council, Chenega Bay
George Keeney, Director of Public Works, Cordova
Gary Kompkoff, IRA Village Council, Tatitlek
Bill Wilcox, Director of Public Works, Valdez
Stan Gilfillan, Solid Waste Manager, Valdez
Chris Overbeck, Village Council, Whittier
Jerry Durnil, Harbormaster, Whittier
John Fannin, Alyeska Pipeline Service Corporation
Chuck Totemoff, Chenega Corporation
Mark Stahl, Chugach Alaska Corporation
S. Moorestead, Alaska Department of Fish &Game, Cordova
Dan Lawn, Alaska Department of Environmental Conservation, Juneau
David Wigglesworth, Alaska Department of Environmental Conservation, Anchorage
Tim Smith, Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage

XI. References

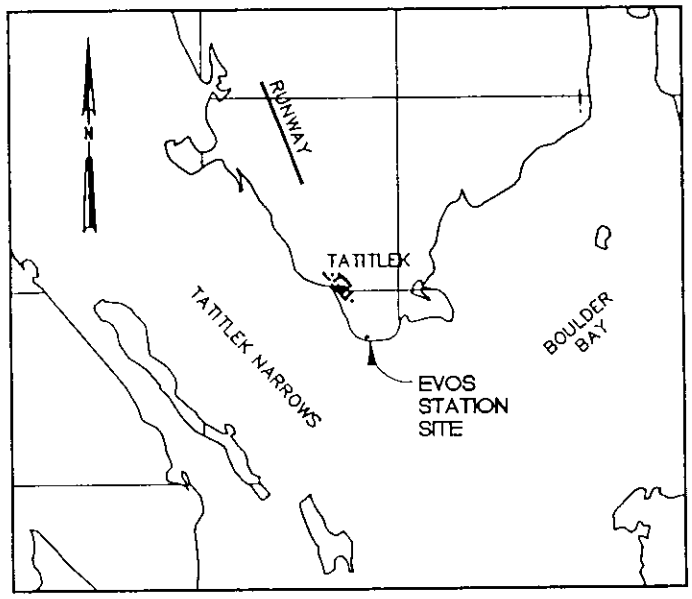
ADF&G, USFWS, NMFS, BLM, and USDA, Forest Service. 1994. Alaska's threatened and endangered species. Eds. Michelle Sydeman. 29p.

West, E.W. 1993. Rare vertebrate species of the Chugach and Tongass National Forests. Alaska Natural Heritage Program and the U.S. Department of Agriculture, Forest Service, Region 10. Anchorage, AK. 253 p.

Duffy, M. 1993. Results of the 1993 rare plant survey, U.S. Forest Service, Alaska Region. Alaska Natural Heritage Program, Environment and Natural Resources Institute, University of Alaska, Anchorage, Anchorage, AK.

MMS, 1995. An investigation of the sociocultural consequences of Outer Continental Shelf Development in Alaska. U.S. Department of the Interior, Minerals Management Service, Alaska Outer Continental Shelf Region. OCS Study - MMS 95-010.

Smith, Tim. 1997. Alaska Department of Natural Resources, Office of History and Archaeology, Anchorage, AK. Personal Communication.



VICINITY MAP

EVOS STATION SITE

FISH PROCESSOR BUILDING

BEACH

FERRY DOCK

RAMP

DOCK

EXISTING GRAVEL PAD

GRAVEL ROAD

TO TATITLEK COMMUNITY

TATITLEK NARROWS

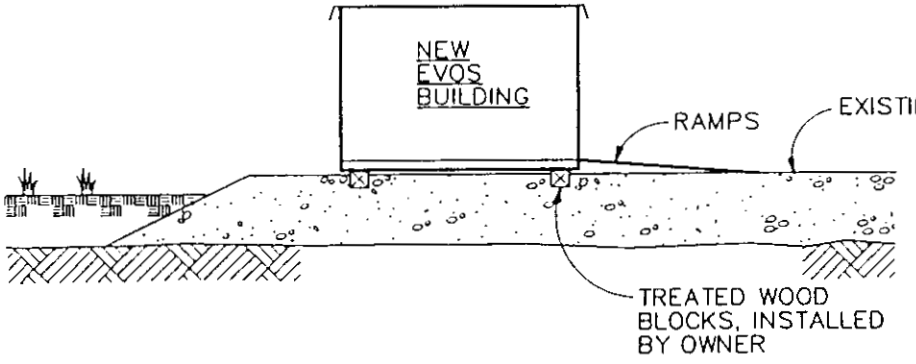
0 100 200 300

SCALE IN FEET

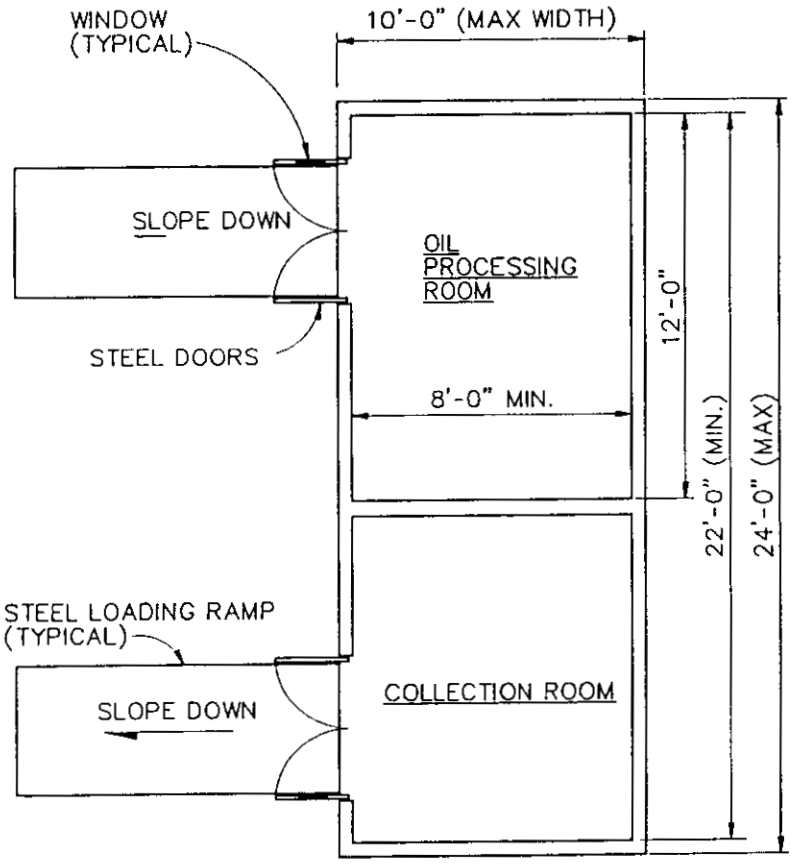
TATITLEK EVOS STATION

DRAWING NO. 2

24-Mar-1997



TYPICAL FOUNDATION
NTS



NOTE:
MINIMUM 176 SQ. FT.
INTERIOR SPACE.

EVOS STATION BUILDING
NTS

CHENEGA AND TATITLEK EVOS STATION

DRAWING NO. 4

APPENDIX N

Final Detailed Project Costs

Cordova EVOS Station Construction Budget								
6/16/98 10:30				Extended	% Work Complete	Funds	Funds	Percent of
Description	Unit	Quan	Unit Price	Total	as of 6/19/98	Paid	Remaining	Work Paid
Building								
Building	SF	1200	$152	$181,833	100	$181,833	$0	100
Change order no. 1	EA	1	$600	$600	100	$600	$0	100
Change order no. 2	EA	1	$5,024	$5,024	100	$5,024	$0	100
Change order no. 3	EA	1	$687	$687	100	$687	$0	100
Additional gravel fill	EA	190	$20	$3,715	100	$3,715	$0	100
Change order no. 4, vents, roof credit	EA	1	$3,086	$3,086	100	$3,086	$0	100
Contaminated soils sampling/analysis				$6,800	100	$6,800	$0	100
Change order no. 5, electrical	EA	1	$925	$925	100	$925	$0	100
Subtotal				$202,670	100	$202,670	$0	100
Equipment								
500 gallon storage tank w/fittings	EA	1	$4,143	$4,143	100	$4,143	$0	100
400 gallon storage tank w/fittings	EA	1	$4,043	$4,043	100	$4,043	$0	100
Oily water separator	EA	1	$2,597	$2,597	100	$2,597	$0	100
Absorbent oil/water separator	EA	1	$1,288	$1,288	100	$1,288	$0	100
500 gallon oily water buffer tank w/fittings	EA	1	$4,788	$4,788	100	$4,788	$0	100
Fire suppression	LS	1	$23,308	$23,308	100	$23,308	$0	100
Install oil tanks and fittings	LS	1	$7,494	$7,494	100	$7,494	$0	100
Signs for building	LS	1	$500	$500	100	$0	$500	0
Mobile oil pump and hoses	LS	1	$3,750	$3,750	100	$3,750	$0	100
Combustibility meter	LS	1	$2,614	$2,614	100	$2,614	$0	100
Bilge vacuum pump and tank on trailer	EA	1	$14,721	$14,721	100	$14,721	$0	100
Subtotal				$69,246	100	$68,746	$500	99
TOTAL				$271,916	100	$271,416	$500	100
Available Funding				$271,900				

Valdez EVOS Station Construction Budget								
6/16/98 10:30				Extended	% Work Complete	Funds	Funds	Percent of
Description	Unit	Quan	Unit Price	Total	as of 6/19/98	Paid	Remaining	Work Paid
Building								
Change order no. 1, wtr line	EA	1	$2,599	$2,599	100	$2,340	$259	90
Change O. no. 2, lights, roof	EA	1	$592	$592	100	$0	$592	0
Building	SF	800	$200	$160,000	100	$141,255	$18,745	88
				$163,191	100	$143,595	$19,596	88
Equipment								
500 gallon storage tank w/fittings	EA	1	$3,993	$3,993	100	$3,993	$0	100
400 gallon storage tank w/fittings	EA	1	$3,893	$3,893	100	$3,893	$0	100
Vent pipe installation and vent holes	EA	1	$2,880	$2,880	100	$2,880	$0	100
Vent and tank installation by Valdez	EA	1	$2,400	$2,400	100	$2,400	$0	100
Oily water separator	EA	1	$2,597	$2,597	100	$2,597	$0	100
Absorbent oil/water separator	EA	1	$1,183	$1,183	100	$1,183	$0	100
500 gallon oily water buffer tank w/fittings	EA	1	$4,638	$4,638	100	$4,638	$0	100
Fire suppression	LS	1	$24,472	$24,472	100	$0	$24,472	0
Signs for building	LS	1	$500	$500	100	$0	$500	0
Misc. containers and equipment	LS	1	$6,168	$6,168	100	$6,168	$0	100
Combustibility meter	LS	1	$2,614	$2,614	100	$2,614	$0	100
Mobile oil pump and hoses	LS	1	$3,750	$3,750	100	$3,750	$0	100
SPCC plan and O&M manual update	LS	1	$4,100	$4,100	100	$0	$4,100	0
Bilge vacuum pump and tank on trailer	EA	1	$13,065	$13,065	100	$13,065	$0	100
Security fence at oil collection facility	EA	1	$4,796	$4,796	100	$0	$4,796	0
Additional used oil burner, 235,000 BTU	EA	1	$6,996	$6,996	100	$6,996	$0	100
Subtotal				$88,045	100	$54,177	$33,868	62
TOTAL				$251,236	100	$197,772	$53,464	79
Available Funding				$251,100				

Whittier EVOS Station Construction Budget								
6/16/98 10:30				Extended	% Work Complete	Funds	Funds	Percent of
Description	Unit	Quan	Unit Price	Total	as of 6/19/98	Paid	Remaining	Work Paid
Building								
Building	SF	480	$302	$144,800	100	$144,800	$0	100
Change order, delete windows, painting				-$2,456	100	-$2,456	$0	100
Change order, delete interior painting				-$600	100	-$600	$0	100
Change order, add heater auto shutoff				$437	100	$437	$0	100
Change order, roof credit, add fan switch				-$1,050	100	-$1,050	$0	100
Subtotal				$141,131	100	$141,131	$0	100
Equipment								
Oily water separator	EA	1	$2,597	$2,597	100	$2,597	$0	100
Absorbent oil/water separator	EA	1	$1,178	$1,178	100	$1,178	$0	100
500 gallon oily water buffer tank w/fittings	EA	1	$4,688	$4,688	100	$4,688	$0	100
Vent pipe installation by Palmerco	EA	1	$2,386	$2,386	100	$2,386	$0	100
Oil collection equipment	EA	1	$3,490	$3,490	100	$3,490	$0	100
Bilge vacuum pump and tank on trailer	EA	1	$13,085	$13,085	100	$13,085	$0	100
Fire suppression	LS	1	$14,522	$14,522	100	$14,522	$0	100
Signs for building	LS	1	$500	$500	100	$0	$500	0
Electrical service connection to building	LS	1	$2,216	$2,216	100	$2,216	$0	100
400 gallon used oil storage tank w/fittings	EA	1	$3,943	$3,943	100	$3,943	$0	100
Combustibility meter	EA	1	$2,614	$2,614	100	$2,614	$0	100
Oil transfer pump	EA	1	$2,600	$2,600	100	$2,600	$0	100
Oily material burner	EA	1	$3,050	$3,050	100	$3,050	$0	100
Subtotal				$56,869	100	$56,369	$500	99
TOTAL				$198,000	100	$197,500	$500	99
Available Funding				$198,200				

Chenega EVOS Station Construction Cost								
6/16/98 10:30				Extended	% Work Complete	Funds	Funds	Percent of
Description	Unit	Quan	Unit Price	Total	as of 6/19/98	Paid	Remaining	Work Paid
Building								
Shipping to Whittier	LS	1	$4,745	$4,745	100	$4,745	$0	100
Shipping to Chenega	LS	1	$3,571	$3,571	100	$3,571	$0	100
Prep & set building	LS	1	$3,000	$3,000	100	$1,000	$2,000	33
Fire suppression approval and start	LS	1	$600	$600	100	$600	$0	100
Prefabricated 9' X 24' steel building	SF	200	$175	$35,020	100	$35,020	$0	100
Subtotal				$46,936	100	$44,936	$2,000	96
Equipment								
470 gallon storage tank w/fittings	EA	1	$3,106	$3,106	100	$3,106	$0	100
Oily water separator	EA	1	$6,385	$6,385	100	$6,385	$0	100
Oil transfer pump	EA	1	$3,750	$3,750	100	$3,750	$0	100
Portable bilge water collection system	LS	1	$1,350	$1,350	100	$1,350	$0	100
Vent pipe and tank installation	LS	1	$3,000	$3,000	100	$3,000	$0	100
Electrical service	LS	1	$1,500	$1,500	100	$0	$1,500	0
125,000 BTU heater	EA	1	$5,201	$5,201	100	$5,201	$0	100
Misc. containers, equipment, hoses	EA	1	$603	$603	100	$0	$603	0
signs	EA	1	$500	$500	100	$0	$500	0
Combustibility meter	EA	1	$2,614	$2,614	100	$2,614	$0	100
O&M manual	EA	1	$1,500	$1,500	100	$0	$1,500	0
Recycle bins	EA	2	$560	$1,120	100	$1,120	$0	100
Oily material burner	EA	1	$3,085	$3,085	100	$3,085	$0	100
Subtotal				$33,714	100	$29,611	$4,103	88
TOTAL				$80,650	100	$74,547	$6,103	92
Available Funding				$83,050				

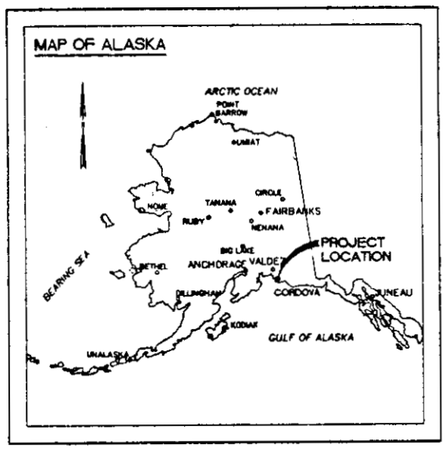
Tatitlek EVOS Station Construction Cost								
6/16/98 10:29				Extended	% Work Complete	Funds	Funds	Percent of
Description	Unit	Quan	Unit Price	Total	as of 6/19/98	Paid	Remaining	Work Paid
Building								
Shipping to Whittier	LS	1	$4,745	$4,745	100	$4,745	$0	100
Shipping to Tatitlek	LS	1	$3,571	$3,571	100	$3,571	$0	100
Prep & set building	LS	1	$3,000	$3,000	100	$1,500	$1,500	50
Fire suppression approval and start	LS	1	$600	$600	100	$600	$0	100
Prefabricated 9' X 24' steel building	SF	200	$175	$35,020	100	$35,020	$0	100
Subtotal				$46,936	100	$45,436	$1,500	97
Equipment								
470 gallon storage tank w/fittings	EA	1	3,106	$3,106	100	$3,106	$0	100
Oily water separator	EA	1	6,385	$6,385	100	$6,385	$0	100
Oil transfer pump	EA	1	3,750	$3,750	100	$3,750	$0	100
Portable bilge water collection system	LS	1	1,350	$1,350	100	$1,350	$0	100
Vent pipe and tank installation	LS	1	3,000	$3,000	100	$3,000	$0	100
Electrical service	LS	1	2,000	$2,000	100	$0	$2,000	0
125,000 BTU heater	EA	1	5,201	$5,201	100	$5,201	$0	100
Misc. containers, equipment, hoses	EA	1	2,097	$2,097	100	$0	$2,097	0
signs	EA	1	500	$500	100	$0	$500	0
Combustibility meter	EA	1	2,614	$2,614	100	$2,614	$0	100
O&M manual	EA	1	1,500	$1,500	100	$0	$1,500	0
Recycle bins	EA	2	560	$1,120	100	$1,120	$0	100
Oily material burner	EA	1	3,085	$3,085	100	$3,085	$0	100
Subtotal				$35,708	100	$29,611	$6,097	83
TOTAL				$82,644	100	$75,047	$7,597	91
Available Funding				$83,050				

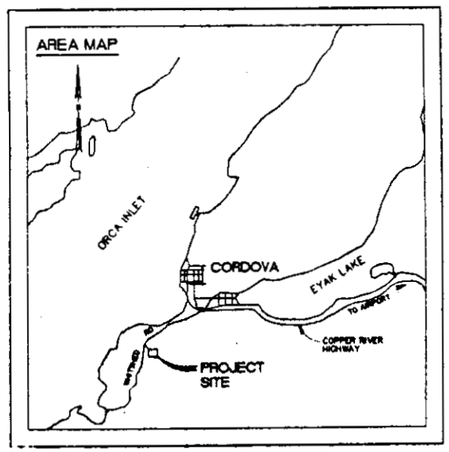
APPENDIX O

Cordova EVOS Station Asbuilt Drawings and Photo's

PRINCE WILLIAM SOUND
ECONOMIC DEVELOPMENT COUNCIL, INC.
CORDOVA EVOS STATION

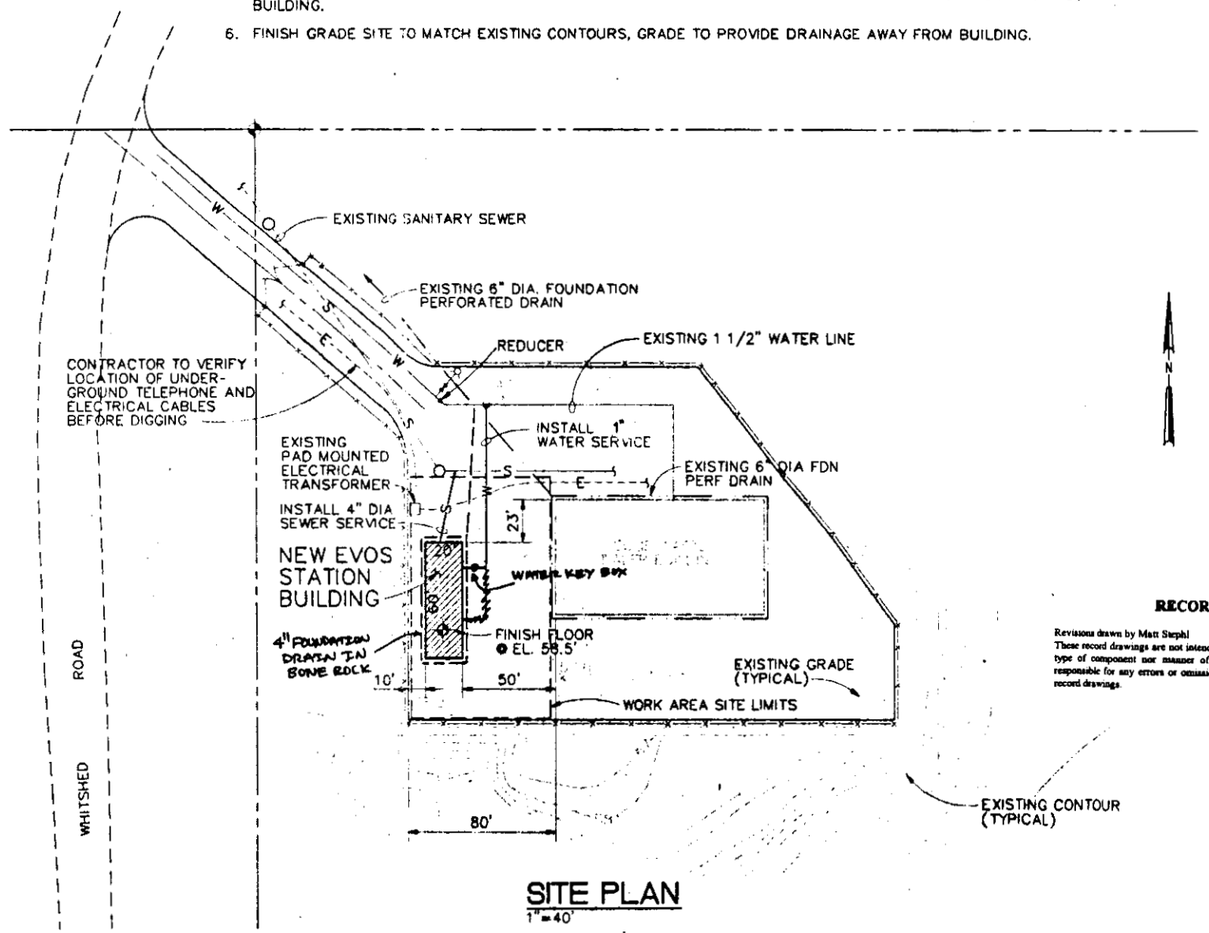
INDEX





NOTES:

1. CONTRACTOR SHALL MAINTAIN HIS WORK FOR THE NEW EVOS STATION EXCAVATION, FOUNDATION AND BUILDING TO WITHIN THE SITE WORK LIMITS SHOWN ON THE SITE PLAN. CONTRACTOR IS RESPONSIBLE FOR OBTAINING HIS OWN OFFSITE STAGING AREAS AS NECESSARY TO COMPLETE THE WORK.
2. THE LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE AND IT SHALL BE THE RESPONSIBLITY OF THE CONTRACTOR TO VERIFY THE TRUE AND CORRECT LOCATION PRIOR TO CONSTRUCTION TO AVOID DAMAGE OR DISTURBANCE.
3. WATER AND SEWER SERVICE SHALL BE INSTALLED PER CITY OF CORDOVA STANDARDS.
4. CONTRACTOR SHALL PLACE MIN 4" OF ROAD TOPPING MATERIAL OVER ALL AREAS AT BALER SITE DRIVING SURFACE THAT ARE EXCAVATED OR DAMAGED DURING CONSTRUCTION. ROAD TOPPING SHALL BE WELL GRADED 1-INCH MINUS ANGULAR MATERIAL WITH 3-10 PERCENT PASSING THE #200 SIEVE.
5. CONTRACTOR SHALL NOT BLOCK ACCESS FOR CITY CREWS AND EQUIPMENT TRAVELING TO AND FROM THE BALER BUILDING.
6. FINISH GRADE SITE TO MATCH EXISTING CONTOURS, GRADE TO PROVIDE DRAINAGE AWAY FROM BUILDING.



SITE PLAN
1"=40'

RECORD DRAWINGS

Revisions drawn by Matt Stephl Date: 4/2/98

These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.

PLOT SCALE

FILE NAME

Matt Stephl

Date Stamped 4-17-97

By	Revision	Date

STEPHL ENGINEERS
2525 Blueberry, Ste 203
Anchorage, Alaska 99503
(907) 274-7170
(907) 277-4722 FAX

USKH
Architecture • Engineering
Land Surveying • Planning
2515 'A' Street
Anchorage, Alaska 99503
(907) 276-4245
(907) 258-4653 FAX

Project:
CORDOVA EVOS STATION

PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr	M.S.
Drawn	VND
Drawn	
Checked	
Date	4-18-97

Sheet Contents:

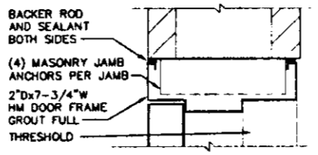
TITLE
SITE PLAN
INDEX

Sheet No.:

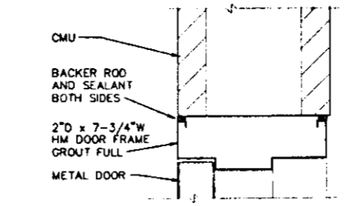
C1

STEPHL W.O. 9615

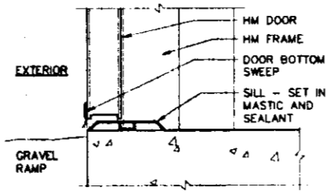
USKH W.O. E10604



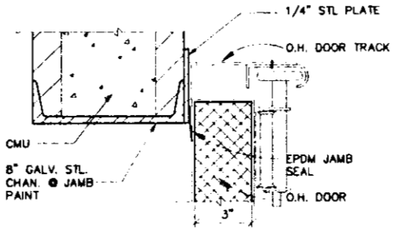
3/A1 DOOR JAMB
3" = 1'-0"



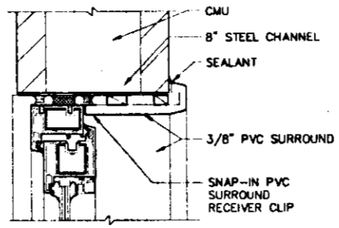
2/A1 DOOR HEAD
3" = 1'-0"



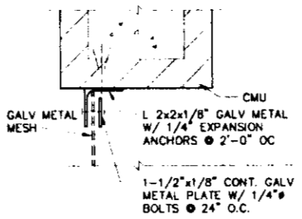
5/A1 DOOR SILL
3" = 1'-0"



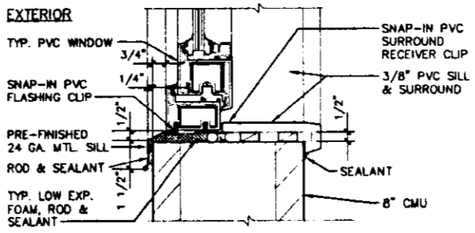
4/A1 O.H. DOOR JAMB
3" = 1'-0"



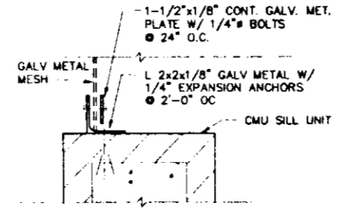
7/A1 WINDOW HEAD/JAMB
3" = 1'-0"



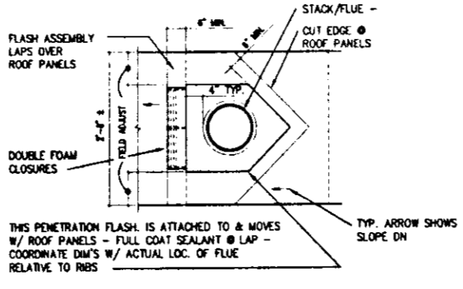
6/A1 JAMB/HEAD @ V-1
3" = 1'-0"



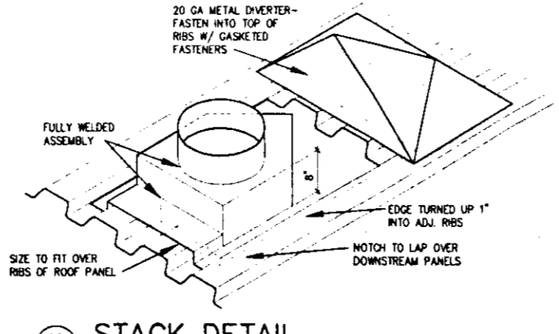
9/A1 WINDOW SILL
3" = 1'-0"



8/A1 SILL @ V-1
3" = 1'-0"



11/A1 STACK DETAIL
NTS



10/A1 STACK DETAIL
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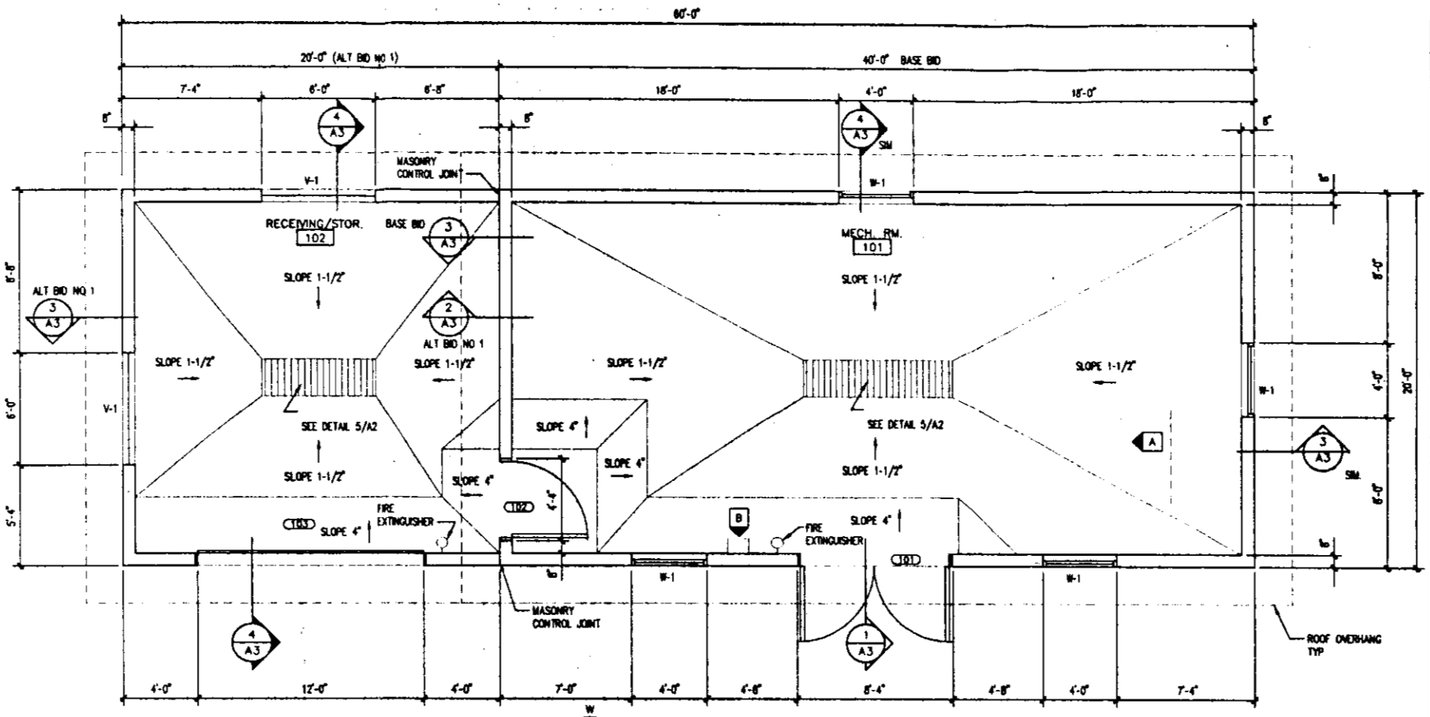


1/A1 FLOOR PLAN
1/4" = 1'-0"

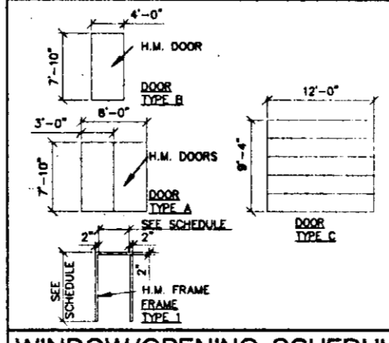
EQUIPMENT SCHEDULE

- A USED OIL BURNER : (SEE MECHANICAL)
- B EYE WASH: WALL MOUNTED MODEL 7500 AS MANUFACTURED BY HAWS, BERKELEY, CA

RECORD DRAWINGS

Revisions drawn by Matt Stephl Date 4/2/98
These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.

DOOR/FRAME TYPES



CODE REVIEW 1994 UBC

Classify the building:

1. Occupancy classification: Table 3-A
   - F1 Refuse Incineration Sec. 306 Quantity of used oil (B-B) is less than quantity allowed in Table 3-D (13,200 Gallons), therefore occupancy is not a H2 (hazardous) occupancy.
   - S1 Storage - combustible materials

   Table 3-B Required Separation in Buildings of Mixed Occupancy (Hours)

   F1 to S1 = N (no requirements for fire resistance)
2. Type of Construction: II-N
3. Location on property: Table 5-A F1 and S1; II N
   - Exterior walls, bearing = 1 hr < 20 ft.
   - Exterior walls, nonbearing = 1 hr < 20 ft.
   - Openings: Not permitted < 5 ft. Protected < 10 ft.
4. Allowable Floor Area: Table 5-B
   - F-1, S-1, II-N = 12,000 sq.ft.
   - Actual floor area: 1,200 sq.ft.

   Therefore, the actual area is less than the allowable area and the building complies. Area increases are not required and neither are area separation walls.
5. Allowable Height and number of stories: Table 5-B
   - F-1, S-1 II N Max height = 2 stories 55 ft.

   The building complies.

WINDOW/OPENING SCHEDULE

WINDOW NO.	SIZE	OPERABLE	REMARKS
W-1	4'-0"x3'-4"	YES	SEE DETAILS 7/A1 & 9/A1
V-1	6'-0"x3'-4"		SEE DETAILS 8/A1 & 8/A1

DOOR SCHEDULE

DOOR NO.	SIZE	DOOR TYPE	FRAME TYPE	HARDWARE GROUP	REMARKS
101	PAIR 4'-0"x7'-10"	A	1	HW-1	PAINT DOOR & FRAME - SEE DETAILS 2/A1, 3/A1, 5/A1
102	4'-0"x7'-10" (1 1/2-HR)	1 (1 1/2-HR)	1 (1 1/2-HR)	HW-2	PAINT DOOR & FRAME - SEE DETAILS 2/A1, 3/A1, 5/A1
103	OVERHEAD 12'-0"x9'-4"	C		HW-3	ALT BID NO 1 - PAINT FRAME SEE 4/A1 (DOOR PREFINISHED)

FINISH SCHEDULE

RM. NO.	RM NAME	FLOOR MATERIAL	FLOOR FINISH	BASE FINISH	WALLS NORTH FINISH	WALLS EAST FINISH	WALLS SOUTH FINISH	WALLS WEST FINISH	CEILING FINISH	REMARKS SPECIFICATIONS
101	MECH.	CONCRETE	BROOM	4" CONC.	CMU PAINT	CMU PAINT	CMU PAINT	CMU PAINT	METAL	
102	RECEIVING/STOR.	CONCRETE	BROOM	4" CONC.	CMU PAINT	CMU PAINT	CMU PAINT	CMU PAINT	METAL	ALT BID NO 1
103	OFFICE	CONCRETE	BROOM	4" CONC.	CMU PAINT	CMU PAINT	CMU PAINT	CMU PAINT	METAL	ALT BID NO 1

PLOT SCALE: 1=1

FILE NAME: 51064CA1.DWG

STATE OF ALASKA — JAMES A. HAN — #A-3560

Date Stamped: 4/18/97

By / Revision / Date

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Project:
ENVIRONMENTAL OPERATIONS STATIONS
CORDOVA
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.
Drawn	PCF
Drawn	RWP
Checked	JAH
Date	4-17-97

Sheet Contents:
FLOOR PLAN
FINISH SCHEDULE
DOOR SCHEDULE
WINDOW/OPENING SCHEDULE
DETAILS

Sheet No.:
A1

STEPHL W.O. 9615
USKH W.O. 510604

GENERAL:

This structure is designed in accordance with the 1994 Uniform Building Code. Contractor shall verify all existing conditions prior to beginning construction. All codes cited in the General Notes refer to the latest editions of those codes unless noted otherwise.

DESIGN LOADS:

Roof:	Snow	119 psf
Floor:	Floor	125 psf
Seismic:		Zone 4 Rw = 6 I = 1.00
Wind:		110 MPH I = 1.00

FOUNDATION:

Bearing pressures are 2,000 psf for sustained loads, 2,500 psf for total vertical design loads. Over-excavate minimum 1 foot below and 6" to all sides of footings.
Remove all organics and deleterious materials from beneath footings. Backfill with NFS material placed in 6 inch lifts, compacted to 95% maximum density (ASTM D1557).

Refer to the drawings for details for excavation, backfill and compaction.

CONCRETE:

Mixing and placing of concrete and selection of materials shall be in accordance with the UBC and ACI code 318. Normal weight concrete concrete shall have a minimum 28 day compressive strength of 3,000 psi. The concrete mix shall consist of coarse aggregate conforming to ASTM #67 (3/4"), Type I cement, a maximum water cement ratio of 0.45 and air entrainment of 5%. Admixtures may be used in strict conformance with the manufacturer's recommendations.

REINFORCING STEEL:

Reinforcing steel shall conform to ASTM A-615, Grade 60. All reinforcing steel shall be detailed, fabricated, and placed in accordance with ACI 318 and ACI 315. Held in place with cured concrete blocks or chairs. Minimum cover for reinforcing steel shall be:

Concrete placed on ground	3"
Formed surface	1-1/2"
Interior exposed surfaces	3/4"

For continuous reinforcing, use a minimum lap splice for:

Bar Size	3000 psi	4000 psi
#4	20"	20"
#5	20"	20"

MASONRY:

Concrete masonry Units shall conform to ASTM C-90, Grade N-1, f'm=1500 psi. Mortar shall conform to ASTM C-476; Grout, ASTM C-476, with slump = 8 to 10 inches. Provide non-shrink type admixture, i.e. Grout Aid, and mechanical vibration for consolidation. Provide bond beams with reinforcing steel and wire mesh in joints below bond beams at locations shown in details. Use wire positioning devices in mortar joints to maintain the position of horizontal and vertical reinforcing steel.

STRUCTURAL STEEL:

Structural steel shall be detailed, fabricated and erected in accordance with the American Institute of Steel Construction AISC Manual, 9th Edition. Structural Steel shall conform to ASTM A36, except Tube Steel Sections shall be ASTM A500, Grade B. Bolts shall be 3/4" diameter ASTM A325 unless noted otherwise in details. Anchor bolts to be ASTM A307. All welds to be 3/16" min. unless otherwise noted, by certified welders using electrodes conforming to ASTM A-233, Class E70. Apply one coat of primer paint conforming with SSPC, Steel Structure Painting Council to all members except those sections to be embedded in concrete. Provide shop drawings with details for review.

STEEL JOISTS:

Steel joists shall be detailed, fabricated and erected in accordance with the Steel Joist Institute Specifications. Joists shall be welded to the supports as indicated in the details. Continuous bridging shall be designed and installed per the manufacturer's recommendations. All bridging shall be securely fastened to joists and end walls. All joists shall be designed for a point load of 500 pounds to be applied at any location on the joist. This point load is in addition to the uniform loads indicated in the joist designations or shown in the loading diagrams.

STEEL DECK:

Steel Deck shall be detailed, fabricated, and erected in accordance with the Steel Deck Institute Specifications. Decking shall have the following minimum properties:

20 Gauge
I = 0.000 in4
S(+) = 0.000 in3
S(-) = 0.000 in3

Lay deck perpendicular to supports and continuous over (three) or more spans. Deck shall be welded to all supports with 3/4" puddle welds, minimum 7 per width of sheet, and at 12" o.c. along length of sheets. Side laps for roof deck shall be side seam welded at 12". Side laps for 1-1/2" composite steel deck with concrete topping to be button punched at 24 inches o.c. Follow manufacturer's recommendations for shoring before placing concrete. Manufacturer to provide steel flashing, collars, etc. as required for openings thru deck. Provide shop drawings with details for review. NOTE: ROOF DECK SCREWED IN PLACE, NOT WELDED.

SPECIAL INSPECTION:

The following items require special inspection during construction.

All concrete reinforcing placement shall be inspected prior to placing concrete.

All bolts installed in concrete shall be inspected prior to placing concrete.

All complete penetration welds performed in a fabricating shop or in the field shall be radiographically or ultrasonically tested.

All shop other than complete penetration welds shall be visually inspected.

All fillet welds made in the field shall be visually inspected.

Periodic inspections of roof and floor deck shall be performed.

All high strength bolting.

All concrete masonry construction shall be inspected, after the reinforcing steel has been placed prior to grouting and during grouting operations.

Field Water Test: contractor to fill floor with water to top of concrete curb. If water level drops more than 1/2" over 24 hour time period contractor shall repair floor and retest until floor meets requirements.

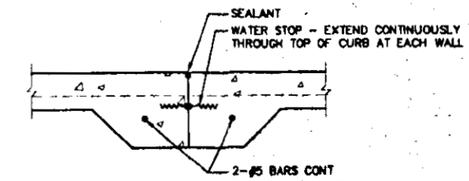
The Owner will provide inspections as required by the Uniform Building Code Sections 302 and 306 and as per Supplementary General Conditions.

1. During placement of reinforced or pneumatically placed concrete.
2. Inspection of reinforcing steel for conformance to approved shop and placement drawings and the construction documents.
3. Inspection of all anchor bolts including adhesive bolts installed in concrete.
4. Inspection of complete penetration structural welds.
5. Periodic inspection of single-pass fillet welds when stressed to less than 50 percent of allowable stresses, and floor and roof deck welding and welded studs.
6. Checking of welders' qualifications.
7. Verification of high-strength bolt tension.
8. Structural excavation, backfill and compaction.

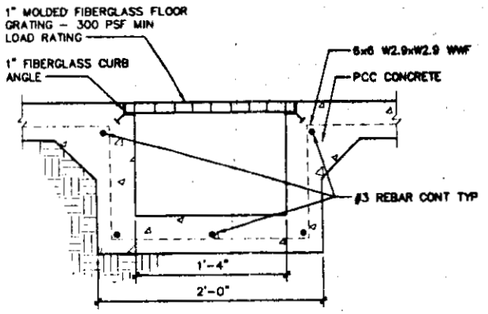
Special inspections do not relieve Contractor of testing required by the contract documents.

RECORD DRAWINGS

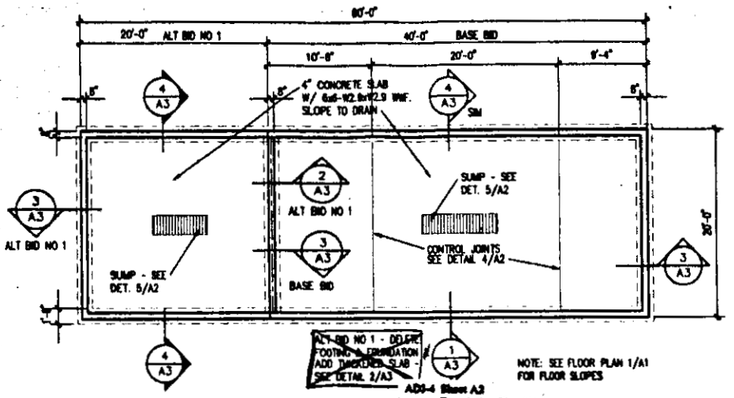
Revisions drawn by Matt Stephl Date: 4/2/98
These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.



4/A2 FLOOR CONTROL JOINT
1 1/2" = 1'-0"



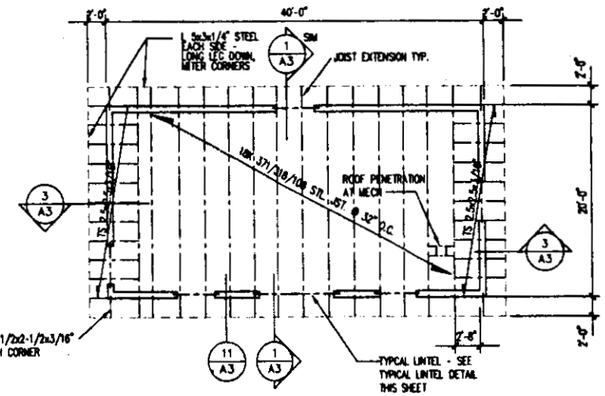
5/A2 SUMP DETAIL
1 1/2" = 1'-0"



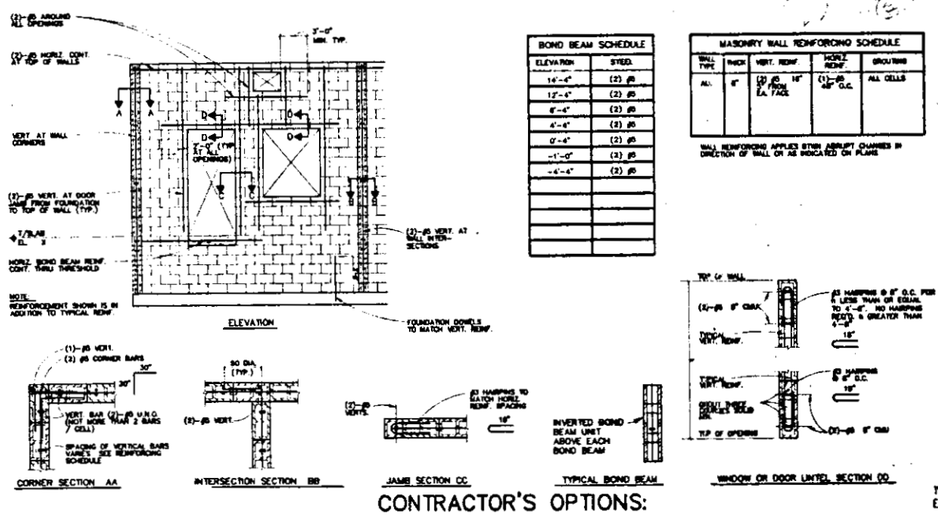
N 1/A2 FOUNDATION PLAN
1/8" = 1'-0"

Delete the following note in its entirety:

"ALT BID NO 1 - DELETE FOOTING & FOUNDATION & ADD THICKENED SLAB - SEE DETAIL 2/A3"



N 2/A2 ROOF FRAMING PLAN - BASE BID
1/8" = 1'-0"



BOND BEAM SCHEDULE

ELEVATION	STEEL
16'-0"	(2) #5
12'-0"	(2) #5
8'-0"	(2) #5
4'-0"	(2) #5
0'-0"	(2) #5
-1'-0"	(3) #5
-4'-0"	(2) #5

MASONRY WALL REINFORCING SCHEDULE

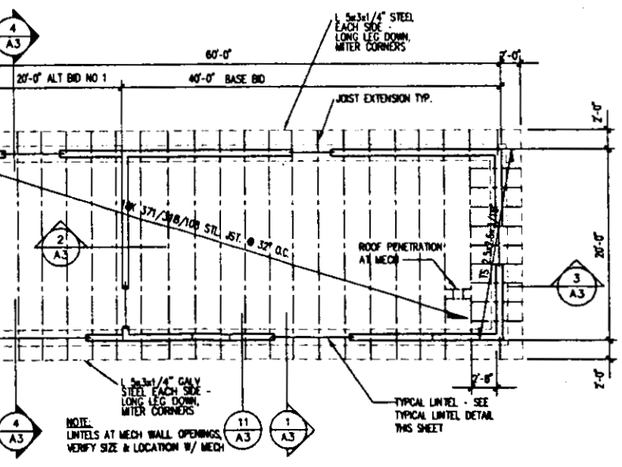
WALL TYPE	THICK	VERT. REINF	HORIZ REINF.	GROUTING
ALL	8"	(2) #5 16" FROM E.A. FACE	(1)-#5 48" O.C.	ALL CELLS

WALL REINFORCING APPLIES STARTING ABOVE FOOTING IN DIRECTION OF WALL OR AS INDICATED ON PLANS

CONTRACTOR'S OPTIONS:

NOTE:
CONTRACTOR MAY SUBSTITUTE 8" CONCRETE WALL AND/OR FOUNDATIONS REINFORCED W (1) #5 HORIZ. REBAR @18" OC & (1) #5 VERTICAL REBAR @ 16" OC IN LIEU OF 8" REINFORCED C.M.U. WALLS AND/OR FOUNDATIONS
ABU/UK FOURNIER HOMES

3/A2 TYPICAL CONCRETE MASONRY UNIT WALL DETAILS
N.T.S.



N 3/A2 ROOF FRAMING PLAN - ALT BID NO 1
1/8" = 1'-0"

PLOT SCALE: 1=1

FILE NAME: 510604A2.DWG

STATE OF ALASKA 4918 Bruce E. Hopper CE-7745 REGISTERED PROFESSIONAL ENGINEER

Date Stamped: 4/18/97

By

Revision

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Project:
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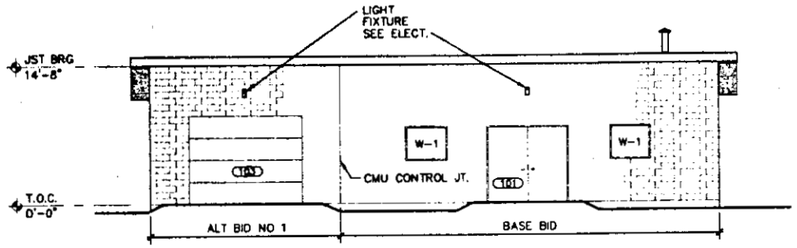
CORDOVA
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.
Drawn	PCF
Drawn	RWP
Checked	JAH
Date	4-17-97

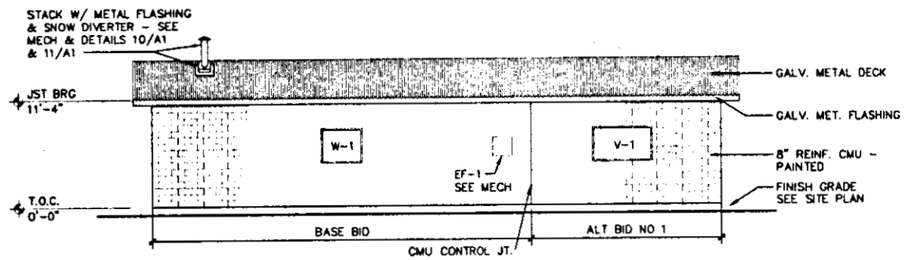
Sheet Contents:
FOUNDATION PLAN
ROOF FRAMING PLANS
NOTES AND DETAILS

Sheet No.:
A2

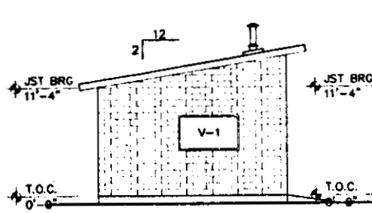
STEPHL W.O. 9615
USKH W.O. 510604



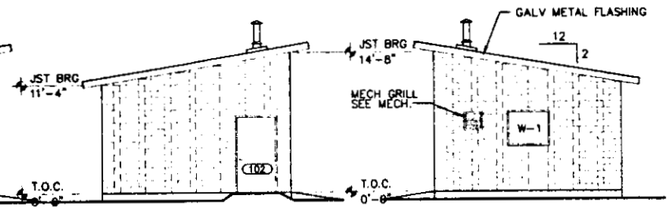
5 A3 EAST ELEVATION
1/8" = 1'-0"



6 A3 WEST ELEVATION
1/8" = 1'-0"

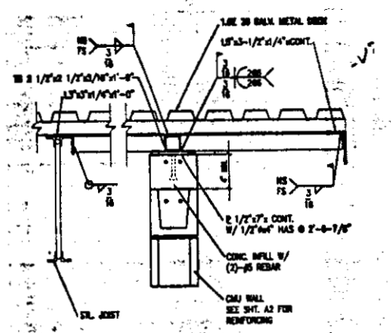


9 A3 SOUTH ELEVATION
1/8" = 1'-0" (ALT BID NO 1)

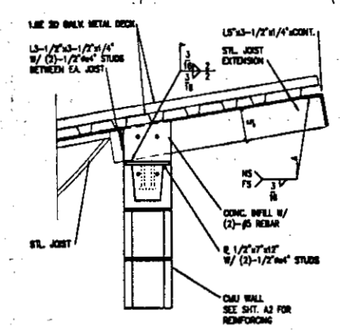


8 A3 SOUTH ELEVATION
1/8" = 1'-0" (BASE BID)

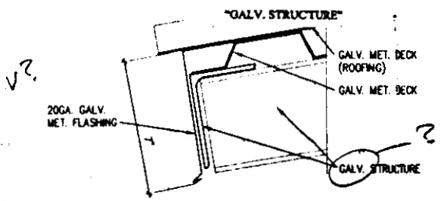
7 A3 NORTH ELEVA
1/8" = 1'-0"



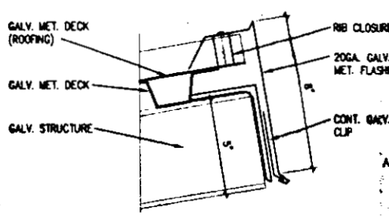
10 A3 DETAIL REVISED 5-14-97
1" = 1'-0"



11 A3 DETAIL REVISED 5-14-97
1" = 1'-0"



12 A3 FLASHING DETAIL
3" = 1'-0"

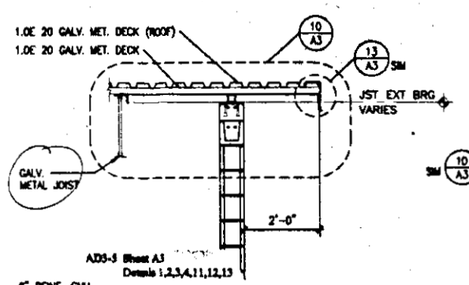


13 A3 FLASHING DETAIL

10 A3 DETAIL

11 A3 DETAIL

AD3-5 Sheet A3 Detail 13



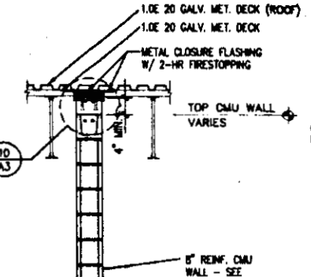
AD3-5 Sheet A3
Details 1,2,3,4,11,12,13

8" REINF. CMU WALL - SEE SHT. A2 FOR REINFORCING

In reference to the galvanized metal decking layer on underside (interior side) of roof:

Delete "1.0E 20 GALV. STL. DECK" and replace with "1-1/2-inch X 20 GA. GALVANIZED HSB 36 ACOUSTICAL METAL DECK".

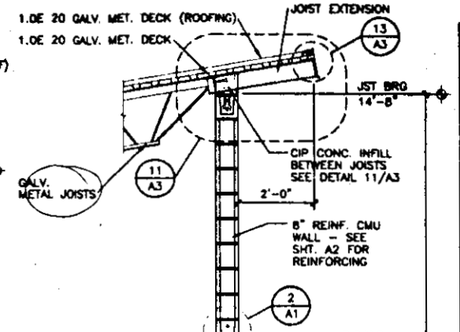
Note: the above note AD3-5 replaces Addendum No. 2 note AD3-8.



AD3-6 Sheet A3
Details 1,3,4

Delete all reference to metal joists that are galvanized.

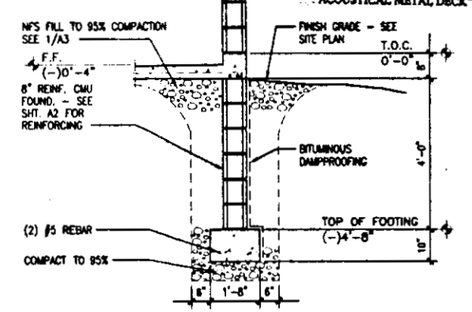
Galvanized joists will not be required. Painted metal joists will be required. The joists will be painted steel joists in accordance with Specification 05210 Steel Joists and Specification 09900 Painting. Joists shall receive one coat of primer and two coats of enamel paint that is compatible with the primer.



AD2-5 Sheet A3
Details 1,2,3,4,11,12,13

In reference to the galvanized metal decking layer on underside (interior side) of roof:

Delete "1.0E 20 GALV. STL. DECK" and replace with "1-1/2-inch X 20 GA. HSB 36 ACOUSTICAL METAL DECK".

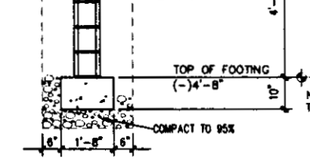


3 A3 WALL SECTION
1/2" = 1'-0"

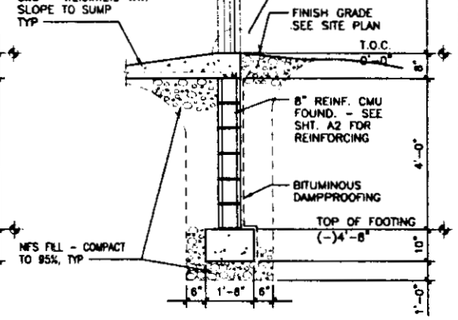
AD2-4 Sheet A3
Detail 12

Delete the following note that refers to the joist extension and uses angle iron structural steel:

"GALV. STRUCTURE"



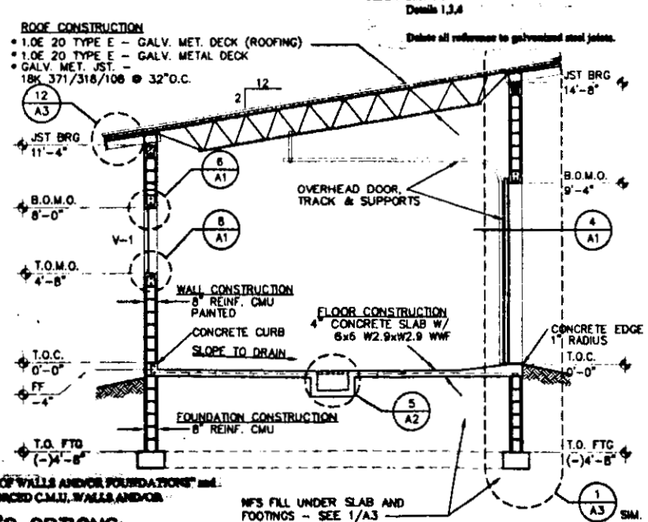
2 A3 WALL SECTION
1/2" = 1'-0" (ALT BID NO 1)



1 A3 WALL SECTION
1/2" = 1'-0"

AD2-6 Sheet A3
Details 1,3,4

Delete all reference to galvanized steel joists.



NFS FILL UNDER SLAB AND FOOTINGS - SEE 1/A3

AD1-12 Sheet A3
Detail 4/A3, Contractors option note
Delete the following words "...IN LIEU OF WALLS AND/OR FOUNDATIONS" and replace with "...IN LIEU OF 8" REINFORCED C.M.U. WALLS AND/OR

AD2-1 Sheet A3/5
CONTRACTOR'S OPTIONS: CTOR'S OPTIONS:

Delete the existing note and replace with the following note:

- CONTRACTOR MAY SUBSTITUTE 8" CONCRETE WALL AND/OR FOUNDATIONS REINFORCED W (1) #5 HORIZ. REBAR @18" OC & (1) #5 VERTICAL REBAR @ 16" OC IN LIEU OF 8" REINFORCED C.M.U. WALLS

4 A3 BUILDING SECTION

PLOT SCALE: 1=1

FILE NAME: 81064CS3.DWG

STATE OF ALASKA 49th JAMES A. HUETE #A-3569 REGISTERED PROFESSIONAL ARCHITECT

Date Stamped: 4/18/97

By / Revision / Date

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Project:
ENVIRONMENTAL OPERATIONS STATIONS
CORDOVA
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.	
Drawn	PCF	
Drawn	RWP	
Checked	JAH	
Date	4-17-97	

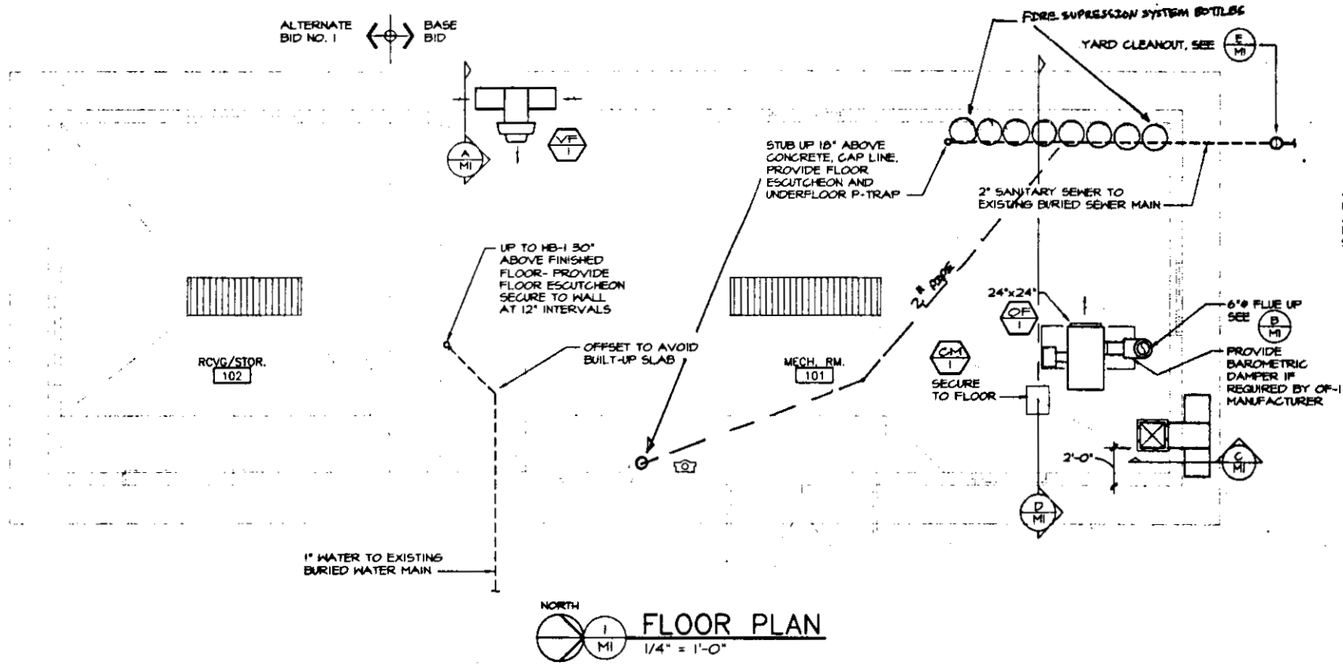
Sheet Contents:
BUILDING ELEVATIONS
BUILDING SECTION
WALL SECTIONS & DETAILS

RECORD DRAWINGS
Revisions drawn by Matt Stephl Date 4/2/98
These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.

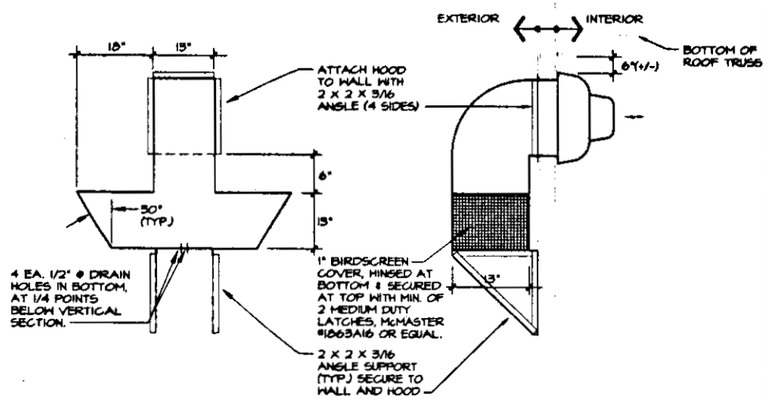
STATE OF ALASKA 49th Bruce E. Hoppe CE-7715 REGISTERED ENGINEER

Sheet No.:
A3

STEPHL W.O. 9615
UEH W.O. 510684

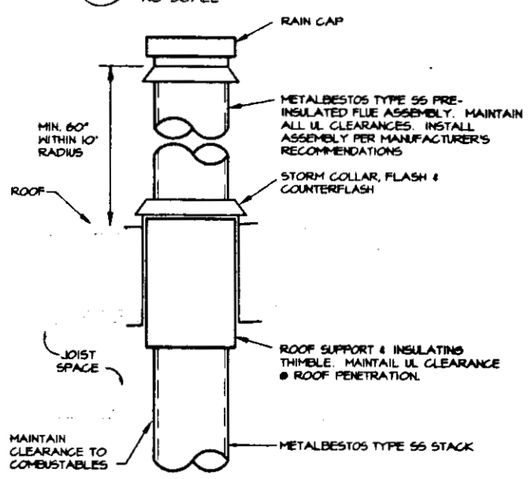


FLOOR PLAN
1/4" = 1'-0"

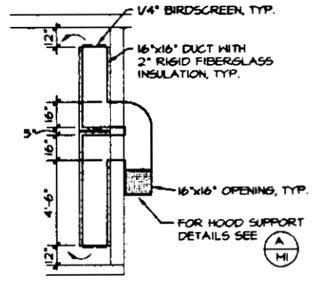


A MI VF-1 DETAIL
NO SCALE

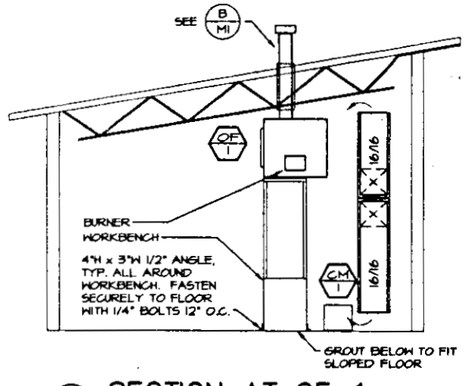
MECHANICAL EQUIPMENT SCHEDULE					
DESIGNATION	EQUIPMENT	CAPACITY	ELECTRICAL VOLTS, AMPS, PHASE	REMARKS	MANUFACTURER AND MODEL (OR EQUAL)
CM-1	COMPRESSED AIR TANK	2 CFM @ 40 PSI	115/60	-	-
VF-1	EXHAUST FAN	955 CFM @ 0.625" WG.	1/3HP, 115, 1	DIRECT DRIVE	PENN TYPE WAQ20 WITHOUT BACKDRAFT DAMPER
OF-1	USED OIL FURNACE	INPUT 125 MBH, OUTPUT 100 MBH	115/60 20 AMPS	WITH WORKBENCH MODEL WBT-250 AND OIL DRAIN BOX	~~SHENANDOAH MODEL 15~~ RSSNOR
	BURNER	-			
	TRANSFER PUMP	2.5 GPH @ 40 PSI			
	FAN	1800 CFM			
HB-1	HOSE BIBB	-	-	-	3/4" NIBCO



B MI FLUE THROUGH ROOF DETAIL
NO SCALE



C MI C/A SECTION
1/4"=1'-0"

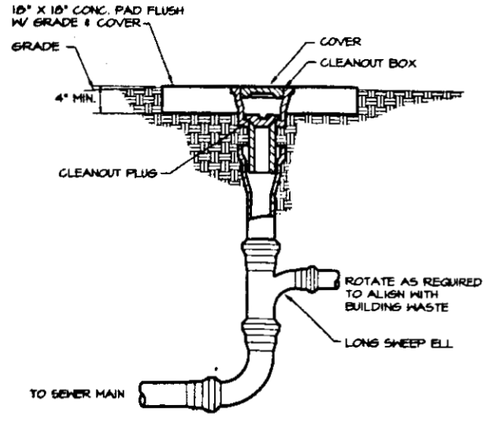


D MI SECTION AT OF-1
NO SCALE

RECORD DRAWINGS

Revisions drawn by Matt Stephl Date: 4/2/98

These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.



E MI YARD CLEANOUT DETAIL
NO SCALE

PLOT SCALE: 1=1

FILE NAME: 51064M1.DWG

STATE OF ALASKA 49TH SCOTT V. BELL ME-7355 REGISTERED PROFESSIONAL ENGINEER

Date Stamped: 4.17.97

By / Revision / Date

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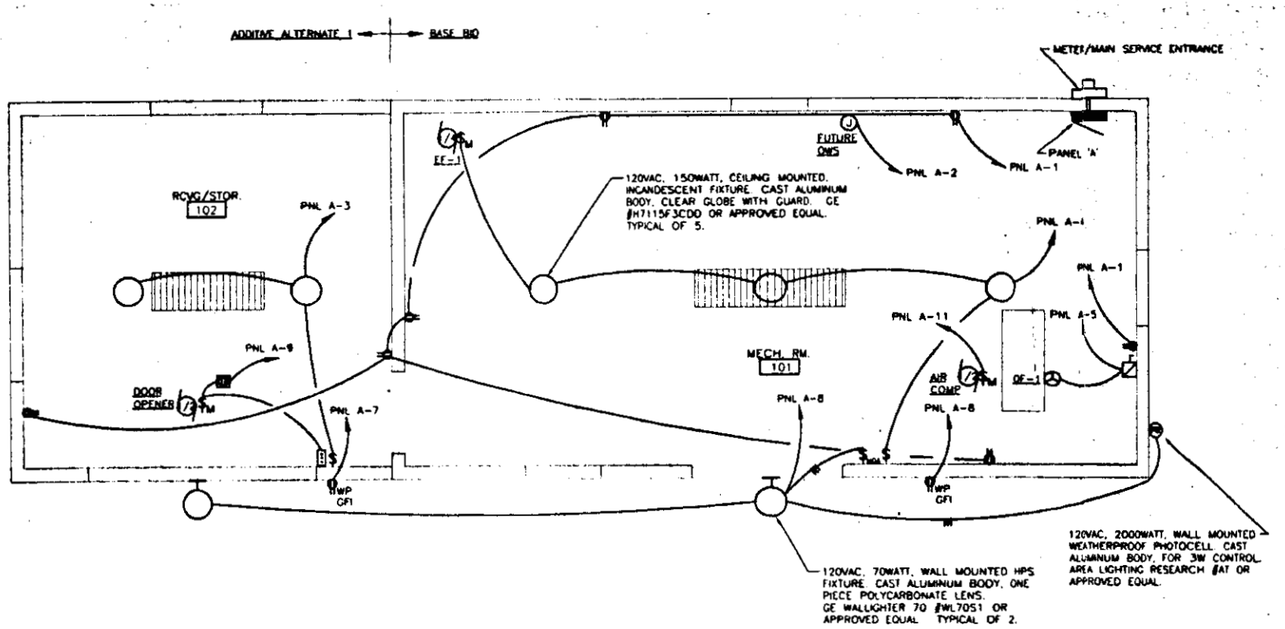
Project:
ENVIRONMENTAL OPERATIONS STATIONS CORDOVA
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.	
Drawn	LDS	
Drawn		
Checked	RJW	
Date	4-17-97	

Sheet Contents:
MECHANICAL
FLOOR PLAN
AND DETAILS

Sheet No.:
M1

STEPHL W.O. 9615



N (1/E1) ELECTRICAL PLAN
1/4" = 1'-0"

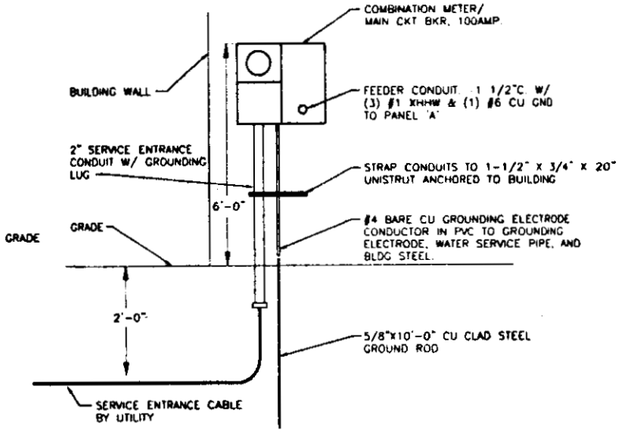
NOTE: HEATER & FAN ARE WIRED TO AUTOMATICALLY SHUT-OFF WHEN FIRE SUPPRESSION SYSTEM ACTIVATES

PANEL SCHEDULE

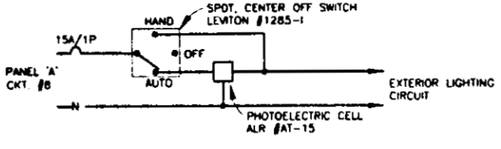
PANEL A — 120/240 VOLT — 100 AMP — 1PH — 3W — MAIN LUGS ONLY
LOCATION: MECHANICAL ROOM — SURFACE MOUNTED

CKT	LOAD	BKR	KVA	A	B	KVA	BKR	LOAD	CKT
1	RECEPTACLES	20/1	1.08	2.26		1.18	15/1	FUTURE OIL/WATER SEPARATOR	2
3	RCVG LIGHTS	20/1	0.30		1.61	1.31	15/1	EF-1 (1/3 HP) & MECH RM LIGHTS	4
5	OF-1	30/1	2.40	3.58		1.18	20/1	EXTERIOR RECEPTACLES (1/2 HP)	6
7	EXTERIOR RECEPTACLES (1/2 HP)	20/1	1.18		1.35	0.17	20/1	EXTERIOR LIGHTS	8
9	GARAGE DOOR OPENER (1/2 HP)	15/1	1.17	1.17			20/1	SPARE	10
11	AIR COMPRESSOR (1/2 HP)	15/1	1.17	1.17			20/1	SPARE	12
13	SPARE	20/1					20/1	SPARE	14
15	SPARE	20/1						SPACE	16
17	SPARE	20/1						SPACE	18
19	SPACE							SPACE	20

TOTAL CONNECTED LOAD KVA: 11.1 8.2 3.0 — CONNECTED TOTAL AMPS: 46
DEMAND FACTOR: 1.25 — DEMAND KVA: 13.9 — DEMAND LOAD AMPS: 58
REMARKS:



(2/E1) METER/MAIN SERVICE ENTRANCE DETAIL
NO SCALE



(3/E1) EXTERIOR LIGHTING WIRING DIAGRAM
NO SCALE

RECORD DRAWINGS

Revisions drawn by Matt Stephl — Date: 4/2/98
These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.

ELECTRICAL LEGEND

LIGHTING

- ○ SURFACE CEILING MOUNTED INCANDESCENT LIGHT FIXTURE
- ⌀ WALL MOUNTED HID LIGHT FIXTURE
- $ $_{HOA}$ SINGLE POLE SWITCH, HOA SUBSCRIPT DENOTES 20A, SINGLE POLE DOUBLE THROW, CENTER OFF SWITCH FOR HAND, OFF, AND AUTO CONNECTION OF EXTERIOR LIGHTING. LABEL SWITCH POSITIONS.
- PC PHOTO CELL

POWER/CONTROL

- PANELBOARD, SURFACE MOUNTED
- DUPLEX RECEPTACLE, WALL MOUNTED 48" AFF, 20A SPEC GRADE. WP = WEATHERPROOF GFI = GROUND FAULT INTERRUPTING
- CEILING MOUNTED RECEPTACLE
- EQUIPMENT CONNECTION; COORDINATE CONNECTION WITH EQUIPMENT MANUFACTURERS RECOMMENDATIONS
- J JUNCTION BOX
- M SINGLE PHASE MOTOR
- $ $_{M}$ MANUAL MOTOR STARTER, 20A/2P WITH THERMAL OL AND RED PILOT LIGHT
- PUSHBUTTON START/STOP ON DOOR OPENER
- LIQUIDTITE FLEXIBLE CONDUIT
- UNDERGROUND OR UNDER FLOOR CONDUIT
- EXPOSED CONDUIT
- CONCEALED CONDUIT
- #6 BRANCH CIRCUIT: ARROWHEAD INDICATES HOMERUN. INDICATES (2) #12 WIRES IN ADDITION TO EQUIPMENT GROUND. # INDICATES SIZE IF OTHER THAN #12.

NOTATION

- (K) REFERENCE TO SHEET NOTE
- (1) REFERENCE TO REVISION

NOTE:
THIS IS A STANDARD LEGEND. SOME OF THE SYMBOLS ON THE LEGEND ARE NOT NECESSARILY SHOWN ON THE DRAWINGS.

GENERAL NOTES

1. INSTALLATION SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND STANDARDS.
2. PROVIDE ALL MATERIALS AND SERVICES REQUIRED FOR A COMPLETE INSTALLATION AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. ALL PRODUCTS SHALL BE LISTED AND CLASSIFIED BY A TESTING LABORATORY ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, NEW, AND SUITABLE FOR THE PURPOSE SPECIFIED AND SHOWN OR INTENDED.
4. DRAWINGS ARE INTENDED AS A GUIDE FOR QUANTITY, APPROXIMATE EQUIPMENT LOCATIONS AND DESIGN CRITERIA. DO NOT SCALE DRAWINGS. INSTALL WORK IN LOCATIONS SHOWN ON THE DRAWINGS UNLESS PREVENTED BY SITE CONDITIONS. CONDUCT A SITE VISIT AND EXAMINE ALL DRAWINGS AND SPECIFICATIONS FOR DISCREPANCIES BETWEEN THIS AND OTHER DIVISIONS OF THE WORK. COORDINATE ALL WORK WITH OTHER DIVISIONS FOR CHANGES AFFECTING WORK IN THIS DIVISION. OBTAIN OWNER'S APPROVAL BEFORE PROCEEDING.
5. COORDINATE ALL WORK WITH THE SERVING UTILITIES PRIOR TO CONSTRUCTION. PAY ALL APPLICABLE UTILITY COSTS FOR THE PROJECT. VERIFY AND COMPLY WITH ALL UTILITY REQUIREMENTS.
6. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
7. EMPLOY WORKMEN SKILLED IN THE TRADE AND FAMILIAR WITH TECHNIQUES REQUIRED TO COMPLETE THE WORK IN A NEAT AND WORKMANLIKE MANNER.
8. PROVIDE A ONE YEAR WARRANTY FOR ALL MATERIALS AND LABOR. WARRANTY SHALL COMMENCE AT OCCUPANCY. ALL REPAIRS SHALL BE MADE IN A TIMELY MANNER AT NO COST TO THE OWNER.
9. SERVICE ENTRANCE CABLE SHALL BE COPPER USE. FEEDER AND DISTRIBUTION WIRING SHALL BE COPPER, TYPE XHHW, THHN/THWN INSULATION MINIMUM. COMPRESSION TERMINATIONS EQUAL TO BURNDY "AYP" SHALL BE USED FOR ALL ALUMINUM TERMINATIONS.
10. ALL WIRING SHALL BE IN METAL CONDUIT. NONMETALLIC PVC CONDUIT WITH RIGID STEEL ELLS MAY BE USED BELOW GRADE OR IMBEDDED IN CONCRETE, UON. MINIMUM WIRE SIZE SHALL BE #12 AWG. MINIMUM CONDUIT SIZE SHALL BE 1/2". PROVIDE RACEWAY SUPPORT AS REQUIRED BY APPLICABLE CODES. PROVIDE LIQUIDTITE CONDUIT CONNECTION FOR ALL EQUIPMENT, HEATERS, AND VENT FANS.
11. VOLTAGE DROP AT ANY OUTLET SHALL NOT EXCEED 5%.
12. PROVIDE SERVICE GROUND AS SHOWN ON THE DRAWINGS. ALL GROUNDING SHALL BE IN COMPLIANCE WITH NEC ARTICLE 250. PROVIDE SEPARATE INSULATED GROUNDING CONDUCTOR WITH EACH FEEDER AND BRANCH CIRCUIT RACEWAY. TERMINATE EACH END ON LUG, BUS, OR BUSHING.
13. WIRING DEVICES SHALL BE SPECIFICATION GRADE. ALL EXTERIOR RECEPTACLES SHALL BE GFCI PROTECTED. COVER PLATES SHALL BE SATIN FINISH STAINLESS STEEL.
14. SERVICE EQUIPMENT SHALL BE PROVIDED AS FOLLOWS:
    A. GROUNDING BUSHINGS FOR ALL CONDUIT CONNECTIONS TO ENCLOSURE.
    B. SOLID NEUTRAL (SN) IN DISCONNECTS & PANELBOARD.
    C. #4AWG BARE SOLID CU GROUND WIRE AT SERVICE. CONNECT TO FULLY DRIVEN 5/8" CU CLAD STEEL GROUND ROD.
    D. MOUNT DISCONNECT HANDLES AT NOMINAL 5' MOUNTING HEIGHT.
15. PROVIDE 100A, 1PH, 3W, 120/240V, 20 CKT, MLO, SURFACE MOUNTED NEMA 1 PANELBOARD, 10KAIC STANDARD FED SPEC WP115C, WITH SN GROUND BAR KIT. SQUARE D #NQOD20L125 OR APPROVED EQUAL.
16. PROVIDE FRACTIONAL HP MANUAL MOTOR STARTERS, 240V, 2P, TOGGLE SWITCH WITH OL'S AND RED PILOT LIGHT, SQUARE D #FG6P OR APPROVED EQUAL.
17. PROVIDE 5 SPARE OF EACH TYPE BULB, 1 SPARE OF EACH TYPE BALLAST, 2 SPARE OF EACH TYPE FUSE IN CONTRACTOR PROVIDED WALL MOUNTED SPARE FUSE AND BULB CABINET.

ELECTRICAL ABBREVIATIONS

AC	ALTERNATING CURRENT	N	NEUTRAL
AFF	ABOVE FINISHED FLOOR	N.E.C.	NATIONAL ELECTRICAL CODE
AGL	ABOVE GRADE LEVEL	N.I.C.	NOT IN CONTRACT
A.I.C.	AMP INTERRUPT CAPACITY	NTS	NOT TO SCALE
AWG	AMERICAN WIRE GAUGE	U/G	UNDERGROUND
C	CONDUIT	UON	UNLESS OTHERWISE NOTED
CKT	CIRCUIT	V	VOLT
GND	GROUND	VAC	VOLT ALTERNATING CURRENT
GRC	GALVANIZED RIGID CONDUIT	W/	WITH
HOA	HAND OFF AUTO	WP	WEATHER-PROOF
KVA	KILOVOLT-AMPERE	XP	EXPLOSION-PROOF
MIN	MINIMUM		

PLOT SCALE: 1=1
FILE NAME: S:\96E41.DWG

STATE OF ALASKA — 49th — CHRIS K. KO — CHRIS K. KO — EXPIRES: PROFESSIONAL ENGINEER

Date Stamped: 4-17-97

By / Revision / Date

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Project:
ENVIRONMENTAL OPERATIONS STATIONS CORDOVA
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

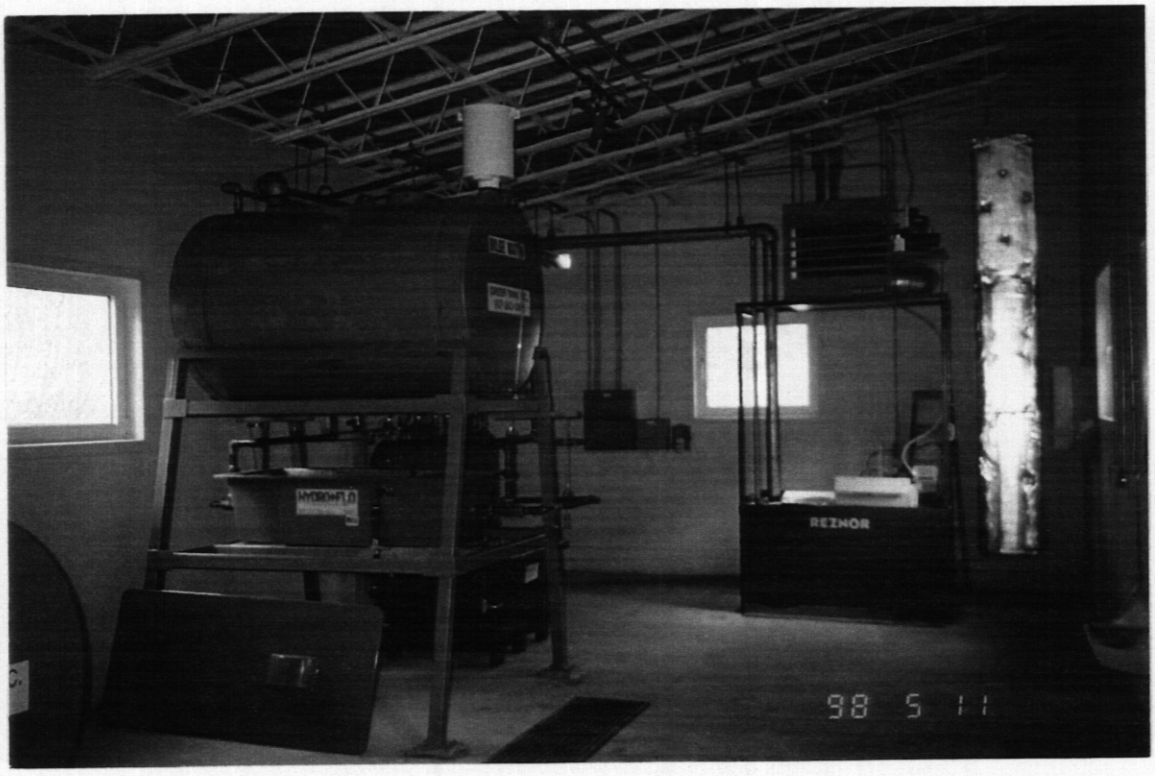
Project Mgr.	M.S.	
Drawn	DFJ	
Drawn		
Checked	GRK	
Date	4-17-97	

Sheet Contents:
ELECTRICAL PLAN

Sheet No.:
E1

STEPHL W.O. 9615
USKH W.O. 510604

CORDOVA EVOS STATION



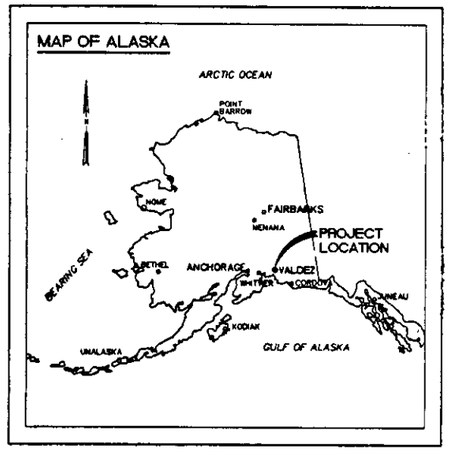
APPENDIX P

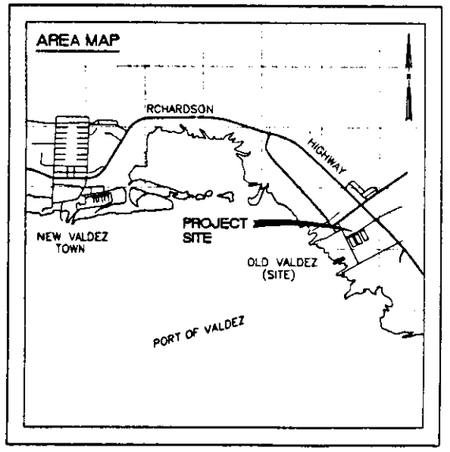
Valdez EVOS Station Asbuilt Drawings and Photo's

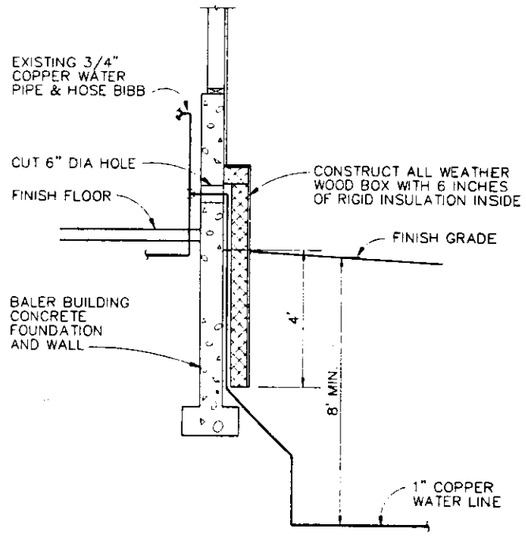
STEPHL

PRINCE WILLIAM SOUND
ECONOMIC DEVELOPMENT COUNCIL, INC.
VALDEZ EVOS STATION

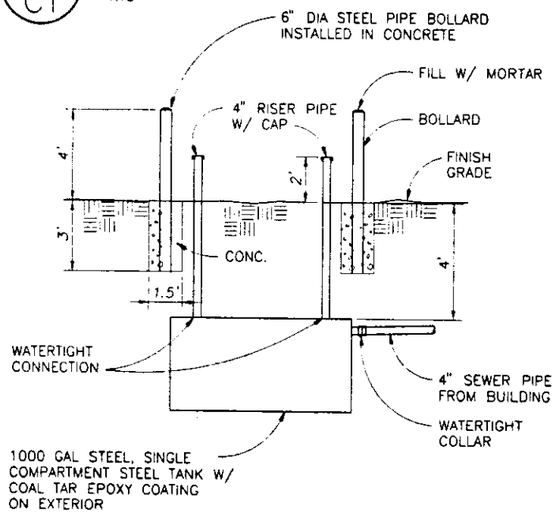
INDEX







2 / C1 WATER SERVICE CONN.
NTS



1 / C1 WATER HOLDING TANK
NTS

NOTES:

1. CONTRACTOR SHALL MAINTAIN HIS WORK FOR THE NEW EVOS STATION EXCAVATION, FOUNDATION AND BUILDING TO WITHIN THE SITE WORK LIMITS SHOWN ON THE SITE PLAN. CONTRACTOR IS RESPONSIBLE FOR OBTAINING HIS OWN OFFSITE STAGING AREAS AS NECESSARY TO COMPLETE THE WORK.
2. THE LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE AND IT SHALL BE THE RESPONSIBLITY OF THE CONTRACTOR TO VERIFY THE TRUE AND CORRECT LOCATION PRIOR TO CONSTRUCTION TO AVOID DAMAGE OR DISTURBANCE.
3. WATER SERVICE SHALL BE INSTALLED PER CITY OF VALDEZ STANDARDS.
4. EXISTING SOILS AT THE SITE CONSIST OF CLEAN GRAVEL WITH COBBLES UP TO 8" DIA. WATER TABLE IS AT APPROXIMATELY 7' BELOW GRADE.
5. CONTRACTOR SHALL NOT BLOCK ACCESS FOR CITY CREWS AND EQUIPMENT TRAVELING TO AND FROM THE BALER BUILDING.
6. FINISH GRADE THE AREA TO MATCH EXISTING CONTOURS AND GRADE TO PROVIDE DRAINAGE AWAY FROM BUILDING.
7. CONNECT NEW 1" COPPER WATER LINE TO EXISTING 3/4" WATERLINE SERVING A HOSE BIBB INSIDE THE BALER BUILDING, SEE DETAIL 2 / C1
8. ACCESS TO THE SITE IS LIMITED AT CERTAIN TIMES, SEE SPECIFICATION 1005, ADMINISTRATIVE PROVISIONS.

PLOT SCALE:

FILE NAME:

Matt Stephl

Date Stamped:

By	Revision	Date

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Project:
VALDEZ EVOS STATION

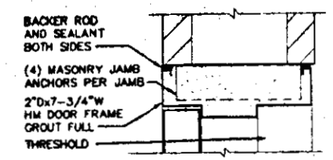
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.
Drawn	VND
Drawn	
Checked	
Date	4-30-97

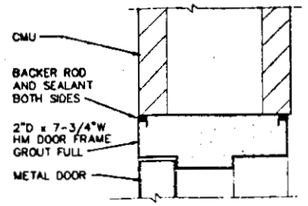
Sheet Contents:
TITLE
SITE PLAN
INDEX

Sheet No.:
C1

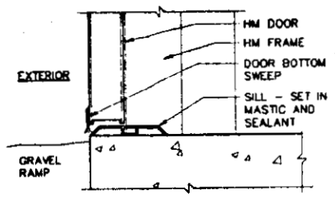
STEPHL W.O. 9615
USKH W.O. 510604



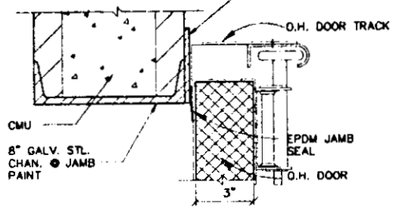
3/A1 DOOR JAMB
3" = 1'-0"



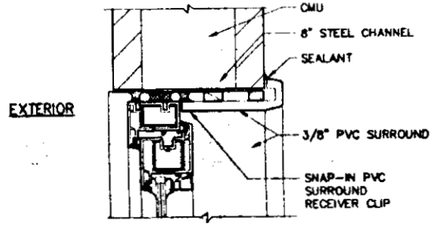
2/A1 DOOR HEAD
3" = 1'-0"



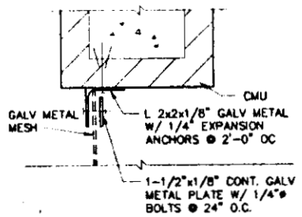
5/A1 DOOR SILL
3" = 1'-0"



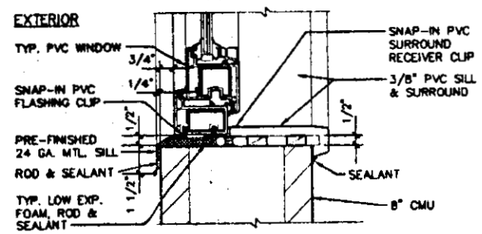
4/A1 O.H. DOOR JAMB
3" = 1'-0"



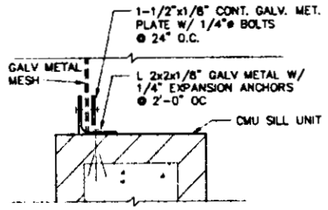
7/A1 WINDOW HEAD/JAMB
3" = 1'-0"



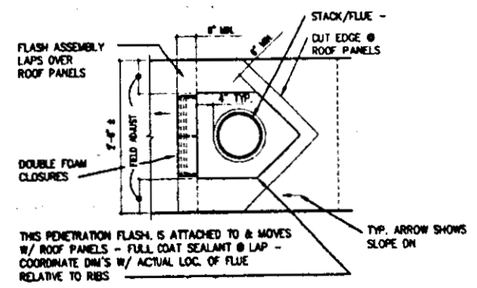
6/A1 JAMB/HEAD @ V-1
3" = 1'-0"



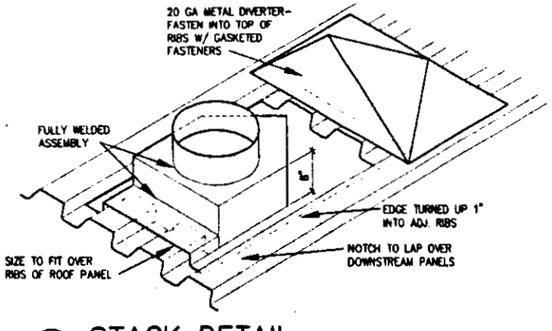
9/A1 WINDOW SILL
3" = 1'-0"



8/A1 SILL @ V-1
3" = 1'-0"



11/A1 STACK DETAIL
NTS



10/A1 STACK DETAIL
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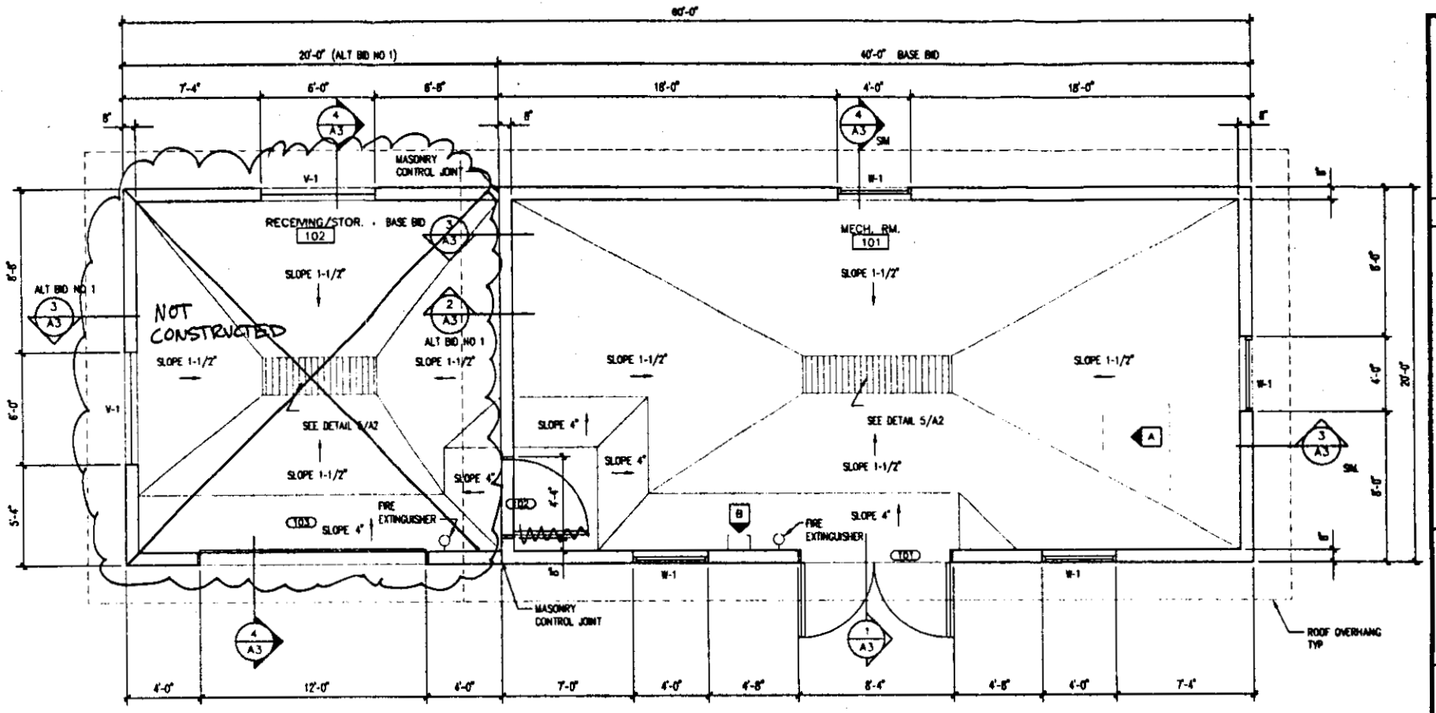


1/A1 FLOOR PLAN
1/4" = 1'-0"

N
ARCH NORTH

EQUIPMENT SCHEDULE

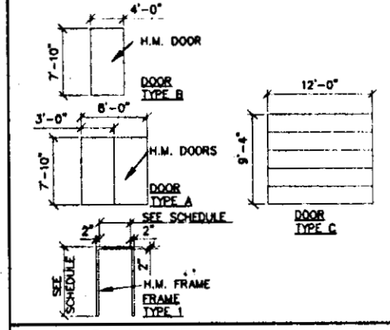
- A — USED OIL BURNER : (SEE MECHANICAL)
- B — EYE WASH: WALL MOUNTED MODEL 7500 AS MANUFACTURED BY HAWS, BERKELEY, CA

RECORD DRAWINGS

Revisions drawn by Matt Stephl — Date: 4/7/98

These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.

DOOR/FRAME TYPES



CODE REVIEW

1. Occupancy Classification: Table 3-A
   - F1 "Glass Incineration Sec. 306 quantity of used oil (B-B) is less than quantity allowed in Table 3-D (13,200 Gallons), therefore occupancy is not a H2 (hazardous) occupancy.
   - S1 Storage - combustible materials

   Table 3-B Required Separation in Buildings of Mixed Occupancy (Hours)

   F1 to S1 = N (no requirements for fire resistance)
2. Type of Construction: II-N
3. Location on property: Table 5-A F1 and S1; II N
   - Exterior walls, bearing = 1 hr < 20 ft.
   - Exterior walls, nonbearing = 1 hr < 20 ft.
   - Openings: Not permitted < 5 ft. Protected < 10 ft.
4. Allowable Floor Area: Table 5-B
   - F-1, S-1, II-N = 12,000 sq.ft.
   - Actual floor area: 1,200 sq.ft.

   Therefore, the actual area is less than the allowable area and the building complies. Area increases are not required and neither are area separation walls.
5. Allowable Height and number of stories: Table 5-B
   - F-1, S-1 II N Max height = 2 stories 55 ft.

   The building complies.

WINDOW/OPENING SCHEDULE

WINDOW NO.	SIZE	OPERABLE	REMARKS
W-1	4'-0"x3'-4"	YES	SEE DETAILS 7/A1 & 9/A1
V-1	6'-0"x3'-4"		SEE DETAILS 8/A1 & 8/A1

DOOR SCHEDULE

DOOR NO.	SIZE	DOOR TYPE	FRAME TYPE	HARDWARE GROUP	REMARKS
101	PAIR 4'-0"x7'-10"	A	1	HW-1	PAINT DOOR & FRAME - SEE DETAILS 2/A1, 3/A1, 8/A1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	OVERHEAD [illegible]	[illegible]	[illegible]	[illegible]	ALT BID NO 1 - [illegible] (DOOR SUPPLIED)

FINISH SCHEDULE

RM. NO.	RM NAME	FLOOR MATERIAL	FLOOR FINISH	BASE FINISH	WALLS NORTH FINISH	WALLS EAST FINISH	WALLS SOUTH FINISH	WALLS WEST FINISH	CEILING FINISH	REMARKS SPECIFICATIONS
101	MECH.	CONCRETE	BROOM	4" CONC.	C.M.U. PAINT	C.M.U. PAINT	C.M.U. PAINT	C.M.U. PAINT	METAL	
102	RECEIVING/STOR.	CONCRETE	BROOM	4" CONC.	C.M.U. PAINT	C.M.U. PAINT	C.M.U. PAINT	C.M.U. PAINT	METAL	ALT BID NO 1

STATE OF ALASKA — 49th — MATT A. HUETTL — #A-3569 — REGISTERED PROFESSIONAL ENGINEER

Date Stamped: 5/1/97

By / Revision / Date

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Project:
ENVIRONMENTAL OPERATIONS STATIONS VALDEZ
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.	
Drawn	POF	
Drawn	RWP	
Checked	JAH	
Date	4-30-97	

Sheet Contents:
FLOOR PLAN
FINISH SCHEDULE
DOOR SCHEDULE
WINDOW/OPENING SCHEDULE
DETAILS

Sheet No.: A1

STEPHL W.O. 9615
USKH W.O. 510604

PLOT SCALE: 1=1
FILE NAME: 510604A1.DWG

GENERAL:

This structure is designed in accordance with the 1994 Uniform Building Code. Contractor shall verify all existing conditions prior to beginning construction. All codes cited in the General Notes refer to the latest editions of those codes unless noted otherwise.

DESIGN LOADS:

Roof:	Snow	119 psf
Floor:	Floor	125 psf
Seismic:		Zone 4 Rw = 8 I = 1.00
Wind:		110 MPH I = 1.00

FOUNDATION:

Bearing pressures are 2,000 psf for sustained loads, 2,500 psf for total vertical design loads. Over-excavate minimum 1 foot below and 6" to all sides of footings. Remove all organics and deleterious materials from beneath footings. Backfill with NFS material placed in 6 inch lifts, compacted to 95% maximum density (ASTM D1557).

Refer to the drawings for details for excavation, backfill and compaction.

CONCRETE:

Mixing and placing of concrete and selection of materials shall be in accordance with the UBC and ACI code 318. Normal weight concrete concrete shall have a minimum 28 day compressive strength of 3,000 psi. The concrete mix shall consist of coarse aggregate conforming to ASTM #67 (3/4"), Type I cement, a maximum water cement ratio of 0.45 and air entrainment of 5%. Admixtures may be used in strict conformance with the manufacturer's recommendations.

REINFORCING STEEL:

Reinforcing steel shall conform to ASTM A-615, Grade 60. All reinforcing steel shall be detailed, fabricated, and placed in accordance with ACI 318 and ACI 315. Held in place with cured concrete blocks or chairs. Minimum cover for reinforcing steel shall be:

Concrete placed on ground	3"
Formed surface	1-1/2"
Interior exposed surfaces	3/4"

For continuous reinforcing, use a minimum lap splice for:

Bar Size	3000 psi	4000 psi
#4	20"	20"
#5	25"	20"

MASONRY:

Concrete masonry Units shall conform to ASTM C-90, Grade N-1, f'm=1500 psi. Mortar shall conform to ASTM C-476; Grout, ASTM C-476, with slump = 8 to 10 inches. Provide non-shrink type admixture, i.e. Grout Aid, and mechanical vibration for consolidation. Provide bond beams with reinforcing steel and wire mesh in joints below bond beams at locations shown in details. Use wire positioning devices in mortar joints to maintain the position of horizontal and vertical reinforcing steel.

STRUCTURAL STEEL:

Structural steel shall be detailed, fabricated and erected in accordance with the American Institute of Steel Construction AISC Manual, 9th Edition. Structural Steel shall conform to ASTM A36, except Tube Steel Sections shall be ASTM A500, Grade B. Bolts shall be 3/4" diameter ASTM A325 unless noted otherwise in details. Anchor bolts to be ASTM A307. All welds to be 3/16" min. unless otherwise noted, by certified welders using electrodes conforming to ASTM A-233, Class E70. Apply one coat of primer paint conforming with SSPC, Steel Structure Painting Council to all members except those sections to be embedded in concrete. Provide shop drawings with details for review.

STEEL JOISTS:

Steel joists shall be detailed, fabricated and erected in accordance with the Steel Joist Institute Specifications. Joists shall be welded to the supports as indicated in the details. Continuous bridging shall be designed and installed per the manufacture's recommendations. All bridging shall be securely fastened to joists and end walls. All joists shall be designed for a point load of 500 pounds to be applied at any location on the joist. This point load is in addition to the uniform loads indicated in the joist designations or shown in the loading diagrams.

STEEL DECK:

Steel Deck shall be detailed, fabricated, and erected in accordance with the Steel Deck Institute Specifications. Decking shall have the following minimum properties:

20 Gauge
I = 0.000 in4
S(+) = 0.000 in3
S(-) = 0.000 in3

Lay deck perpendicular to supports and continuous over [three] or more spans. Deck shall be welded to all supports with 3/4" puddle welds, minimum 7 per width of sheet, and at 12" o.c. along length of sheets. Side laps for roof deck shall be side seam welded at 12". Side laps for 1-1/2" composite steel deck with concrete topping to be button punched at 24 inches o.c. Follow manufacturer's recommendations for shoring before placing concrete. Manufacturer to provide steel flashing, collars, etc. as required for openings thru deck. Provide shop drawings with details for review. NOTE: TOP ROOF DECK ATTACHED W/ SCREWS

SPECIAL INSPECTION:

The following items require special inspection during construction.

All concrete reinforcing placement shall be inspected prior to placing concrete.

All bolts installed in concrete shall be inspected prior to placing concrete.

All complete penetration welds performed in a fabricating shop or in the field shall be radiographically or ultrasonically tested.

All shop other than complete penetration welds shall be visually inspected.

All fillet welds made in the field shall be visually inspected.

Periodic inspections of roof and floor deck shall be performed.

All high strength bolting.

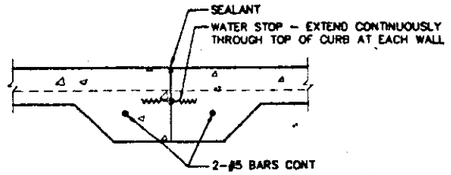
All concrete masonry construction shall be inspected, after the reinforcing steel has been placed prior to grouting and during grouting operations.

Field Water Test: contractor to fill floor with water to top of concrete curb. If water level drops more than 1/2" over 24 hour time period contractor shall repair floor and retest until floor meets requirements.

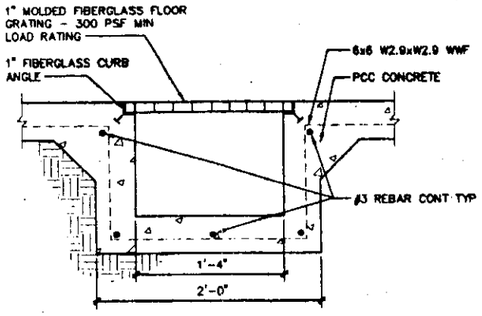
The Owner will provide inspections as required by the Uniform Building Code Sections 302 and 308 and as per Supplementary General Conditions.

1. During placement of reinforced or prestressedly placed concrete.
2. Inspection of reinforcing steel for conformance to approved shop and placement drawings and the construction documents.
3. Inspection of all anchor bolts including adhesive bolts installed in concrete.
4. Inspection of complete penetration structural welds.
5. Periodic inspection of single-pass fillet welds when stressed to less than 50 percent of allowable stresses, and floor and roof deck welding and welded studs.
6. Checking of welders' qualifications.
7. Verification of high-strength bolt tension.
8. Structural excavation, backfill and compaction.

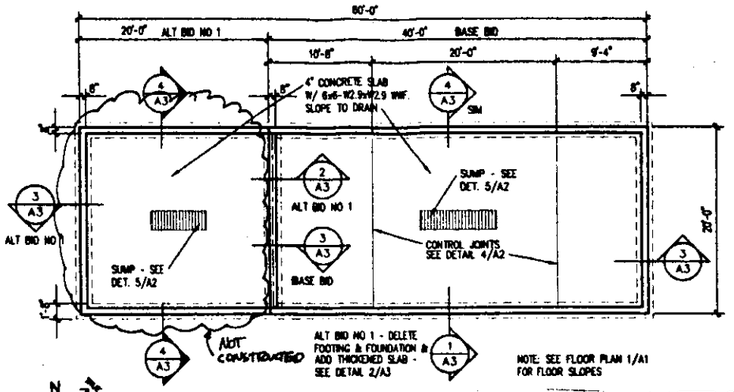
Special inspections do not relieve Contractor of testing required by the contract documents.



4/A2 FLOOR CONTROL JOINT
1 1/2" = 1'-0"



5/A2 SUMP DETAIL
1 1/2" = 1'-0"



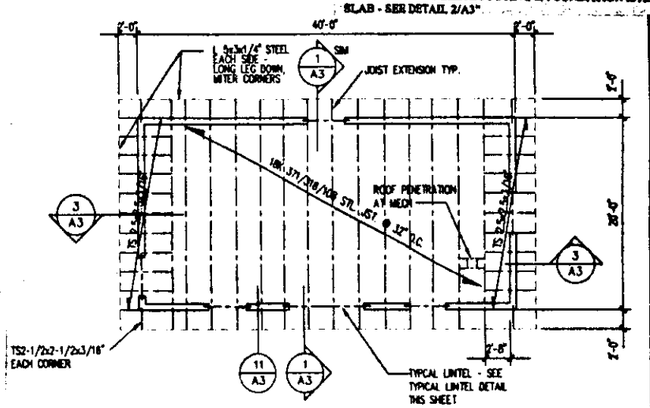
1/A2 FOUNDATION PLAN
1/8" = 1'-0"

ARCH NORTH

RECORD DRAWINGS

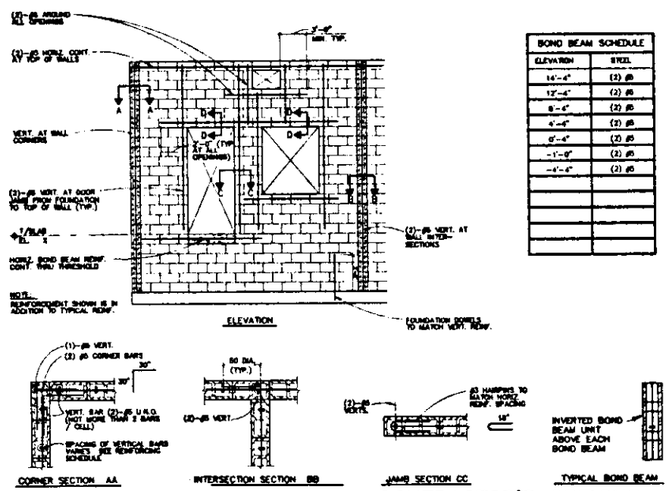
Revisions drawn by Matt Stephl Date: 4/7/98

These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.



2/A2 ROOF FRAMING PLAN – BASE BID
1/8" = 1'-0"

ARCH NORTH



BOND BEAM SCHEDULE	
ELEVATION	STEEL
14'–6"	(2) #5
12'–6"	(2) #5
8'–6"	(2) #5
4'–6"	(2) #5
0'–6"	(2) #5
–1'–0"	(2) #5
–4'–6"	(2) #5

MASONRY WALL REINFORCING SCHEDULE				
WALL TYPE	THICK	VERT. REINF.	HORIZ. REINF.	GROUTING
ALL	8"	(2) #5 @ 16" O.C. (1) #5 @ CORNERS & T JOINTS	(1)–#5 @ 16" O.C.	ALL CELLS

WALL REINFORCING APPLIES BOTH ABOVE/BELOW CHANGES IN DIRECTION OF WALL OR AS INDICATED ON PLANS

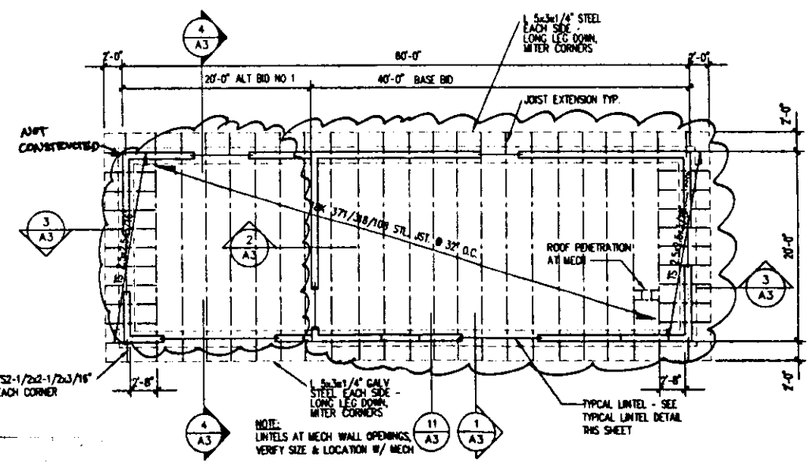
3/A2 TYPICAL CONCRETE MASONRY UNIT
N.T.S.

CONTRACTOR'S OPTIONS:

NOTE:
- CONTRACTOR MAY SUBSTITUTE 8" CONCRETE WALLS AND/OR FOUNDATIONS REINFORCED W/ (1)#5 HORIZ. REBAR @ 18 OC & (2) #5 VERTICAL REBAR @ 16"O.C. IN LIEU OF WALLS AND/OR FOUNDATIONS.

Sheet A2
CONTRACTOR'S OPTIONS:
Delete the existing note and replace with the following note:

- CONTRACTOR MAY SUBSTITUSTE 8" CONCRETE WALLS AND/OR FOUNDTIONS REINFORCED W/(1) #5 HORIZ. REBAR @ 18" OC & (1) #5 VERTICAL REBAR @ 16" OC IN LIEU OF 8" REINFORCED C.M.U. WALLS AND/OR FOUNDATIONS.



NOTE: LINTELS AT MECH WALL OPENINGS, VERIFY SIZE & LOCATION W/ MECH

3/A2 ROOF FRAMING PLAN – ALT BID NO 1
1/8" = 1'-0"

ARCH NORTH

STATE OF ALASKA
Bruce E. Hagen
CE-7745
REGISTERED PROFESSIONAL ENGINEER

Date Stamped: 5/11/97

By

Revision

Sheet A2
Foundation Plan 1/A2
Delete the following note in its entirety:

"ALT BID NO 1 - DELETE FOOTING & FOUNDATION & ADD THICKENED SLAB - SEE DETAIL 2/A3".

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Project:
ENVIRONMENTAL OPERATIONS STATIONS VALDEZ
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.	
Drawn	PCF	
Drawn	RWP	
Checked	JAH	
Date	4-30-97	

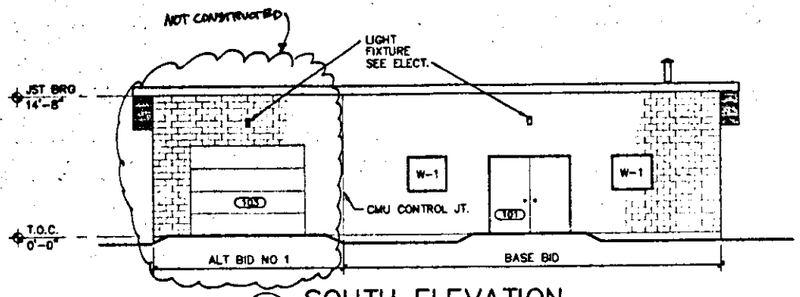
Sheet Contents:
FOUNDATION PLAN
ROOF FRAMING PLANS
NOTES AND DETAILS

Sheet No.:
A2

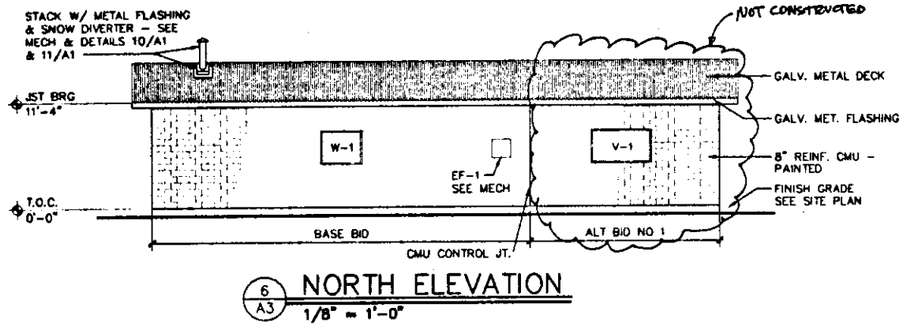
STEPHL W.O. 9615
USKH W.O. 510604

PLOT SCALE: 1=1

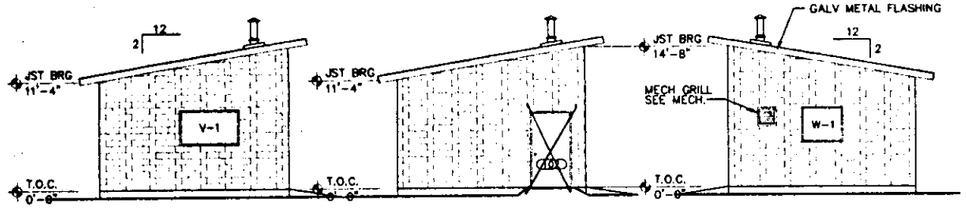
FILE NAME: 510604A2.DWG



5/A3 SOUTH ELEVATION
1/8" = 1'-0"



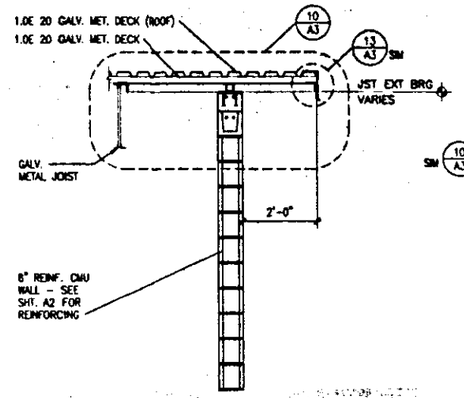
6/A3 NORTH ELEVATION
1/8" = 1'-0"



9/A3 WEST ELEVATION
1/8" = 1'-0" (ALT BID NO 1)

8/A3 WEST ELEVATION
1/8" = 1'-0" (BASE BID)

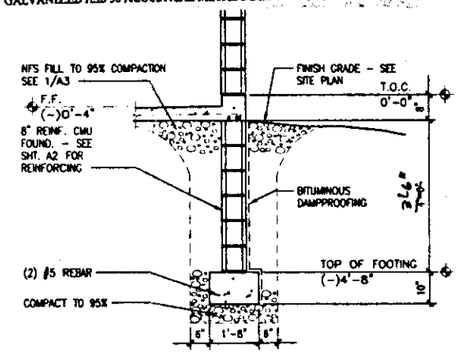
7/A3 EAST ELEVATION
1/8" = 1'-0"



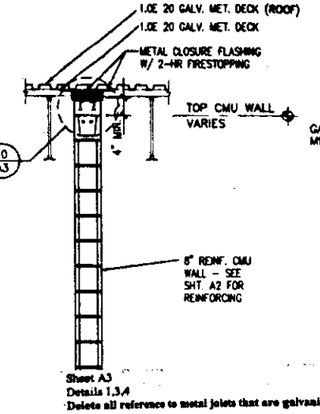
Sheet A3
Details 1,2,3,4,12,13

In reference to the galvanized metal decking layer on underside (interior side) of roof:

Delete "1.0E 20 GALV. METAL DECK" and replace with "1-1/2-inch X 20 GA. GALVANIZED HSB 36 ACOUSTICAL METAL DECK".



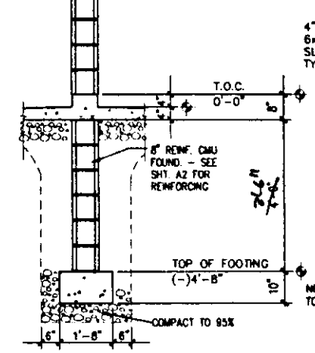
3/A3 WALL SECTION
1/2" = 1'-0"



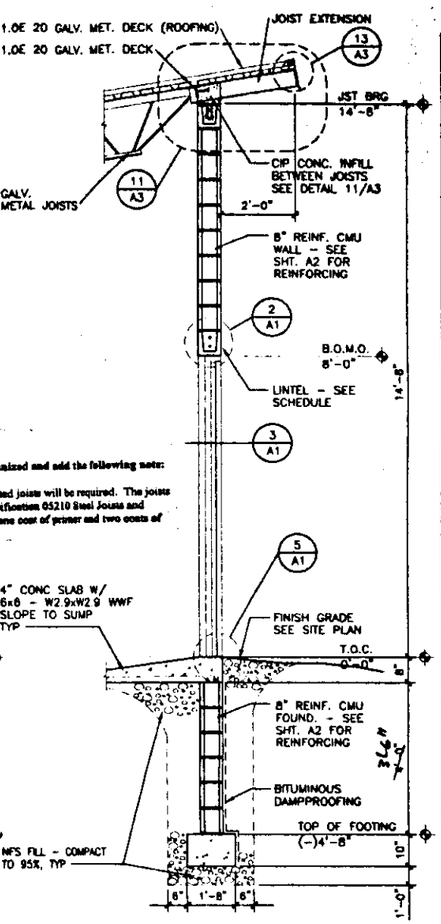
Sheet A3
Details 1,3,4

Delete all reference to metal joists that are galvanized and add the following note:

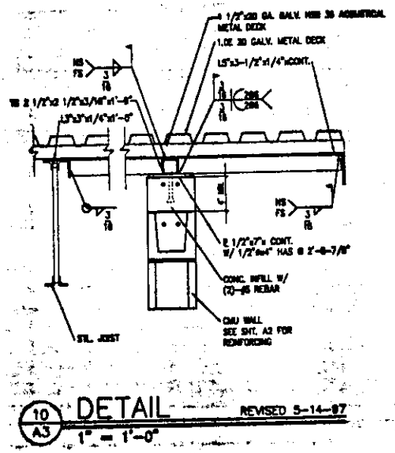
Galvanized metal joists will not be required. Painted joists will be required. The joists will be painted steel joists in accordance with Specification 05210 Steel Joists and Specification 09900 Painting. Joists shall receive one coat of primer and two coats of enamel paint that is compatible with the primer.



2/A3 WALL SECTION
1/2" = 1'-0" (ALT BID NO 1)

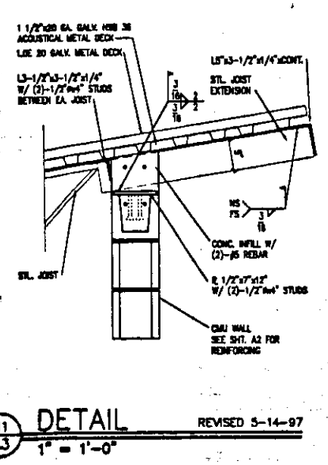


1/A3 WALL SECTION
1/2" = 1'-0"



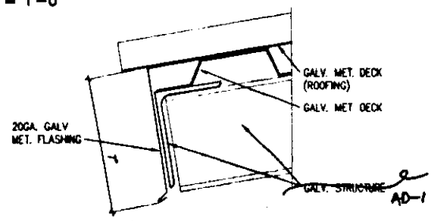
10/A3 DETAIL — REVISED 5-14-97
1" = 1'-0"

10/A3 DETAIL

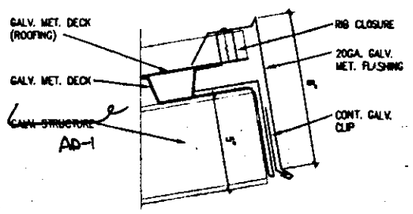


11/A3 DETAIL — REVISED 5-14-97
1" = 1'-0"

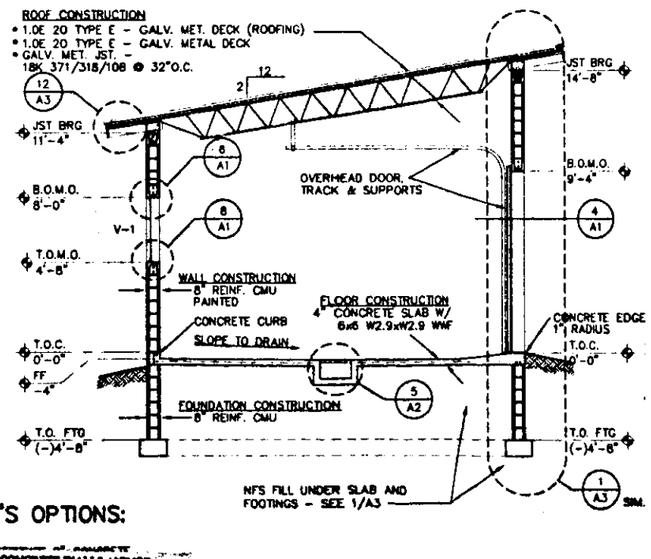
11/A3 DETAIL



12/A3 FLASHING DETAIL
3" = 1'-0"



13/A3 FLASHING DETAIL
3" = 1'-0"



CONTRACTOR'S OPTIONS:

NOTE:

CONTRACTOR MAY SUBSTITUTE 8" CONCRETE WALLS AND/OR FOUNDATIONS REINFORCED W/(1) #5 HORIZ. REBAR @ 18" OC & (1) #5 VERTICAL REBAR @ 16" OC IN LIEU OF 8" REINFORCED C.M.U. WALLS AND/OR FOUNDATIONS.

4/A3 BUILDING SECTION
1/4" = 1'-0"

RECORD DRAWINGS

Revisions drawn by Matt Stephl Date: 9/3/98

These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.

STATE OF ALASKA — 49th — JAMES A. HUETE — AA-3569 — REGISTERED PROFESSIONAL ENGINEER

Date Stamped: 5/1/97

By | Revision | Date

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Project:
ENVIRONMENTAL OPERATIONS STATIONS VALDEZ
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.	
Drawn	PCF	
Drawn	RWP	
Checked	JAH	
Date	4-30-97	

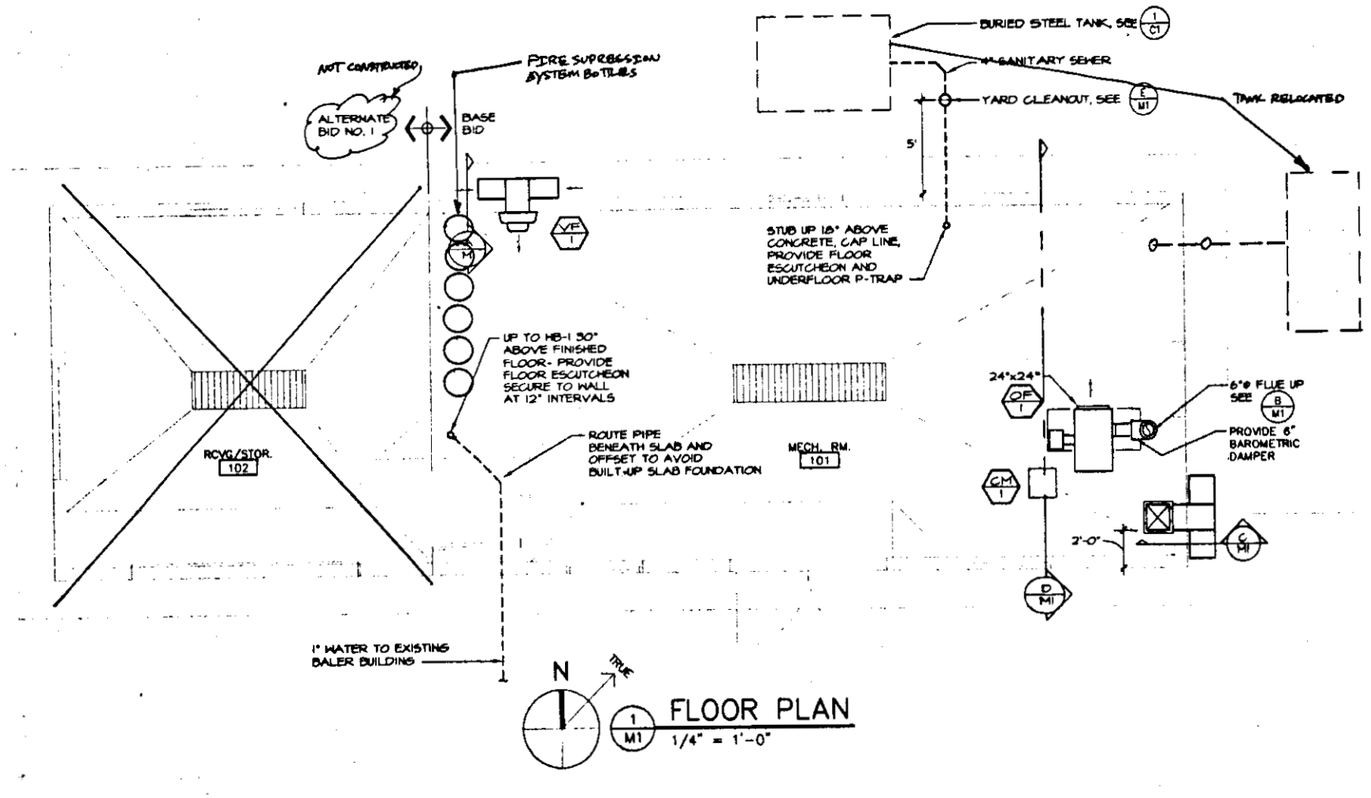
Sheet Contents:
BUILDING ELEVATIONS
BUILDING SECTION
WALL SECTIONS & DETAILS

STATE OF ALASKA — 49th — Bruce E. Hopkins — CE-7745 — REGISTERED PROFESSIONAL ENGINEER

Sheet No.:
A3

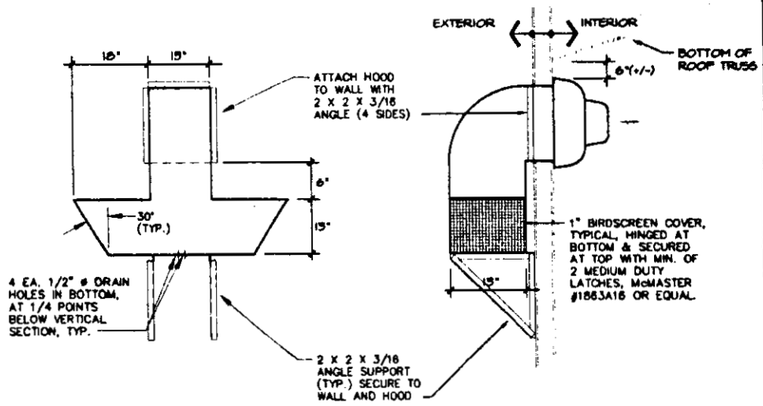
STEPHL W.O. 9615
USKH W.O. 510604

PLOT SCALE: 1=1
FILE NAME: S10604A3.DWG

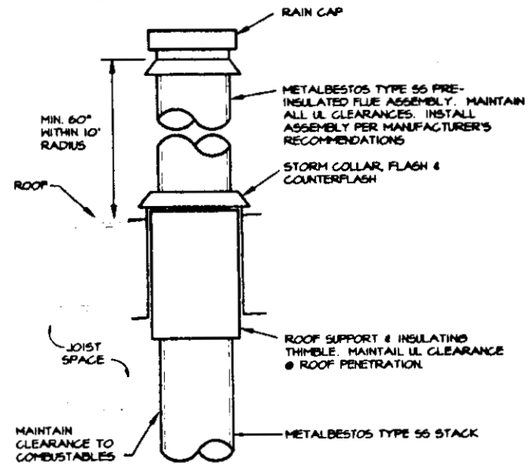


1 / M1 FLOOR PLAN
1/4" = 1'-0"

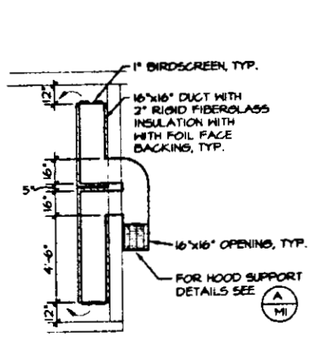
MECHANICAL EQUIPMENT SCHEDULE					
DESIGNATION	EQUIPMENT	CAPACITY	ELECTRICAL VOLTS, AMPS, PHASE	REMARKS	MANUFACTURER AND MODEL (OR EQUAL)
CM-1	COMPRESSED AIR TANK	2 CFM @ 40 PSI	115/60	-	EMGLO MODEL AM 34 HC4 WITH FILTER AND REGULATOR
VF-1	EXHAUST FAN	935 CFM @ 0.625" W.G.	1/3HP, 115, 1	DIRECT DRIVE	PENN TYPE WAG220 WITHOUT BACKDRAFT DAMPER
OF-1	USED OIL FURNACE	INPUT 125 MBH, OUTPUT 100 MBH	115/60 20 AMPS	WITH WORKBENCH MODEL WBT-250 AND OIL DRAIN BOX	SHENANDOAH MODEL 125 PACKAGE
	BURNER	-			
	TRANSFER PUMP	2.5 GPH @ 40 PSI			
	FAN	1600 CFM			
HB-1	HOSE BIBB	-	-	-	3/4" NIBCO



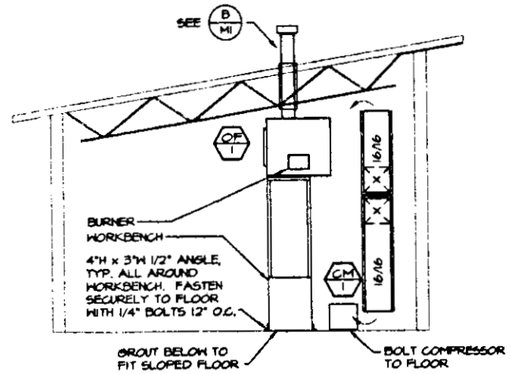
A / M1 VF-1 DETAIL
NO SCALE



B / M1 FLUE THROUGH ROOF DETAIL
NO SCALE



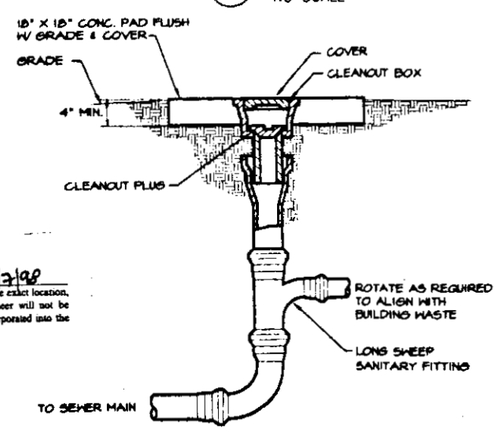
C / M1 SECTION AT VF-1
NO SCALE



D / M1 SECTION AT OF-1
NO SCALE

RECORD DRAWINGS

Revisions drawn by Matt Stephl Date: 4/2/98
These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.



E / M1 YARD CLEANOUT DETAIL
NO SCALE

PLOT SCALE: 1=1
FILE NAME: 510604M1.DWG

STATE OF ALASKA — SCOTT V. BELL — ME-7355 — REGISTERED PROFESSIONAL ENGINEER

Date Stamped: 4.30.97

By	Revision	Date

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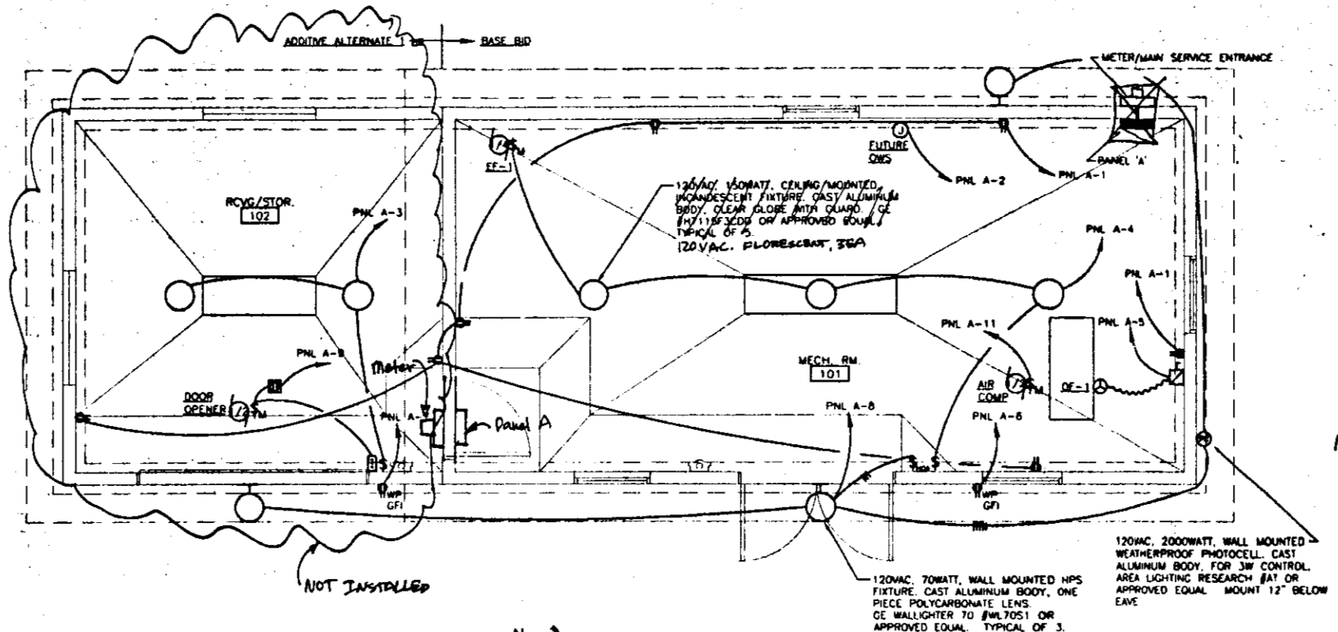
Project:
ENVIRONMENTAL OPERATIONS STATIONS VALDEZ
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.	
Drawn	LDS	
Drawn		
Checked	RJW	
Date	4-30-97	

Sheet Contents:
MECHANICAL
FLOOR PLAN
AND DETAILS

Sheet No.:
M1

STEPHL W.O. 9615
USKH W.O. 510604



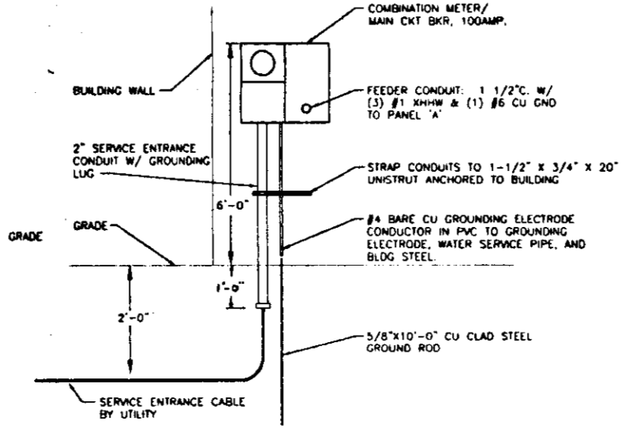
Note: Fan and heater automatically shut-off when fire suppression system activates.

N

1/E1 ELECTRICAL PLAN

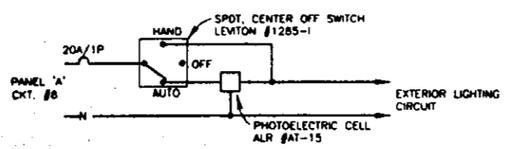
1/4" = 1'-0"

ARCH NORTH



2/E1 METER/MAIN SERVICE ENTRANCE DETAIL

NO SCALE



3/E1 EXTERIOR LIGHTING WIRING DIAGRAM

NO SCALE

PLOT SCALE: 1=1

FILE NAME: 510604ELDWG

PANEL SCHEDULE

PANEL A — 120/240 VOLT — 100 AMP — 1PH — 3W — MAIN LUGS ONLY

LOCATION: MECHANICAL ROOM — SURFACE MOUNTED

CKT	LOAD	BKR	KVA	A	B	KVA	BKR	LOAD	CKT
1	RECEPTACLES	20/1	1.08	2.28		1.18	15/1	FUTURE OIL/WATER SEPARATOR	2
3	RCVG LIGHTS	20/1	0.30		1.61	1.31	15/1	EF-1 (1/3 HP) & MECH RM LIGHTS	4
5	OF-1	30/1	2.40	3.58		1.18	20/1	EXTERIOR RECEPTACLES (1/2 HP)	6
7	EXTERIOR RECEPTACLES (1/2 HP)	20/1	1.18		1.44	0.26	20/1	EXTERIOR LIGHTS	8
9	GARAGE DOOR OPENER (1/2 HP)	15/1	1.17	1.17			20/1	SPARE	10
11	AIR COMPRESSOR (1/2 HP)	15/1	1.17	1.17			20/1	SPARE	12
13	SPARE	20/1					20/1	SPARE	14
15	SPARE	20/1						SPACE	16
17	SPARE	20/1						SPACE	18
19	SPACE							SPACE	20

TOTAL CONNECTED LOAD KVA: 11.2 8.2 3.0 — CONNECTED TOTAL AMPS: 47

DEMAND FACTOR: 1.25 DEMAND KVA: 14.0 — DEMAND LOAD AMPS: 58

REMARKS:

RECORD DRAWINGS

Revisions drawn by Matt Stephl — Date: 4/7/98

These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.

ELECTRICAL LEGEND

LIGHTING

- SURFACE CEILING MOUNTED INCANDESCENT LIGHT FIXTURE
- WALL MOUNTED HID LIGHT FIXTURE
- $ $_{HOA}$ — SINGLE POLE SWITCH, HOA SUBSCRIPT DENOTES 20A, SINGLE POLE DOUBLE THROW, CENTER OFF SWITCH FOR HAND, OFF, AND AUTO CONNECTION OF EXTERIOR LIGHTING. LABEL SWITCH POSITIONS.
- PHOTO CELL

POWER/CONTROL

- PANELBOARD, SURFACE MOUNTED
- DUPLEX RECEPTACLE, WALL MOUNTED 48" AFF, 20A SPEC GRADE. WP = WEATHERPROOF GFI = GROUND FAULT INTERRUPTING
- CEILING MOUNTED DUPLEX RECEPTACLE
- EQUIPMENT CONNECTION; COORDINATE CONNECTION WITH EQUIPMENT MANUFACTURERS RECOMMENDATIONS
- JUNCTION BOX
- SINGLE PHASE MOTOR
- MANUAL MOTOR STARTER, 20A/2P WITH THERMAL OL AND RED PILOT LIGHT
- PUSHBUTTON START/STOP ON DOOR OPENER
- LIQUIDTITE FLEXIBLE CONDUIT
- UNDERGROUND OR UNDER FLOOR CONDUIT
- EXPOSED CONDUIT
- CONCEALED CONDUIT
- #6 — BRANCH CIRCUIT: ARROWHEAD INDICATES HOMERUN. INDICATES (2) #12 WIRES IN ADDITION TO EQUIPMENT GROUND, # INDICATES SIZE IF OTHER THAN #12.

NOTATION

- (X) REFERENCE TO SHEET NOTE
- REFERENCE TO REVISION

NOTE: THIS IS A STANDARD LEGEND. SOME OF THE SYMBOLS ON THE LEGEND ARE NOT NECESSARILY SHOWN ON THE DRAWINGS.

GENERAL NOTES

1. INSTALLATION SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND STANDARDS
2. PROVIDE ALL MATERIALS AND SERVICES REQUIRED FOR A COMPLETE INSTALLATION AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3. ALL PRODUCTS SHALL BE LISTED AND CLASSIFIED BY A TESTING LABORATORY ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, NEW, AND SUITABLE FOR THE PURPOSE SPECIFIED AND SHOWN OR INTENDED.
4. DRAWINGS ARE INTENDED AS A GUIDE FOR QUANTITY, APPROXIMATE EQUIPMENT LOCATIONS AND DESIGN CRITERIA. DO NOT SCALE DRAWINGS. INSTALL WORK IN LOCATIONS SHOWN ON THE DRAWINGS UNLESS PREVENTED BY SITE CONDITIONS. CONDUCT A SITE VISIT AND EXAMINE ALL DRAWINGS AND SPECIFICATIONS FOR DISCREPANCIES BETWEEN THIS AND OTHER DIVISIONS OF THE WORK. COORDINATE ALL WORK WITH OTHER DIVISIONS FOR CHANGES AFFECTING WORK IN THIS DIVISION. OBTAIN OWNER'S APPROVAL BEFORE PROCEEDING.
5. COORDINATE ALL WORK WITH THE SERVING UTILITIES PRIOR TO CONSTRUCTION. PAY ALL APPLICABLE UTILITY COSTS FOR THE PROJECT. VERIFY AND COMPLY WITH ALL UTILITY REQUIREMENTS.
6. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS
7. EMPLOY WORKMEN SKILLED IN THE TRADE AND FAMILIAR WITH TECHNIQUES REQUIRED TO COMPLETE THE WORK IN A NEAT AND WORKMANLIKE MANNER.
8. PROVIDE A ONE YEAR WARRANTY FOR ALL MATERIALS AND LABOR. WARRANTY SHALL COMMENCE AT OCCUPANCY. ALL REPAIRS SHALL BE MADE IN A TIMELY MANNER AT NO COST TO THE OWNER.
9. SERVICE ENTRANCE CABLE SHALL BE COPPER USE; FEEDER AND DISTRIBUTION WIRING SHALL BE COPPER, TYPE XHHW, THHN/THWN INSULATION MINIMUM. COMPRESSION TERMINATIONS EQUAL TO BURNDY "AYP" SHALL BE USED FOR ALL ALUMINUM TERMINATIONS.
10. ALL WIRING SHALL BE IN METAL CONDUIT. NONMETALLIC PVC CONDUIT WITH RIGID STEEL ELLS MAY BE USED BELOW GRADE OR IMBEDDED IN CONCRETE, UON. MINIMUM WIRE SIZE SHALL BE #12 AWG. MINIMUM CONDUIT SIZE SHALL BE 1/2". PROVIDE RACEWAY SUPPORT AS REQUIRED BY APPLICABLE CODES. PROVIDE LIQUIDTITE CONDUIT CONNECTION FOR ALL EQUIPMENT, HEATERS, AND VENT FANS.
11. VOLTAGE DROP AT ANY OUTLET SHALL NOT EXCEED 5%.
12. PROVIDE SERVICE GROUND AS SHOWN ON THE DRAWINGS. ALL GROUNDING SHALL BE IN COMPLIANCE WITH NEC ARTICLE 250. PROVIDE SEPARATE INSULATED GROUNDING CONDUCTOR WITH EACH FEEDER AND BRANCH CIRCUIT RACEWAY. TERMINATE EACH END ON LUG, BUS, OR BUSHING.
13. WIRING DEVICES SHALL BE SPECIFICATION GRADE. ALL EXTERIOR RECEPTACLES SHALL BE GFCI PROTECTED WITH A WEATHERPROOF COVER. COVER PLATES SHALL BE SATIN FINISH STAINLESS STEEL.
14. SERVICE EQUIPMENT SHALL BE PROVIDED AS FOLLOWS:
    A. GROUNDING BUSHINGS FOR ALL CONDUIT CONNECTIONS TO ENCLOSURE.
    B. SOLID NEUTRAL (SN) IN DISCONNECTS & PANELBOARD.
    C. #4AWG BARE SOLID CU GROUND WIRE AT SERVICE. CONNECT TO FULLY DRIVEN 5/8" CU CLAD STEEL GROUND ROD.
    D. MOUNT DISCONNECT HANDLES AT NOMINAL 5' MOUNTING HEIGHT.
15. PROVIDE 100A, 1PH, 3W, 120/240V, 20 CKT, MLO, SURFACE MOUNTED NEMA 1 PANELBOARD, 10KAIC STANDARD FED SPEC WP115C, WITH SN GROUND BAR KIT, SQUARE D #NOOD20L125 OR APPROVED EQUAL.
16. PROVIDE FRACTIONAL HP MANUAL MOTOR STARTERS, 240V, 2P, TOGGLE SWITCH WITH OVERLOAD PROTECTION AND RED PILOT LIGHT, SQUARE D #FG6P OR APPROVED EQUAL.
17. PROVIDE 5 SPARE OF EACH TYPE BULB, 1 SPARE OF EACH TYPE BALLAST, 2 SPARE OF EACH TYPE FUSE IN CONTRACTOR PROVIDED WALL MOUNTED SPARE FUSE AND BULB CABINET.

ELECTRICAL ABBREVIATIONS

AC	ALTERNATING CURRENT	N	NEUTRAL
AFF	ABOVE FINISHED FLOOR	N.E.C.	NATIONAL ELECTRICAL CODE
AGL	ABOVE GRADE LEVEL	N.I.C.	NOT IN CONTRACT
A.I.C	AMP INTERRUPT CAPACITY	NTS	NOT TO SCALE
AWG	AMERICAN WIRE GAUGE	U/G	UNDERGROUND
C	CONDUIT	UON	UNLESS OTHERWISE NOTED
CKT	CIRCUIT	V	VOLT
GND	GROUND	VAC	VOLT ALTERNATING CURRENT
GRC	GALVANIZED RIGID CONDUIT	W/	WITH
HOA	HAND OFF AUTO	WP	WEATHER-PROOF
KVA	KILOVOLT-AMPERE	XP	EXPLOSION-PROOF
MIN	MINIMUM		

STATE OF ALASKA — 49th — GARY R. STEPHL — EX-7673 — REGISTERED PROFESSIONAL ENGINEER

Date Stamped: 5-1-98

By	Revision	Date

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Project:
ENVIRONMENTAL OPERATIONS STATIONS VALDEZ
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

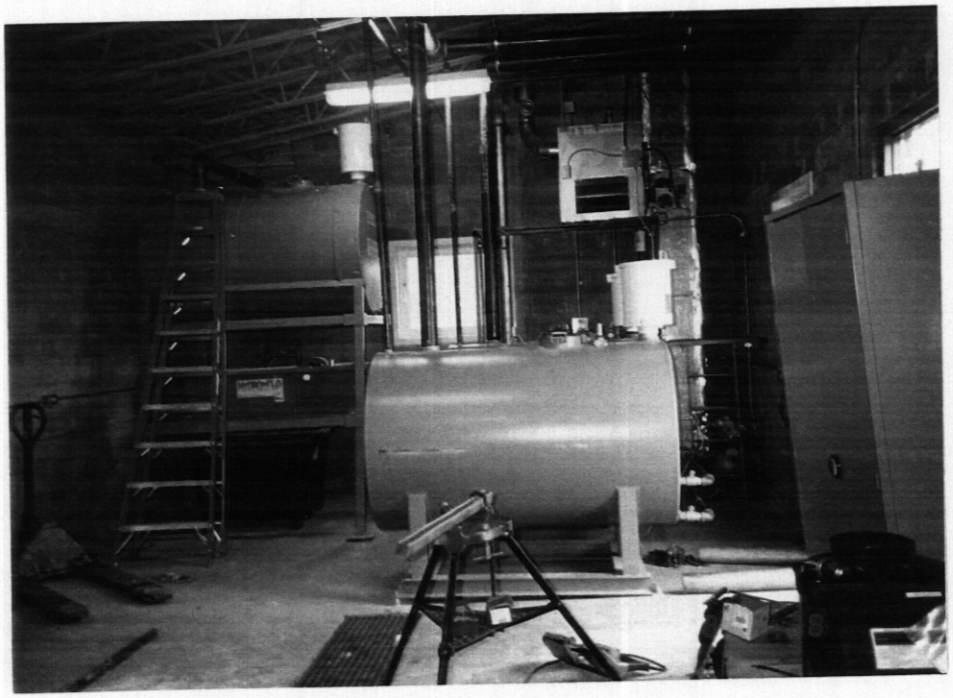
Project Mgr.	M.S.	
Drawn	DEJ	
Drawn		
Checked	GRK	
Date	4-30-97	

Sheet Contents:
ELECTRICAL PLAN
PLAN

Sheet No.:
E1

STEPHL W.O. 9615
USKH W.O. 510604

VALDEZ EVOS STATION



APPENDIX Q

Whittier EVOS Station Asbuilt Drawings and Photo's

STEPHL

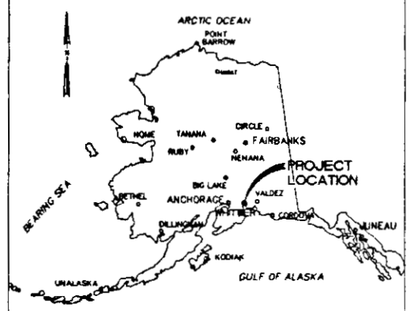
PRINCE WILLIAM SOUND
ECONOMIC DEVELOPMENT COUNCIL, INC.
WHITTIER EVOS STATION

INDEX

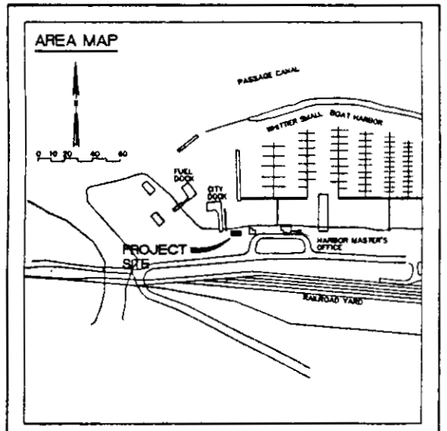
NOTES:

1. CONTRACTOR SHALL MAINTAIN HIS WORK FOR THE NEW EVOS STATION EXCAVATION, FOUNDATION AND BUILDING TO WITHIN THE SITE WORK LIMITS SHOWN ON THE SITE PLAN. CONTRACTOR IS RESPONSIBLE FOR OBTAINING HIS OWN OFFSITE STAGING AREAS AS NECESSARY TO COMPLETE THE WORK.
2. THE LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE AND IT SHALL BE THE RESPONSIBLITY OF THE CONTRACTOR TO VERIFY THE TRUE AND CORRECT LOCATION PRIOR TO CONSTRUCTION TO AVOID DAMAGE OR DISTURBANCE.
3. CONTRACTOR SHALL NOT BLOCK ACCESS FOR CITY CREWS AND EQUIPMENT TRAVELLING TO AND FROM THE CITY DOCK.

MAP OF ALASKA



AREA MAP



RECORD DRAWINGS

Revisions drawn by Matt Stephl Date: 4/7/98

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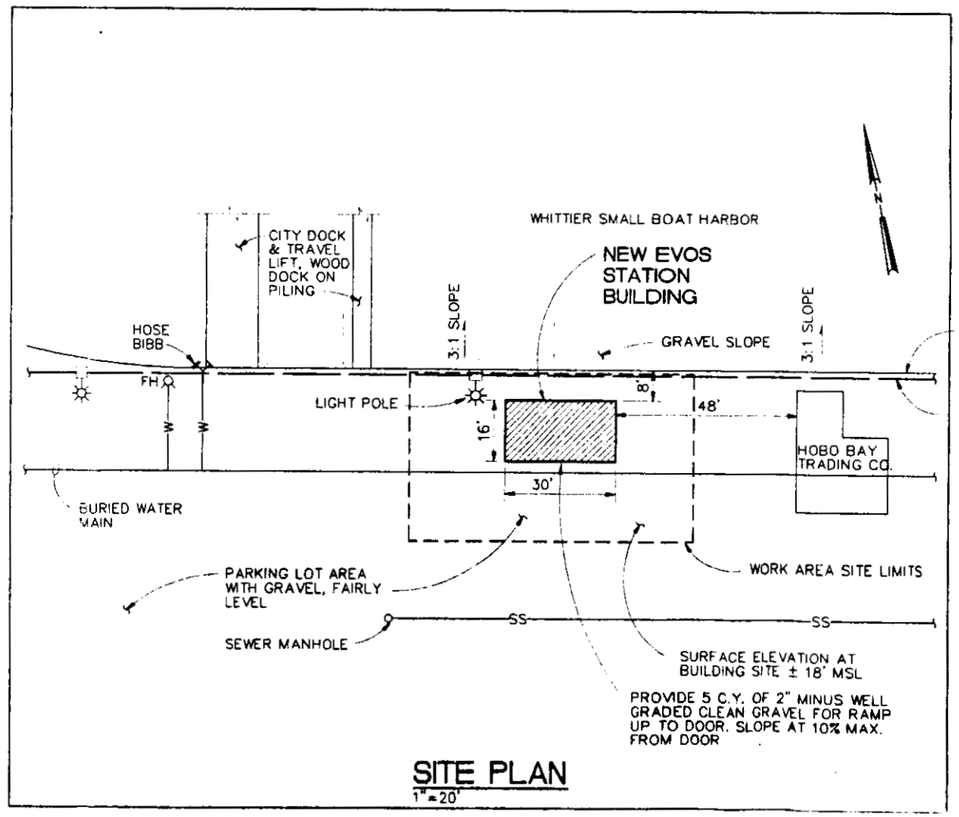

SITE PLAN
1"=20'

PLOT SCALE:

wps-sht.dwg

Matt Stephl

Date Stamped 4-17-97

By
Revision
Date

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Project:
WHITTIER EVOS STATION

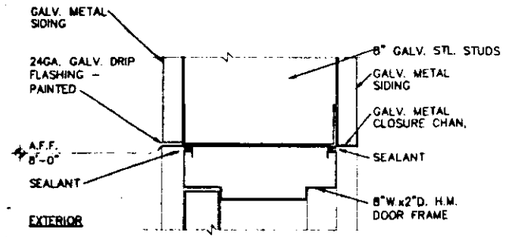
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr	M.S.
Drawn	VND
Drawn	
Checked	
Date	4-18-97

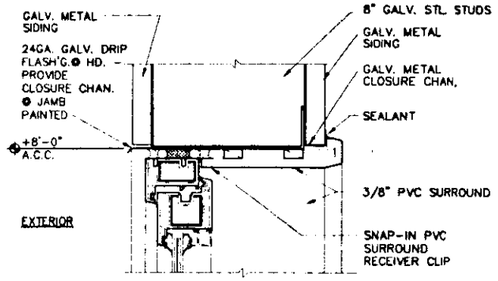
Sheet Contents:
TITLE
SITE PLAN
INDEX

Sheet No.:
C1

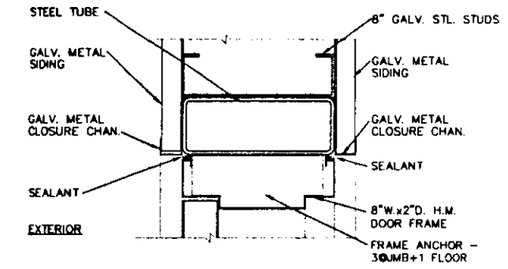
STEPHL W.O. 9615
USKH W.O. 510604



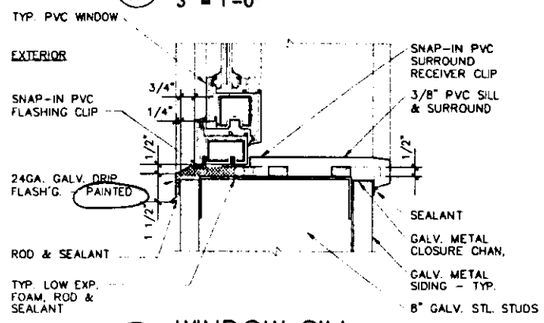
3 / A1 DOOR HEAD
3" = 1'-0"



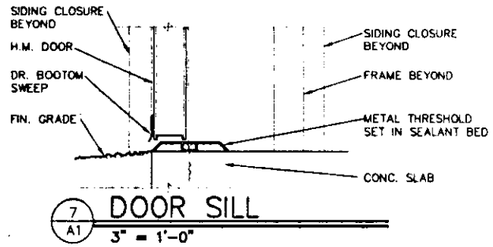
2 / A1 WINDOW HD./JB. SIM.
3" = 1'-0"



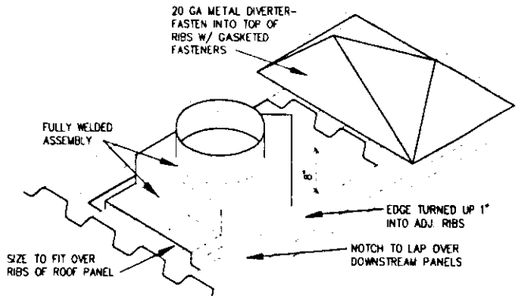
5 / A1 DOOR JAMB
3" = 1'-0"



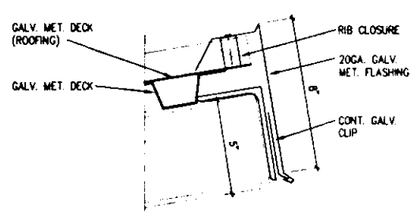
4 / A1 WINDOW SILL
3" = 1'-0"



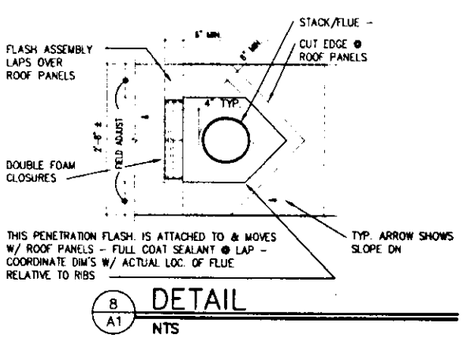
7 / A1 DOOR SILL
3" = 1'-0"



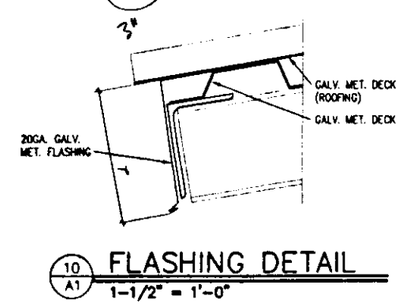
6 / A1 DETAIL
NTS



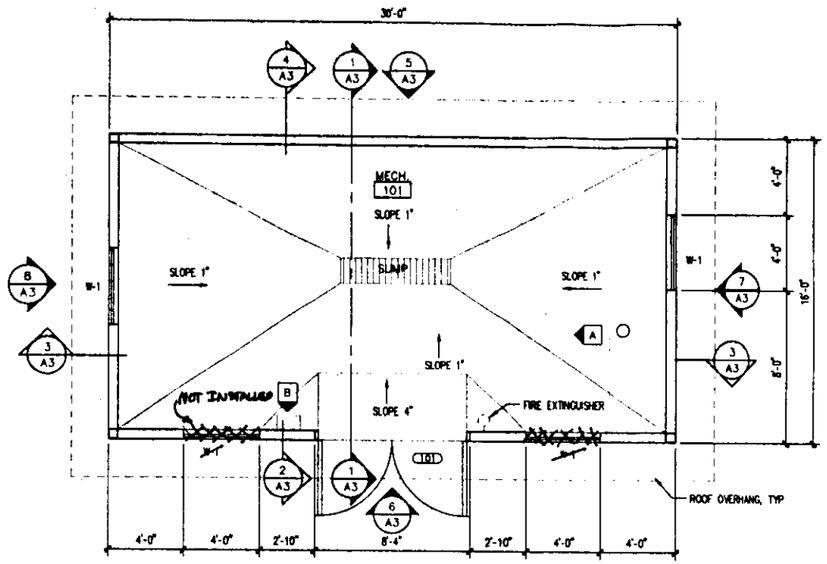
9 / A1 FLASHING DETAIL
1-1/2" = 1'-0"



8 / A1 DETAIL
NTS



10 / A1 FLASHING DETAIL
1-1/2" = 1'-0"



N
ARCH NORTH

1 / A1 FLOOR PLAN
1/4" = 1'-0"

EQUIPMENT SCHEDULE

A USED OIL BURNER : (SEE MECHANICAL)

B EYE WASH: WALL MOUNTED MODEL 7500 AS MANUFACTURED BY HAWS, BERKELEY, CA

RECORD DRAWINGS

Revisions drawn by Matt Stephl Date: 4/7/98
These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.

CODE REVIEW 1994 UBC

Classify the building:

1. Occupancy classification: Table 3-A
   - F1 Refuse incineration Sec. 306
     Quantity of used oil (H-B) is less than quantity allowed in Table 3-D (13,200 Gallons), therefore occupancy is not a H2 (hazardous) occupancy.
   - S1 Storage - combustible materials

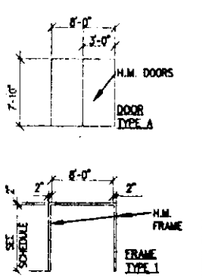
   Table 3-B Required Separation in Buildings of Mixed Occupancy (Hours)

   F1 to S1 = N (no requirements for fire resistance)
2. Type of Construction: II-N
3. Location on property: Table 5-A, F1 AND S1; II N
   - Exterior walls, bearing = 1 hr < 20 ft.
   - Exterior walls, nonbearing = 1 hr < 20 ft.
   - Openings: Not permitted < 5 ft. Protected < 10 ft.
4. Allowable Floor Area: Table 5-B
   - F-1, S-1, II-N = 12,000 sq.ft.
   - Actual floor area: 480sq.ft.

   Therefore, the actual area is less than the allowable area and the building complies. Area increases are not required and neither are area separation walls.
5. Allowable Height and number of stories: Table 5-B
   - F-1, S-1 II N Max height = 2 stories 55 ft.

   The building complies.

DOOR TYPES



WINDOW/OPENING SCHEDULE

WINDOW NO.	SIZE	OPERABLE	REMARKS
W-1	4'-0"x3'-4"	YES	SEE DETAILS

DOOR SCHEDULE

DOOR NO.	SIZE	DOOR TYPE	FRAME TYPE	HARDWARE GROUP	REMARKS
101	PAIR 4'-0"x7'-10"	A	1	HW-1	PAINT DOOR & FRAME

FINISH SCHEDULE

RM. NO.	RM NAME	FLOOR		BASE	WALLS				CEILING	REMARKS
		MATERIAL	FINISH	FINISH	NORTH FINISH	EAST FINISH	SOUTH FINISH	WEST FINISH	FINISH	
101	MECH	CONCRETE	BROOM	4" CONC. CURB	GALV. METAL	GALV. METAL	GALV. METAL	GALV. METAL	GALV. METAL	

STATE OF ALASKA
JAMES A. HUETER
No. A - 3589
REGISTERED PROFESSIONAL ENGINEER

Date Stamped: 4/8/97

By / Revision / Date

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Project:
ENVIRONMENTAL OPERATIONS STATIONS
WHITTIER
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.
Drawn	PCF
Drawn	RWP
Checked	
Date	4-17-97

Sheet Contents:
FLOOR PLAN
FINISH SCHEDULE
DOOR SCHEDULE
WINDOW/OPENING SCHEDULE
DETAILS

Sheet No.:
A1

STEPHL W.O. 9615
USKH W.O. 510604

PLOT SCALE: 1=1
FILE NAME: 510604WA1.DWG

GENERAL:

This structure is designed in accordance with the 1994 Uniform Building Code. Contractor shall verify all existing conditions prior to beginning construction. All codes cited in the General Notes refer to the latest editions of those codes unless noted otherwise.

DESIGN LOADS:

Roof:	Snow	280 psf
Floor:	Floor	125 psf
Seismic:		Zone 4 Rw = 6 I = 1.00
Wind:		110 MPH I = 1.00

CONCRETE:

Mixing and placing of concrete and selection of materials shall be in accordance with the UBC and ACI code 318. Normal weight concrete concrete shall have a minimum 28 day compressive strength of 3,000 psi. The concrete mix shall consist of coarse aggregate conforming to ASTM #67 (3/4"), Type I cement, a maximum water cement ratio of 0.45 and air entrainment of 5%. Admixtures may be used in strict conformance with the manufacturer's recommendations.

STRUCTURAL STEEL:

Structural steel shall be detailed, fabricated and erected in accordance with the American Institute of Steel Construction AISC Manual, 9th Edition. Structural Steel shall conform to ASTM A36, except Tube Steel Sections shall be ASTM A500, Grade B. Bolts shall be 3/4" diameter ASTM A325 unless noted otherwise in details. Anchor bolts to be ASTM A307. All welds to be 3/16" min. unless otherwise noted, by certified welders using electrodes conforming to ASTM A-233, Class E70. Apply one coat of primer paint conforming with SSPC, Steel Structure Painting Council to all members except those sections to be embedded in concrete. Provide shop drawings with details for review.

STEEL JOISTS:

Steel joists shall be detailed, fabricated and erected in accordance with the Steel Joist Institute Specifications. Joists shall be welded to the supports as indicated in the details. Continuous bridging shall be designed and installed per the manufacturer's recommendations. All bridging shall be securely fastened to joists and end walls. All joists shall be designed for a point load of 500 pounds to be applied at any location on the joist. This point load is in addition to the uniform loads indicated in the joist designations or shown in the loading diagrams.

STEEL DECK:

Steel Deck shall be detailed, fabricated, and erected in accordance with the Steel Deck Institute Specifications. Decking shall have the following minimum properties:

Roof & Walls	Floor
20 Gauge	20 go composite form deck
I = 0.074 in4	± = 0.430 in4
S(+) = 0.144 in3	S(+) = 0.369 in3
S(-) = 0.144 in3	S(-) = 0.387 in3

Lay deck perpendicular to supports and continuous over (three) or more spans . Floor and roof deck shall be welded to all supports with 5/8" puddle welds, minimum 4 per width of sheet, and at 12" o.c. along length of sheets. Side laps shall be fastened with #10 screws at 12".

Deck panels on walls shall be fastened with #12 screws, minimum 4 per width of sheet and at 10" o.c. along length of sheet. Sidelaps shall be fastened with #10 screws at 10" o.c.

Follow manufacturer's recommendations for shoring before placing concrete. Manufacturer to provide steel flashing, collars, etc. as required for openings thru deck. Provide shop drawings with details for review. NOTE: TOP ROOF DECK ATTACHED W/ SCREWS

COLD FORMED METAL FRAMING.

Fastening Requirements:

Track: Fasten to floor or structural steel with 5/8" plugweld or 3/16" power fastener, 2 at 16" o.c.

Studs: Fasten to track with 2 #10 screws each and fasten back to back studs to each other with 2 #12 screws at 16" o.c.

Blocking: Secure with 2 #12 screws each.

Straps: Secure with #12 screws at each member and at 12" o.c. along blocking.

SPECIAL INSPECTION:

The following items require special inspection during construction.

All concrete reinforcing placement shall be inspected prior to placing concrete.

All bolts installed in concrete shall be inspected prior to placing concrete.

All complete penetration welds performed in a fabricating shop or in the field shall be radiographically or ultrasonically tested.

All shop other than complete penetration welds shall be visually inspected.

All fillet welds made in the field shall be visually inspected.

Periodic inspections of roof and floor deck shall be performed.

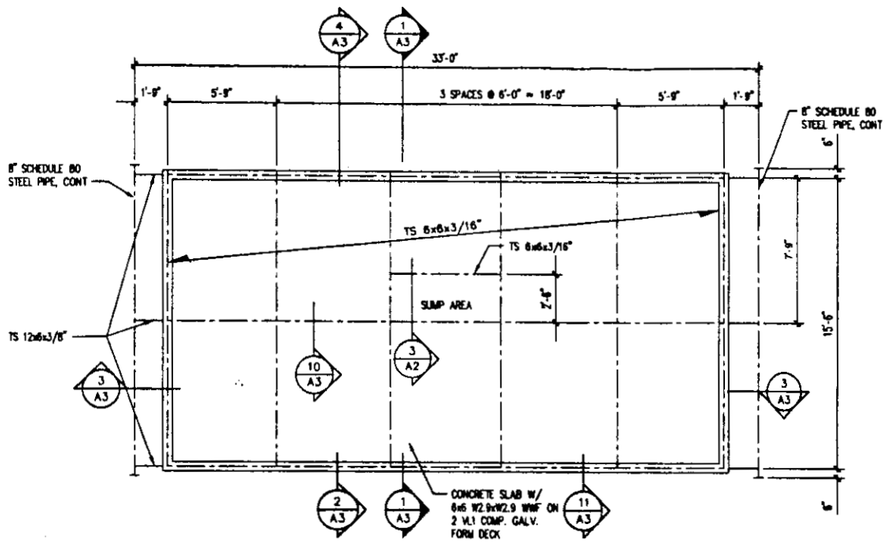
All high strength bolting.

Field Water Test: Contractor to fill floor with water to top of concrete curb. If water level drops more than 1/2" over 24 hour time period contractor shall repair floor and retest until floor meets requirements.

The Owner will provide inspections as required by the Uniform Building Code Sections 302 and 306 and as per Supplementary General Conditions.

1. During placement of reinforced or pneumatically placed concrete.
2. Inspection of reinforcing steel for conformance to approved shop and placement drawings and the construction documents.
3. Inspection of all anchor bolts including adhesive bolts installed in concrete.
4. Inspection of complete penetration structural welds.
5. Periodic Inspection of single-pass fillet welds when stressed to less than 50 percent of allowable stresses, and floor and roof deck welding and welded studs.
6. Checking of welders' qualifications.
7. Verification of high-strength bolt tension.

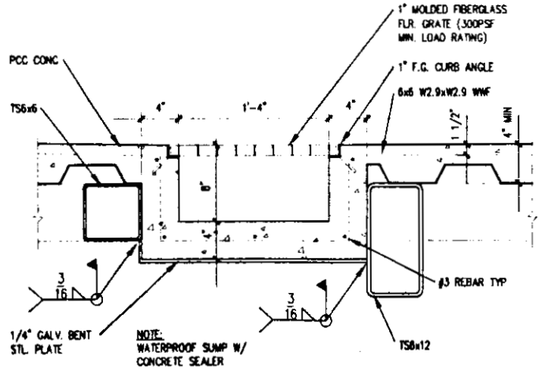
Special inspections do not relieve Contractor of testing required by the contract documents.



ARCH NORTH

1 A2 FLOOR FRAMING PLAN

1/4" = 1'-0"



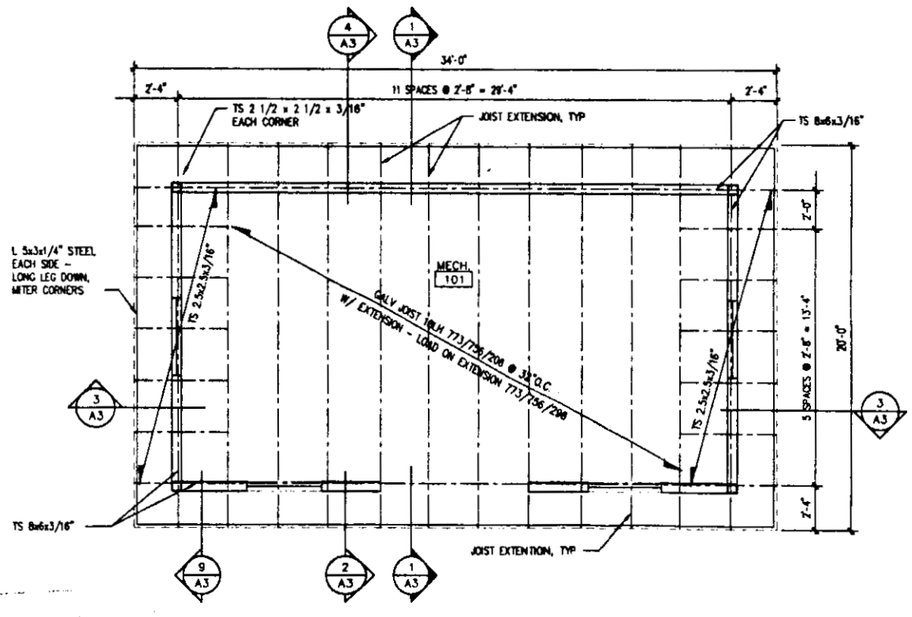
3 A2 SUMP DETAIL

1-1/2" = 1'-0"

RECORD DRAWINGS

Revisions drawn by Matt Stephl Date: 4/7/98

These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.



ARCH NORTH

2 A2 ROOF FRAMING PLAN

1/4" = 1'-0"

PLOT SCALE: 1=1

FILE NAME: 51064W2.DWG

Date Stamped: 4/18/97

By

Revision

Date

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Project:
ENVIRONMENTAL OPERATIONS STATIONS
WHITTIER
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

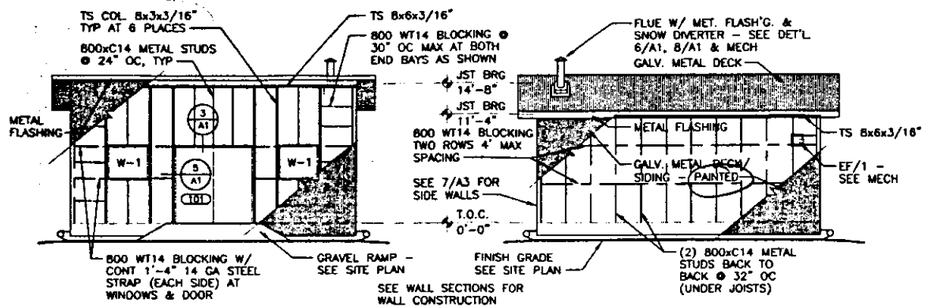
Project Mgr.	M.S.
Drawn	PCF
Drawn	RWP
Checked	
Date	4-17-97

Sheet Contents:
FLOOR FRAMING PLAN
ROOF FRAMING PLAN

Sheet No.:
A2

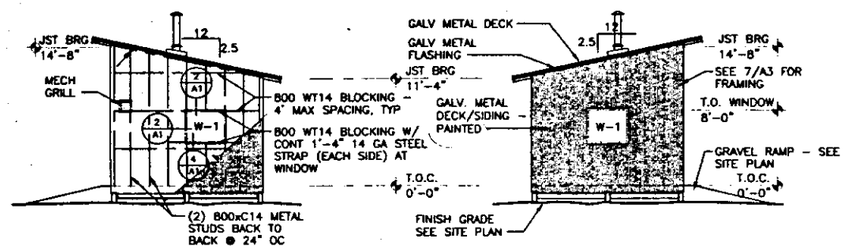
STEPHL W.O. 9615

USKH W.O. 510604



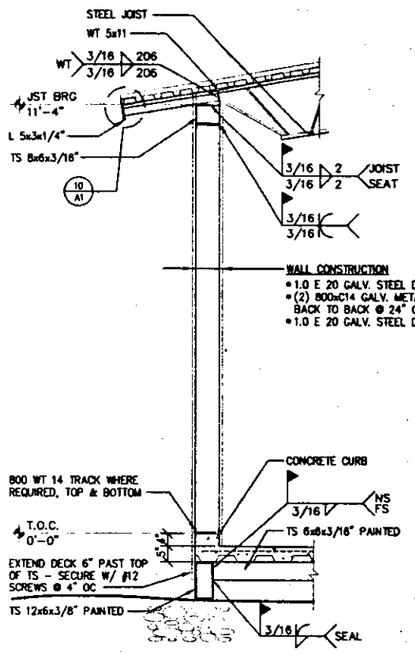
6/A3 SOUTH ELEVATION
1/8" = 1'-0"

5/A3 NORTH ELEVATION
1/8" = 1'-0"

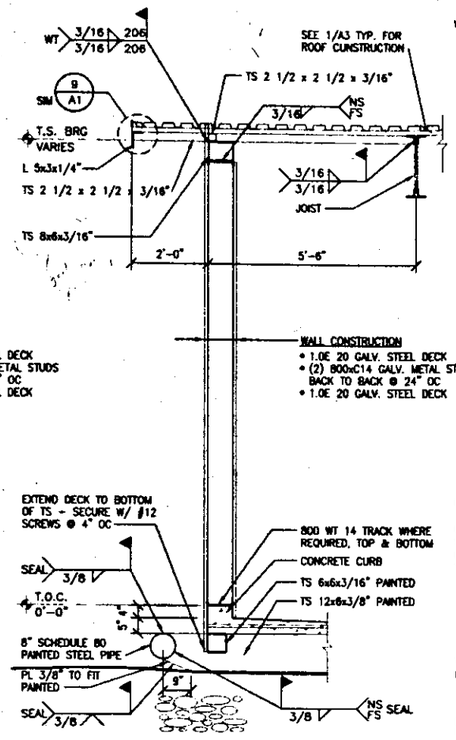


7/A3 EAST ELEVATION
1/8" = 1'-0"

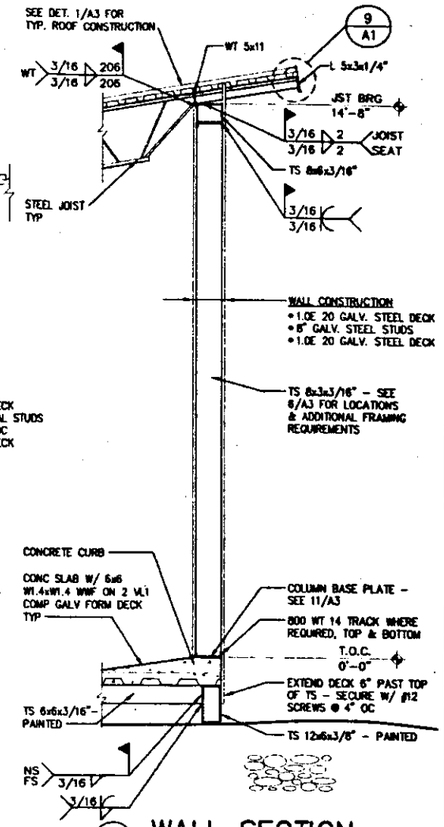
8/A3 WEST ELEVATION
1/8" = 1'-0"



4/A3 WALL SECTION
1/2" = 1'-0"



3/A3 WALL SECTION
1/2" = 1'-0"



2/A3 WALL SECTION
1/2" = 1'-0"

AD2-1 Sheet A3
Add the following note to the drawing:

All structural steel shall be primed and painted unless shown as otherwise. Only those structural steel members specifically identified as galvanized shall be provided with a galvanized coating. The exterior walls shall be galvanized metal decking that are painted. The exterior galvanized roofing shall not be painted.

RECORD DRAWINGS

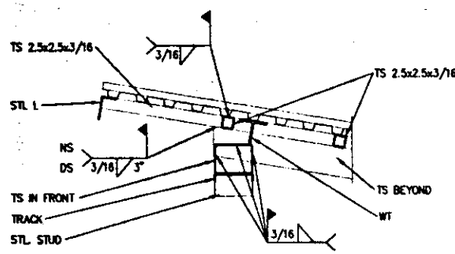
Revisions drawn by Matt Stephl Date: 1/7/98
These record drawings are not intended to represent in detail the exact location, type of component nor manner of construction. The engineer will not be responsible for any errors or omissions which have been incorporated into the record drawings.

AD8-4 Sheet A3
Details 1

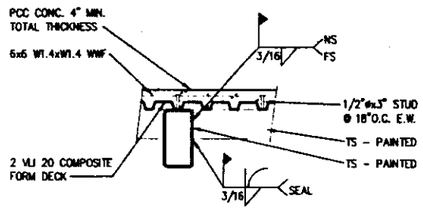
In reference to the galvanized metal decking layer on underside (interior side) of roof:

Delete "1.0E 20 GALV. STL. DECK" and replace with "1-1/2-inch X 20 GA. GALVANIZED HSB 36 ACOUSTICAL METAL DECK".

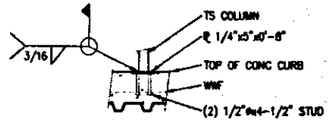
Note: the above note AD8-4 replaces Addendum No. 3 note AD3-3.



9/A3 DETAIL
3/4" = 1'-0"



10/A3 DETAIL
3/4" = 1'-0"

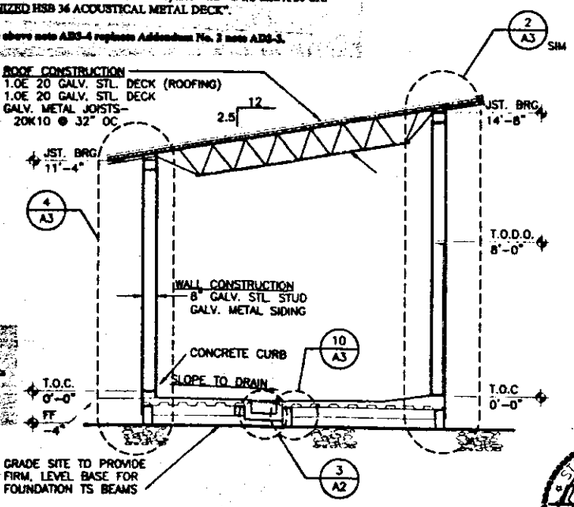


11/A3 DETAIL
3/4" = 1'-0"

AD2-2 Sheet A3
Details 1

Delete all reference to metal joists that are galvanized.

Galvanized joists will not be required. Painted metal joists will be required. The joists will be painted steel joists in accordance with Specification 05210 Steel Joists and Specification 09900 Painting. Joists shall receive one coat of primer and two coats of enamel paint that is compatible with the primer.



1/A3 BUILDING SECTION
1/4" = 1'-0"

AD2-3 Sheet A3
Details 1

In reference to the galvanized metal decking layer on underside (interior side) of roof:

STATE OF ALASKA 49TH
JAMES A. REPPA
#A-3569
REGISTERED PROFESSIONAL ARCHITECT

Date Stamped: 4/17/97

By | Revision | Date

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Project Mgr.	M.S.	
Drawn	PCF	
Drawn	RWP	
Checked		
Date	4-17-97	

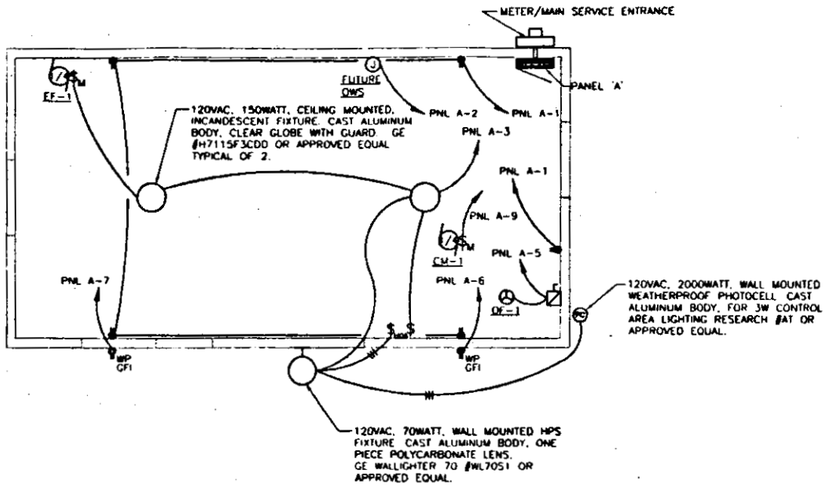
Sheet Contents:
BUILDING SECTION
ELEVATIONS
WALL SECTIONS
DETAILS

Sheet No.:
A3

STEPHL W.O. 9615
USKH W.O. 510604

STATE OF ALASKA 49TH
Bruce E. Kapper
CE-7745
REGISTERED PROFESSIONAL ENGINEER
4/16/97

PLOT SCALE: 1=1
FILE NAME: S1064WA3.DWG



N (1/E1) ELECTRICAL PLAN
1/4" = 1'-0"

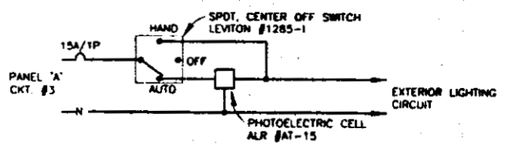
PANEL SCHEDULE

PANEL A — LOCATION: MECHANICAL ROOM — 120/240 VOLT — 100 AMP — 1PH — 3W — MAIN LUGS ONLY — SURFACE MOUNTED

CKT	LOAD	BKR	KVA	A	B	KVA	BKR	LOAD	CKT
1	RECEPTACLES	20/1	0.72	1.90		1.18	15/1	FUTURE OIL/WATER SEPARATOR	2
3	LIGHTS & EF-1 (1/4HP)	15/1	1.10		1.10		15/1	SPARE	4
5	OF-1	20/1	1.56	2.74		1.18	20/1	EXTERIOR RECEPTACLE (1/2 HP)	6
7	EXTERIOR RECEPTACLE (1/2 HP)	20/1	1.18		1.18		20/1	SPARE	8
9	AIR COMPRESSOR CM-1 (1/2HP)	15/1	1.18	1.18			20/1	SPARE	10
11	SPARE	20/1					20/1	SPARE	12
13	SPARE	20/1					20/1	SPARE	14
15	SPARE	20/1					20/1	SPARE	16
17	SPACE							SPACE	18
19	SPACE							SPACE	20

TOTAL CONNECTED LOAD KVA: 8.1 5.8 2.3 — CONNECTED TOTAL AMPS: 34
DEMAND FACTOR: 1.25 DEMAND KVA: 10.1 — DEMAND LOAD AMPS: 42
REMARKS:

NOTE: HEATER & FAN AUTOMATICALLY SHUT-OFF WHEN FIRE SUPPRESSION SYSTEM ACTIVATES.



(3/E1) EXTERIOR LIGHTING WIRING DIAGRAM
NO SCALE

GENERAL NOTES

1. INSTALLATION SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND STANDARDS.
2. PROVIDE ALL MATERIALS AND SERVICES REQUIRED FOR A COMPLETE INSTALLATION AS SPECIFIED IN THE CONTRACT DOCUMENTS
3. ALL PRODUCTS SHALL BE LISTED AND CLASSIFIED BY A TESTING LABORATORY ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, NEW, AND SUITABLE FOR THE PURPOSE SPECIFIED AND SHOWN OR INTENDED.
4. DRAWINGS ARE INTENDED AS A GUIDE FOR QUANTITY, APPROXIMATE EQUIPMENT LOCATIONS AND DESIGN CRITERIA. DO NOT SCALE DRAWINGS. INSTALL WORK IN LOCATIONS SHOWN ON THE DRAWINGS UNLESS PREVENTED BY SITE CONDITIONS. CONDUCT A SITE VISIT AND EXAMINE ALL DRAWINGS AND SPECIFICATIONS FOR DISCREPANCIES BETWEEN THIS AND OTHER DIVISIONS OF THE WORK. COORDINATE ALL WORK WITH OTHER DIVISIONS FOR CHANGES AFFECTING WORK IN THIS DIVISION. OBTAIN OWNER'S APPROVAL BEFORE PROCEEDING.
5. COORDINATE ALL WORK WITH THE SERVING UTILITIES PRIOR TO CONSTRUCTION. PAY ALL APPLICABLE UTILITY COSTS FOR THE PROJECT. VERIFY AND COMPLY WITH ALL UTILITY REQUIREMENTS.
6. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
7. EMPLOY WORKMEN SKILLED IN THE TRADE AND FAMILIAR WITH TECHNIQUES REQUIRED TO COMPLETE THE WORK IN A NEAT AND WORKMANLIKE MANNER
8. PROVIDE A ONE YEAR WARRANTY FOR ALL MATERIALS AND LABOR. WARRANTY SHALL COMMENCE AT OCCUPANCY. ALL REPAIRS SHALL BE MADE IN A TIMELY MANNER AT NO COST TO THE OWNER.
9. SERVICE ENTRANCE CABLE SHALL BE COPPER USE; FEEDER AND DISTRIBUTION WIRING SHALL BE COPPER. TYPE XHHW, THHN/THWN INSULATION MINIMUM. COMPRESSION TERMINATIONS EQUAL TO BURNDY "AYP" SHALL BE USED FOR ALL ALUMINUM TERMINATIONS.
10. ALL WIRING SHALL BE IN METAL CONDUIT. NONMETALLIC PVC CONDUIT WITH RIGID STEEL ELLS MAY BE USED BELOW GRADE OR IMBEDDED IN CONCRETE, UON. MINIMUM WIRE SIZE SHALL BE #12 AWG. MINIMUM CONDUIT SIZE SHALL BE 1/2". PROVIDE RACEWAY SUPPORT AS REQUIRED BY APPLICABLE CODES. PROVIDE LIQUIDTITE CONDUIT CONNECTION FOR ALL EQUIPMENT, HEATERS, AND VENT FANS.
11. VOLTAGE DROP AT ANY OUTLET SHALL NOT EXCEED 5%.
12. PROVIDE SERVICE GROUND AS SHOWN ON THE DRAWINGS. ALL GROUNDING SHALL BE IN COMPLIANCE WITH NEC ARTICLE 250. PROVIDE SEPARATE INSULATED GROUNDING CONDUCTOR WITH EACH FEEDER AND BRANCH CIRCUIT RACEWAY. TERMINATE EACH END ON LUG, BUS, OR BUSHING.
13. WIRING DEVICES SHALL BE SPECIFICATION GRADE. ALL EXTERIOR RECEPTACLES SHALL BE GFCI PROTECTED. COVER PLATES SHALL BE SATIN FINISH STAINLESS STEEL.
14. SERVICE EQUIPMENT SHALL BE PROVIDED AS FOLLOWS:
    A. GROUNDING BUSHINGS FOR ALL CONDUIT CONNECTIONS TO ENCLOSURE.
    B. SOLID NEUTRAL (SN) IN DISCONNECTS & PANELBOARD
    C. #4AWG BARE SOLID CU GROUND WIRE AT SERVICE. CONNECT TO FULLY DRIVEN 5/8" CU CLAD STEEL GROUND ROD.
    D. MOUNT DISCONNECT HANDLES AT NOMINAL 5' MOUNTING HEIGHT.
15. PROVIDE 100A, 1PH, 3W, 120/240V, 20 CKT, MLO, SURFACE MOUNTED NEMA 1 PANELBOARD, 10KAIC STANDARD FED SPEC WP115C, WITH SN GROUND BAR KIT, SQUARE D #NQOD20L125 OR APPROVED EQUAL.
16. PROVIDE FRACTIONAL HP MANUAL MOTOR STARTERS, 240V, 2P, TOGGLE SWITCH WITH OL'S AND RED PILOT LIGHT, SQUARE D #FG8P OR APPROVED EQUAL.
17. PROVIDE 5 SPARE OF EACH TYPE BULB, 1 SPARE OF EACH TYPE BALLAST, 2 SPARE OF EACH TYPE FUSE IN CONTRACTOR PROVIDED WALL MOUNTED SPARE FUSE AND BULB CABINET.

ELECTRICAL ABBREVIATIONS

AC	ALTERNATING CURRENT	N	NEUTRAL
AFF	ABOVE FINISHED FLOOR	N.E.C.	NATIONAL ELECTRICAL CODE
AGL	ABOVE GRADE LEVEL	N.I.C.	NOT IN CONTRACT
A.I.C.	AMP INTERRUPT CAPACITY	NTS	NOT TO SCALE
AWG	AMERICAN WIRE GAUGE	U/G	UNDERGROUND
C.	CONDUIT	UON	UNLESS OTHERWISE NOTED
CKT	CIRCUIT	V	VOLT
GND	GROUND	VAC	VOLT ALTERNATING CURRENT
GRC	GALVANIZED RIGID CONDUIT	W/	WITH
HOA	HAND OFF AUTO	WP	WEATHER-PROOF
KVA	KILOVOLT-AMPERE	XP	EXPLOSION-PROOF
MIN	MINIMUM		

ELECTRICAL LEGEND

LIGHTING

- SURFACE CEILING MOUNTED INCANDESCENT LIGHT FIXTURE
- WALL MOUNTED HID LIGHT FIXTURE
- S_{HOA} SINGLE POLE SWITCH, HOA SUBSCRIPT DENOTES 20A, SINGLE POLE DOUBLE THROW, CENTER OFF SWITCH FOR HAND, OFF, AND AUTO CONNECTION OF EXTERIOR LIGHTING. LABEL SWITCH POSITIONS.
- PHOTO CELL

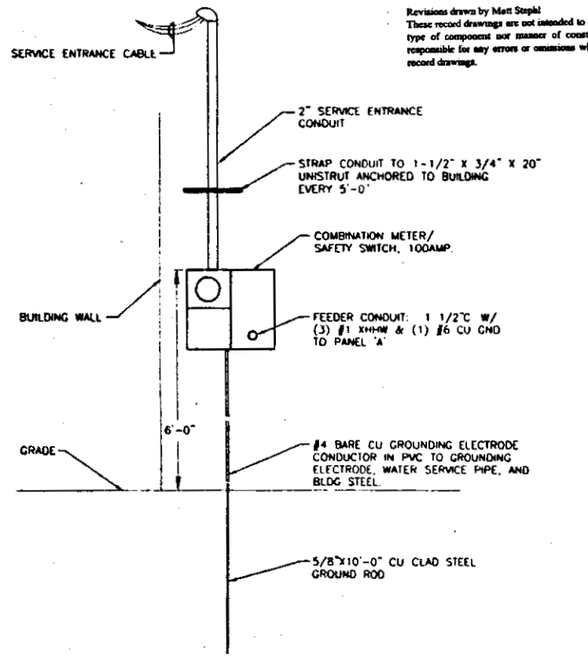
POWER/CONTROL

- PANELBOARD, SURFACE MOUNTED
- DUPLEX RECEPTACLE, WALL MOUNTED 48" AFF, 20A SPEC GRADE WP = WEATHERPROOF GFI = GROUND FAULT INTERRUPTING
- CEILING MOUNTED RECEPTACLE
- EQUIPMENT CONNECTION; COORDINATE CONNECTION WITH EQUIPMENT MANUFACTURERS RECOMMENDATIONS.
- JUNCTION BOX
- 1/2 SINGLE PHASE MOTOR
- S_M MANUAL MOTOR STARTER, 20A/2P WITH THERMAL OL AND RED PILOT LIGHT
- PUSHBUTTON START/STOP OH DOOR OPENER
- LIQUIDTITE FLEXIBLE CONDUIT
- UNDERGROUND OR UNDER FLOOR CONDUIT
- EXPOSED CONDUIT
- CONCEALED CONDUIT
- #6 BRANCH CIRCUIT; ARROWHEAD INDICATES HOMERUN. INDICATES (2) #12 WIRES IN ADDITION TO EQUIPMENT GROUND, # INDICATES SIZE IF OTHER THAN #12.

NOTATION

- (P) REFERENCE TO SHEET NOTE
- (1) REFERENCE TO REVISION

NOTE:
THIS IS A STANDARD LEGEND. SOME OF THE SYMBOLS ON THE LEGEND ARE NOT NECESSARILY SHOWN ON THE DRAWINGS.



(2/E1) METER/MAIN SERVICE ENTRANCE DETAIL
NO SCALE

RECORD DRAWINGS

Revisions drawn by Matt Stephl Date: 9/7/98

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PLOT SCALE: 1=1
FILE NAME: K:\96\CAD\E1.DWG

STATE OF ALASKA — 49th — Gary Stephl — CAPT & MUNI — EE-7973 — REGISTERED PROFESSIONAL ENGINEER

Date Stamped: 4-17-97

By	Revision	Date

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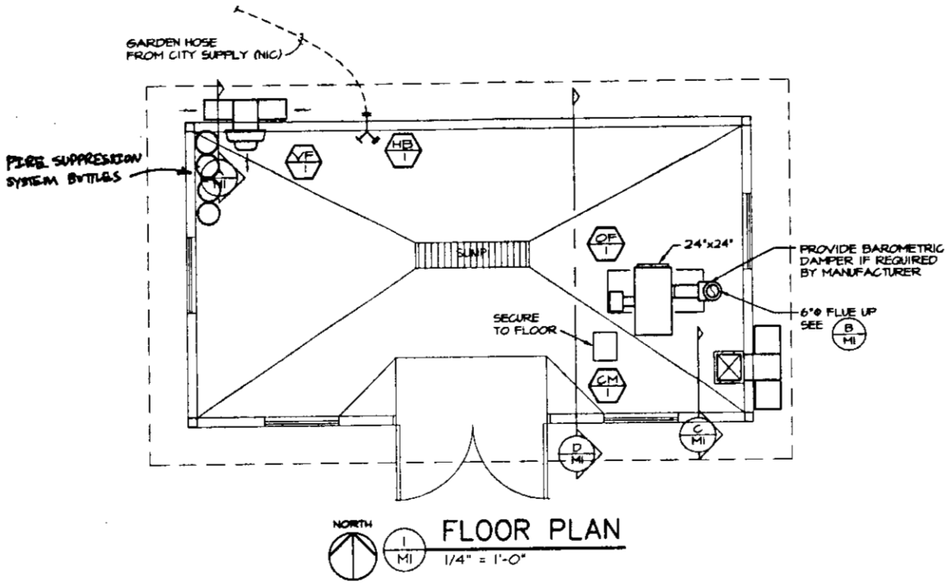
Project:
ENVIRONMENTAL OPERATIONS STATIONS WHITTIER
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.	
Drawn	DEJ	
Drawn		
Checked	GHK	
Date	4-17-97	

Sheet Contents:
ELECTRICAL PLAN

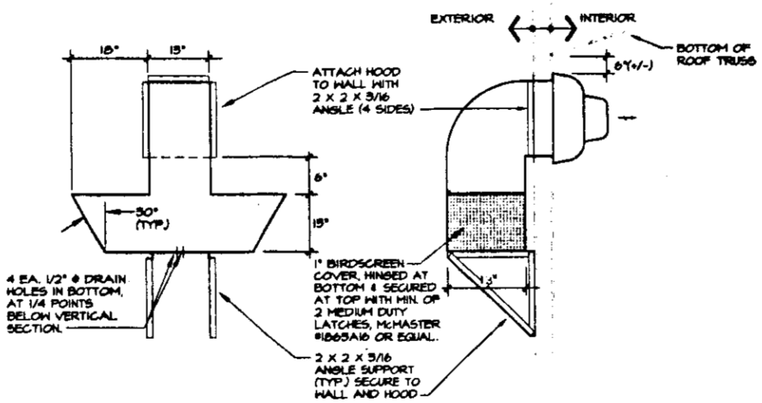
Sheet No.:
E1

STEPHL W.O. 9615

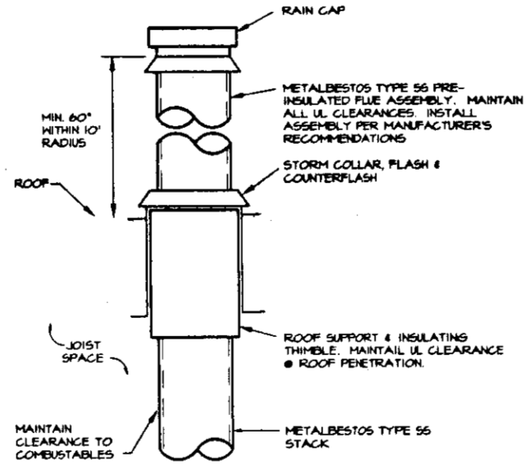


1/MI FLOOR PLAN
1/4" = 1'-0"

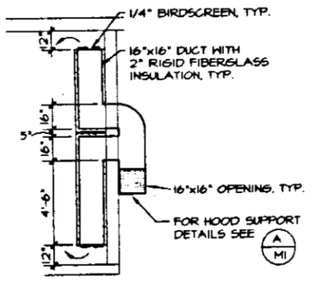
MECHANICAL EQUIPMENT SCHEDULE					
DESIGNATION	EQUIPMENT	CAPACITY	ELECTRICAL VOLTS, AMPS, PHASE	REMARKS	MANUFACTURER AND MODEL (OR EQUAL)
CM-1	COMPRESSED AIR TANK	3.1 CFM @ 40 PSI	115, 60, 1	4.0 GALLON TANK	EMGLO MODEL AMB4-HC4V
VF-1	EXHAUST FAN	750 CFM @ 0.625" W.G.	1/4 HP, 115, 1	DIRECT DRIVE	PENN TYPE WAGIO WITHOUT BACKDRAFT DAMPER
OF-1	USED OIL FURNACE	INPUT 125 MBH, OUTPUT 100 MBH	115/60 20 AMP	WITH WORKBENCH MODEL WBT-250 AND OIL DRAIN BOX	SHENANDOAH MODEL 125
	BURNER	-	-		
	TRANSFER PUMP	2.5 GPH @ 40 PSI			
	FAN	1800 CFM			
HB-1	3/4" HOSE BIBB	-	-	ADJUSTABLE WALL CLAMP 1/2" FEMALE NPT INLET	SMITH MODEL 5609QT



A/MI VF-1 DETAIL
NO SCALE



B/MI FLUE THROUGH ROOF DETAIL
NO SCALE



C/MI C/A SECTION
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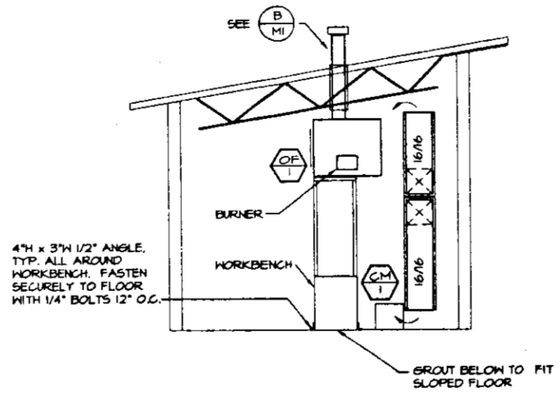

D/MI SECTION AT OF-1
1/4"=1'-0"

RECORD DRAWINGS

Revisions drawn by Matt Stephl Date: 4/7/98
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PLOT SCALE: 1=1
FILE NAME: 510604M1.DWG

STATE OF ALASKA 40TH
SCOTT V. BELL ME-7355
REGISTERED PROFESSIONAL ENGINEER

Date Stamped: 4-17-97

By	Revision	Date

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Project:
ENVIRONMENTAL OPERATIONS STATIONS WHITTIER
PRINCE WILLIAM SOUND ECONOMIC DEVELOPMENT COUNCIL

Project Mgr.	M.S.	
Drawn	LDS	
Drawn		
Checked	RJW	
Date	4-17-97	

Sheet Contents:
MECHANICAL
FLOOR PLAN
AND DETAILS

Sheet No.:
M1

STEPHL W.O. 9615
USKH W.O. 510604

WHITTIER EVOS STATION

APPENDIX R

Chenega EVOS Station Asbuilt Drawings and Photo's

DWG. NO.	SH.	REV.
DA1249-C	1	A

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/13/97	JJD

SAFETY STORAGE, INC.
2301 BERT DRIVE
HOLLISTER, CA 95023
PH (408) 637-5955
FAX (408) 637-7405

MANUFACTURER SAFETY STORAGE, INC.

CUSTOMER PRINCE WILLIAM SOUND
ANCHORACE, ALASKA

SSI MODEL MODELS 2410C-7002/3

CHENEGA

DRAWING INDEX		
SHEET NO.	DESCRIPTION	DWG. NO.
1 OF 1	PRINCE WILLIAM SOUND (COVER SHEET)	DA1249-C
1 OF 1	MODELS 2410C-7002/3 (ELEVATIONS)	DA1249-1
1 OF 1	MODELS 2410C-7002/3 (WIRING DIAGRAM)	DA1249SC
1 OF 1	MODELS 2410 (PYRO-CHEM DRAWING)	S3-2410

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES ± 1"

MATERIALS:

INV. NUMBER:

APPROVALS	DATE
DRAWN BY: JJD	8/13/97
CHECKED BY:	
MFG. SSI	
NEXT ASSY:	

DO NOT SCALE DRAWING

SAFETY STORAGE
2301 BERT DRIVE, HOLLISTER, CA. 95023
PHONE: (408)637-5955
FAX: (408)637-7405

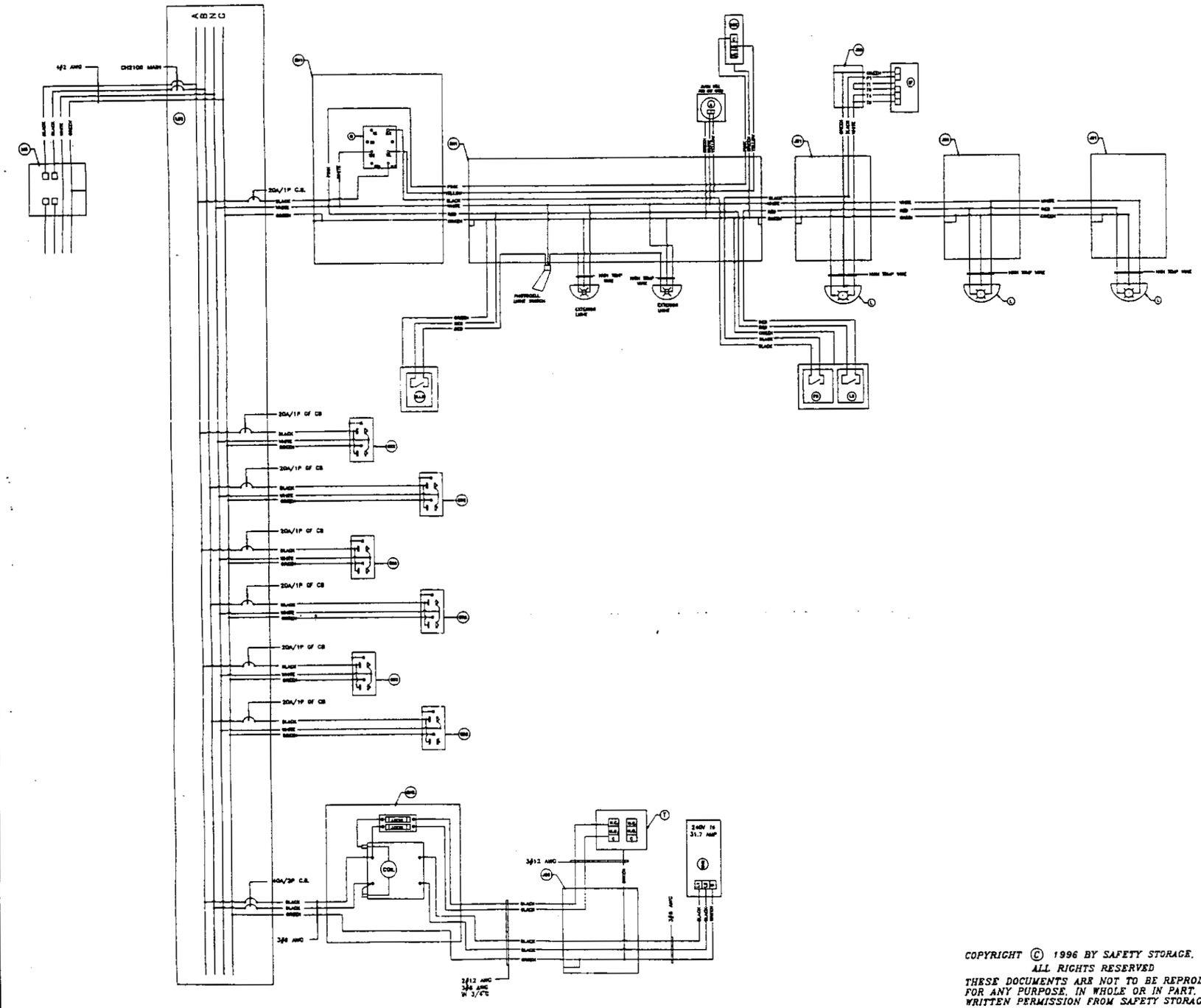
PRINCE WILLIAM SOUND
MODEL 2410C-7002/3 (COVER SHEET)

SIZE	DRAWING NO.	REV
D	DA1249-C	A

SCALE 1/1 | FILE: DA1249-C | SHEET 1 OF 1

DWG. NO.	SH	REV.
DA1249SC	1	A

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8-13-97	CDL



LEGEND

EQUIPMENT DESIGNATION	DESCRIPTION	REMARKS
A	ALARM BELL FOR DRY CHEMICAL	
CH12	7.5 KW EXPLOSION PROOF HEATER	
DCC	DRY CHEMICAL CONTACT ENCLOSURE	
EF	EP EXHAUST FAN (12", 450 CFM FAN)	
EL	NON-EP EXTERIOR LIGHT WITH PHOTOCELL SWITCH	
ELLS	NEMA EP EXTERIOR LIGHT SWITCH	
EN1	6" x 6" x 4" NEMA 3R ENCLOSURE	
EN2	10"X 8"X"4 NEMA 3R ENCLOSURE WITH BACK PANEL	
EO2	DUPLEX EP-ELECTRICAL OUTLET	
FS LS	NON-EP LIGHT & FAN SWITCH	
JB1	JUNCTION BOX WITH 1/2" HUBS	
JB3	JUNCTION BOX WITH 3/4" HUBS	
L	EP LIGHT FIXTURE	
LC2	NEMA 4X CIRCUIT BREAKER LOAD CENTER 1 PHASE, 3 WIRE, 120/240VAC, 125 AMP	
MB	NEMA 3R 100 AMP METER BOX	
R	GENERAL PURPOSE RELAY	
T	EXPLOSION PROOF THERMOSTAT	

240/120 VAC 1 PHASE

AMP / KVA LOAD	
MAX LINE AMPS	90.59
TOTAL KVA LOAD	21.74

NOTES: UNLESS OTHERWISE SPECIFIED;
1. ALL WIRE IS THHN INSULATED
2. ALL WIRE IS 12 AWG
3. ALL WIRE IN 1/2" CONDUIT

APPROVALS	DATE
DRAWN BY: C.D.LEDFORD	8-13-97
CHECKED BY:	
MFG. S.S.I.	
NEXT ASSY:	
DO NOT SCALE DRAWING	

SAFETY STORAGE
2301 WEST DRIVE
HOLLISTER, CA. 95023
PHONE: (408)637-5868
FAX: (408)637-7465

PRINCE WILLIAM SOUND
MODEL 2410C-7002/3 (WIRING DIAGRAM)

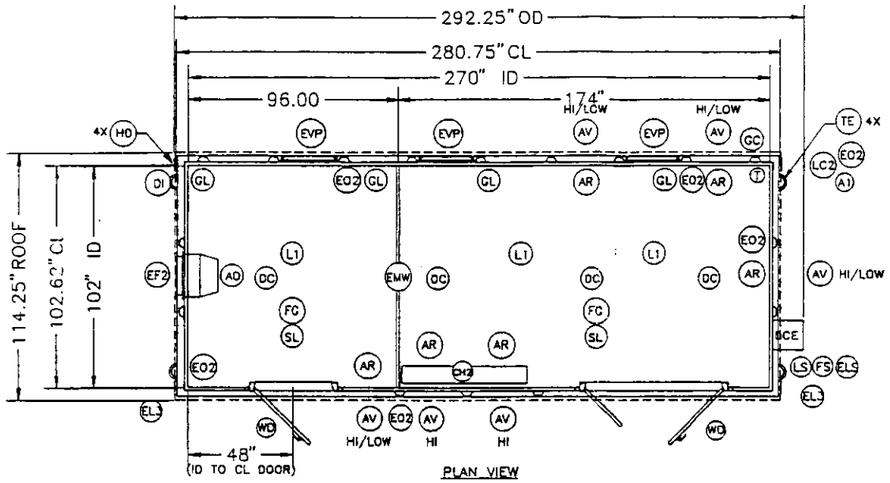
SIZE	DRAWING NO.	REV
D	DA1249SC	A

SCALE 1/20 | FILE: DA1249SC | SHEET 1 OF 1

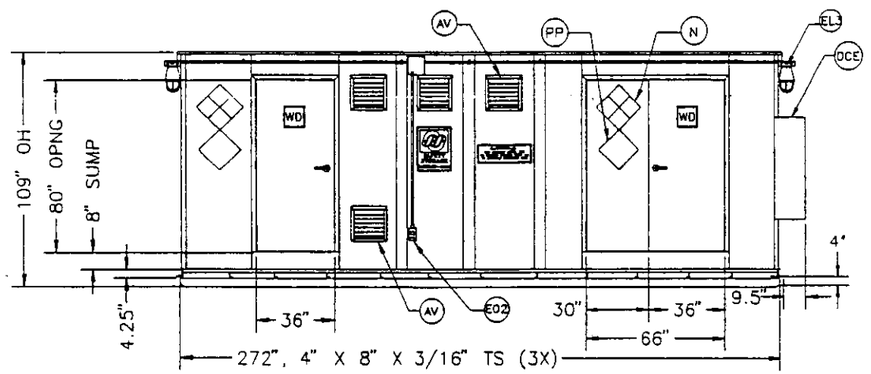
DWG. NO.	SH	REV.
DA1249-1	1	A

NOTES: UNLESS OTHERWISE SPECIFIED;

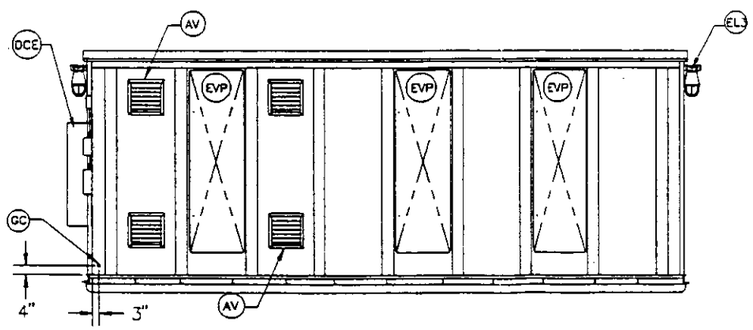
1. ONE (1) DOUBLE 66"W (30" & 36" LEAFS) x 80"H FR (NON-LABELED) DOOR
   ONE (1) SINGLE 36"W x 80"H FR (NON-LABELED) DOOR
2. BUILDING EQUIPPED WITH EXHAUST VENTILATION SYSTEM(S) VENTILATOR(S), OR NATURAL AIR VENTS TO PROVIDE VENTILATION AT A RATE OF NOT LESS THAN 1 CU.FT./MIN./SQ.FT. OF FLOOR AREA.
3. LEAK TIGHT SUMP OF THE MODEL 2410C DESIGNED FOR SECONDARY CONTAINMENT CAPACITY OF 915 GALLONS.
4. ALL INTERIOR AND EXTERIOR SURFACES COATED WITH CHEMICAL RESISTANT FINISH.
5. FMRC APPROVAL MARK (FM LABEL) LOCATED ON THE FRONT OF THE BUILDING.
6. ONE (1) 10" X 10" WINDOW IN EACH ACTIVE DOOR LEAF (2 TOTAL)
7. R11 INSULATION IN WALLS, CEILING, FLOOR, EVP(S)
8. DRY CHEMICAL SYSTEM: ONE(1) 50# BOTTLE WITH 4 NOZZLES
9. ONE (1) 26,000 BTU EP HEATER
10. TWO (2) CUSTOM LOADING RAMPS (48" X 108")
11. CUSTOM 8" SUMP
12. FOUR (4) TOWING EYES
13. TEN (10) AIR VENTS
14. FOUR (4) INTERIOR GROUNDING LUGS
15. SKID BASE & TRANSPORT EYES CONSISTING OF THREE (3) TUBES, CAPPED & SEALED 4" X 8" X 3/16" X 22 1/8" LONG, LOCATED ON SUMP BASE W/FOUR (4) CONTINUOUSLY WELDED TOWING EYES FOR FIELD TRANSPORT
16. SIGN TO READ: "NOTICE THIS BUILDING SHALL NOT BE LOCATED CLOSER THAN 20 FEET TO ADJACENT PROPERTY LINE"
17. 240V, SINGLE PHASE
18. NO WATER SPRINKLER SUB-ASSEMBLY
19. CUSTOM ROOF SNOW LOAD 119 PSF



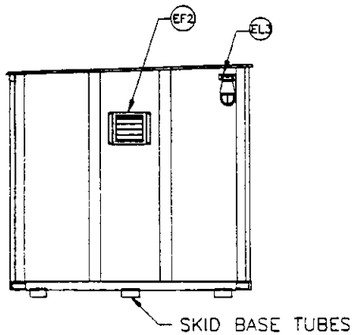
PLAN VIEW



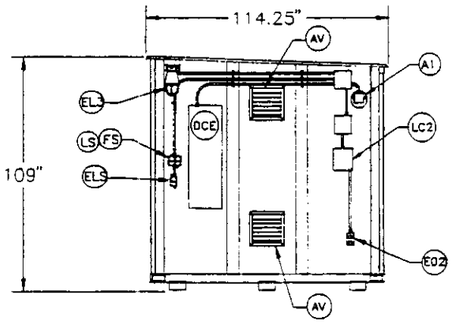
FRONT VIEW



REAR VIEW



LEFT SIDE VIEW



RIGHT SIDE VIEW

NOTE:
SIGN ON FRONT OF BUILDING TO READ:

— NOTICE —
THIS BUILDING SHALL NOT BE LOCATED CLOSER THAN 20' TO ADJACENT PROPERTY LINE

RAMP
RAMP
PEW4 PEW4 S19-690

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS ARE IN INCHES ± 1"

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/18/97	JJD

LEGEND

A1:	ALARM FOR DRY-CHEM
AD:	AIR DAMPER FOR EXHAUST FAN
AR:	ADJUSTABLE REGISTER FOR AIR INLET VENT
AV:	AIR INLET VENT
CH2:	CONVECTION HEATER 25,938 BTU/7.6 KW (EP)
DC:	DRY CHEM NOZZLE
DCE:	DRY CHEM ENCLOSURE W/AGENT CYLINDER
DI:	INSULATION
EF2:	INTERIOR EXHAUST FAN, 12" (EP)
EL2:	EXTERIOR LIGHT, NON-EP, PHOTO SENSOR AND SWITCH ACTIVATED, INCANDESCENT 150 WATT BULB
ELS:	EXTERIOR LIGHT SWITCH FOR EXTERIOR LIGHTS
EMW:	FULL HEIGHT EXPANDED METAL WALL W/ SUMP SEPARATOR
EO2:	DUPLEX ELECTRICAL OUTLET, 120 VOLT (EP)
EVP:	EXPLOSION VENT PANEL
FG:	FIBERGLASS FLOOR GRATING
FS:	FAN SWITCH (NON-EP)
GC:	GROUNDING CONNECTION
GL:	GROUNDING LUG
HD:	HOLD-DOWN BRACKET
L1:	LIGHT-150 WATT (EP)
LC2:	LOAD CENTER (1-PHASE)
LS:	LIGHT SWITCH (NON-EP)
N:	NFPA 704M RATING SIGN
PEW4:	10-GAL PORTABLE EYEWASH W/BODY SPRAY
PP:	PERMANENT D.O.T. PLACARD
SL:	SUMP LINER (HDPE)
T:	THERMOSTAT (EP)
TE:	TOWING EYE
WD:	10" X 10" WINDOW

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES ± 1"	APPROVALS	DATE
	DRAWN BY: JJD	8/18/97
	CHECKED BY:	
MATERIALS:	MFG. SSI	
INV. NUMBER:	NEXT ASSY:	

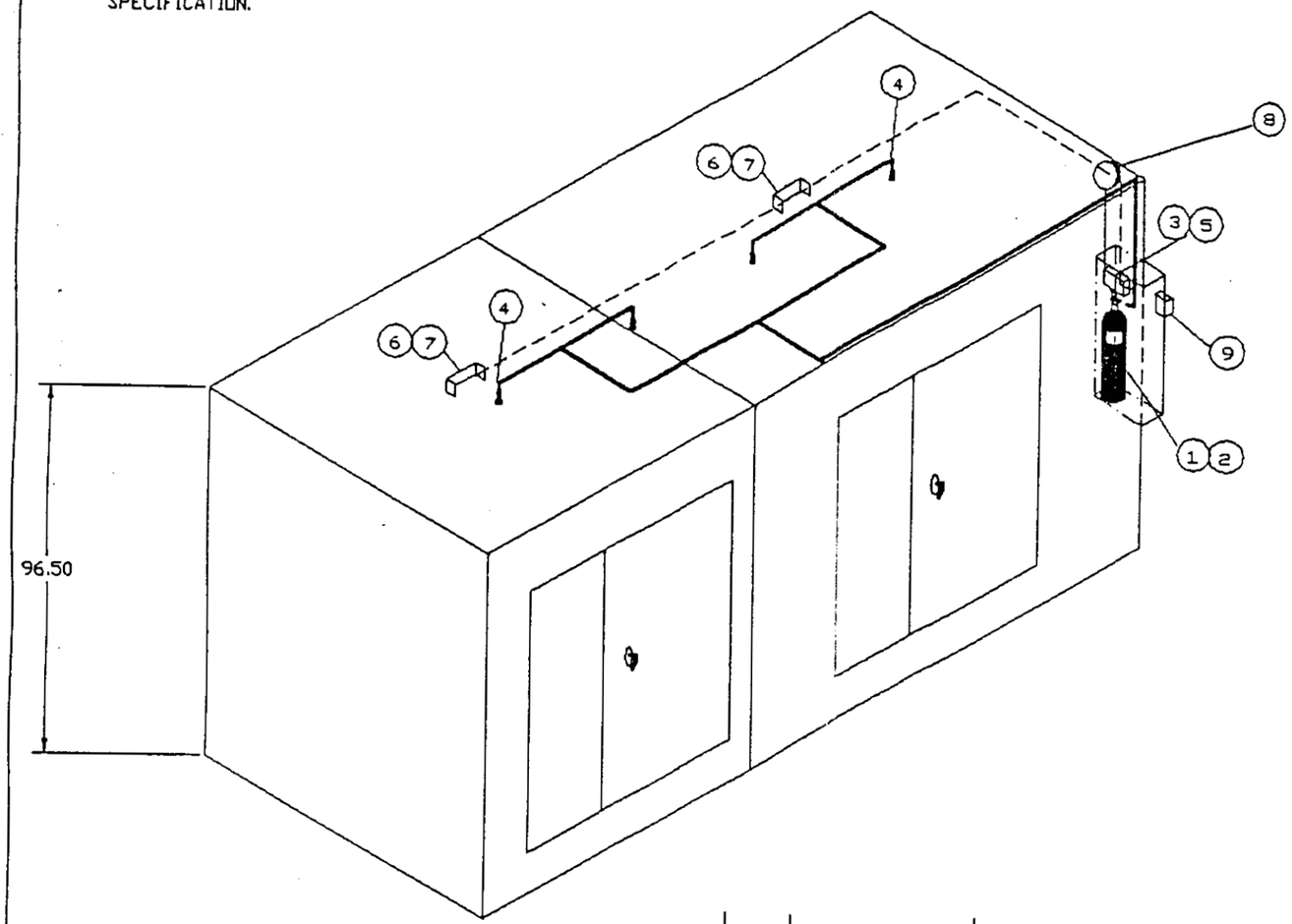
SAFETY STORAGE
2301 BERT DRIVE
HOLLISTER, CA. 95023
PHONE: (408)637-3855
FAX: (408)637-7405

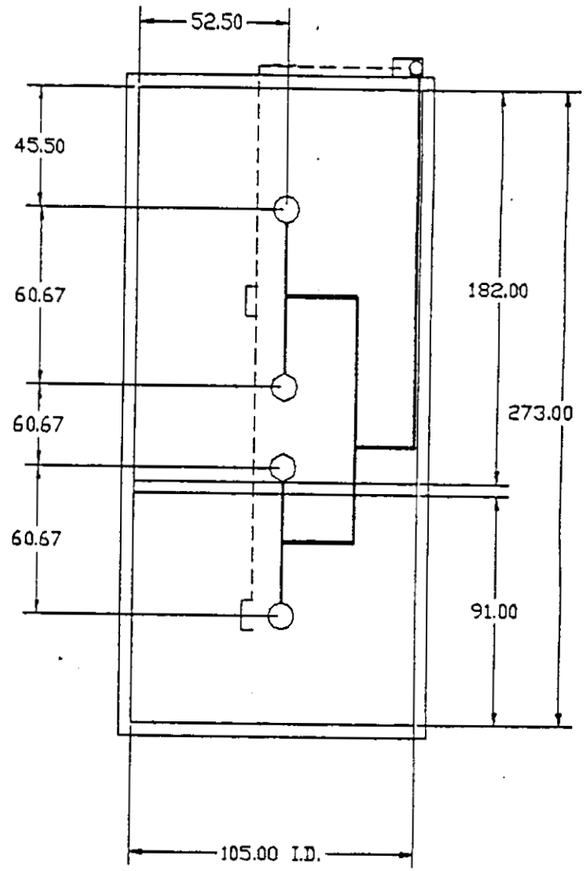
PRINCE WILLIAM SOUND
MODEL 2410C-7002/3 (ELEVATIONS)

SIZE	DRAWING NO.	REV
D	DA1249-1	A

NOTES:

1. TANK TO BE LOCATED OUTSIDE OF HAZARD AREA IN A WEATHER PROTECTIVE ENCLOSURE.
2. LOCATE RPS-M REMOTE PULL STATION TO CUSTOMER SPECIFICATION.





OVERHEAD VIEW OF NOZZLE LOCATION

NO.	QTY.	MODEL NO.	DESCRIPTION
1	1	PCI-50sABC-90	50lb ABC PRESSURIZED CYLINDER - 90 DEGREE
2	1	MB-1	MOUNTING BRACKET
3	1	MCH	MECHANICAL CONTROL HEAD
4	4	N-TF-ABC	TOTAL FLOOD NOZZLES
5	1	MS-DPDT	DPDT MICRO SWITCH
6	2	FLK-1	FLK-1 TERMINAL LINK KIT
7	2	FL-165	FUSIBLE LINK f65 F
8	1	BAC-612	INDOOR/OUTDOOR 6" BELL
9	1	RPS-M	REMOTE MECHANICAL PULL STATION

REV.#	REVISION	DATE
A	Intial Drawing	12/1/96

UNLESS OTHERVISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCES ARE:
2 PLACE DEC. ± .01
3 PLACE DEC. ± .005
FRACTIONS ± 1/64
ANGLES ± 1°

Pyro Chem, Inc.
301 Division St.
Boonton N.J. 07005

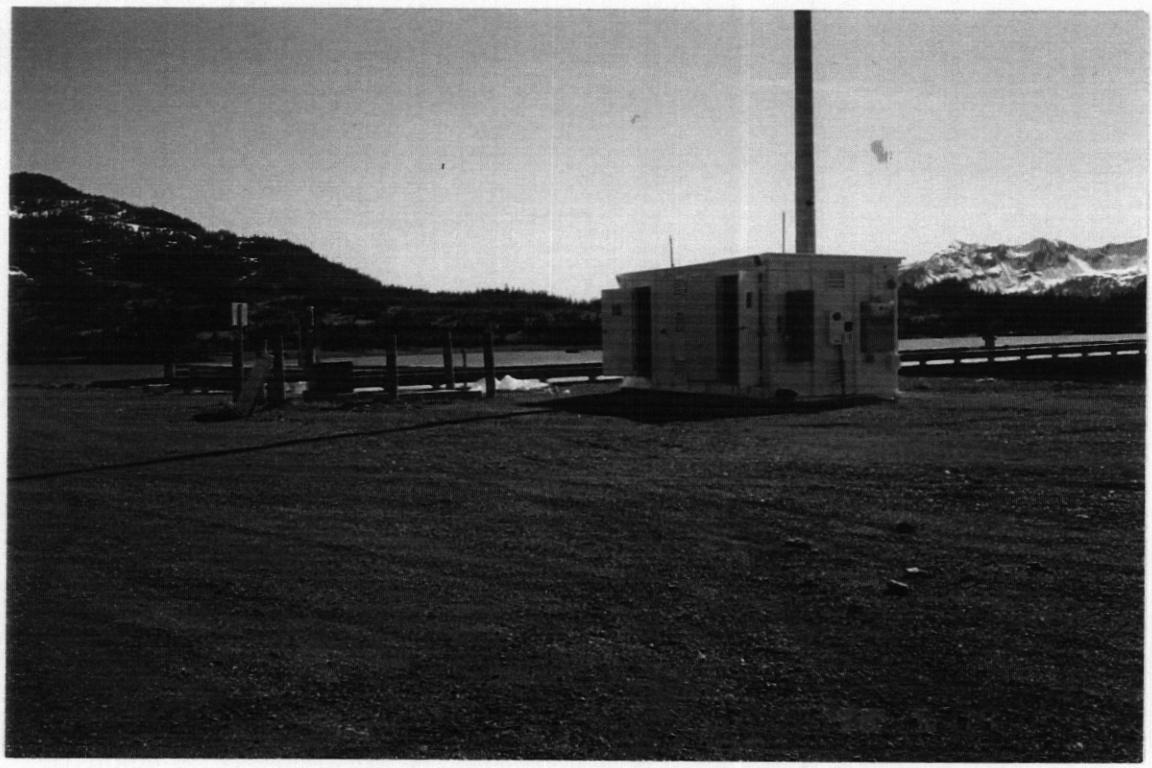
DWN BY LBG CHKD BY ____

TITLE: SAFETY STORAGE
MODEL # 2410 / 2A4

S3-2410

REV. A

CHENEGA EVOS STATION



APPENDIX S

Tatitlek EVOS Station Asbuilt Drawings and Photo's

DWG. NO.	SH	REV.
DA1249-C	1	A

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/13/97	JJD

SAFETY STORAGE, INC.
2301 BERT DRIVE
HOLLISTER, CA 95023
PH (408) 637-5955
FAX (408) 637-7405

MANUFACTURER SAFETY STORAGE, INC.

CUSTOMER PRINCE WILLIAM SOUND
ANCHORAGE, ALASKA

SSI MODEL MODELS 2410C-7002/3

TATITLEK

DRAWING INDEX		
SHEET NO.	DESCRIPTION	DWG. NO.
1 OF 1	PRINCE WILLIAM SOUND (COVER SHEET)	DA1249-C
1 OF 1	MODELS 2410C-7002/3 (ELEVATIONS)	DA1249-1
1 OF 1	MODELS 2410C-7002/3 (WIRING DIAGRAM)	DA1249SC
1 OF 1	MODELS 2410 (PYRO-CHEM DRAWING)	SJ-2410

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES ± 1"

MATERIALS:

WW. NUMBER:

APPROVALS	DATE
DRAWN BY: JJD	8/13/97
CHECKED BY:	
MFG. SSI	
NEXT ASSY:	
DO NOT SCALE DRAWING	

SAFETY STORAGE
2301 BERT DRIVE HOLLISTER, CA. 95023 PHONE: (408)637-5955 FAX: (408)637-7405

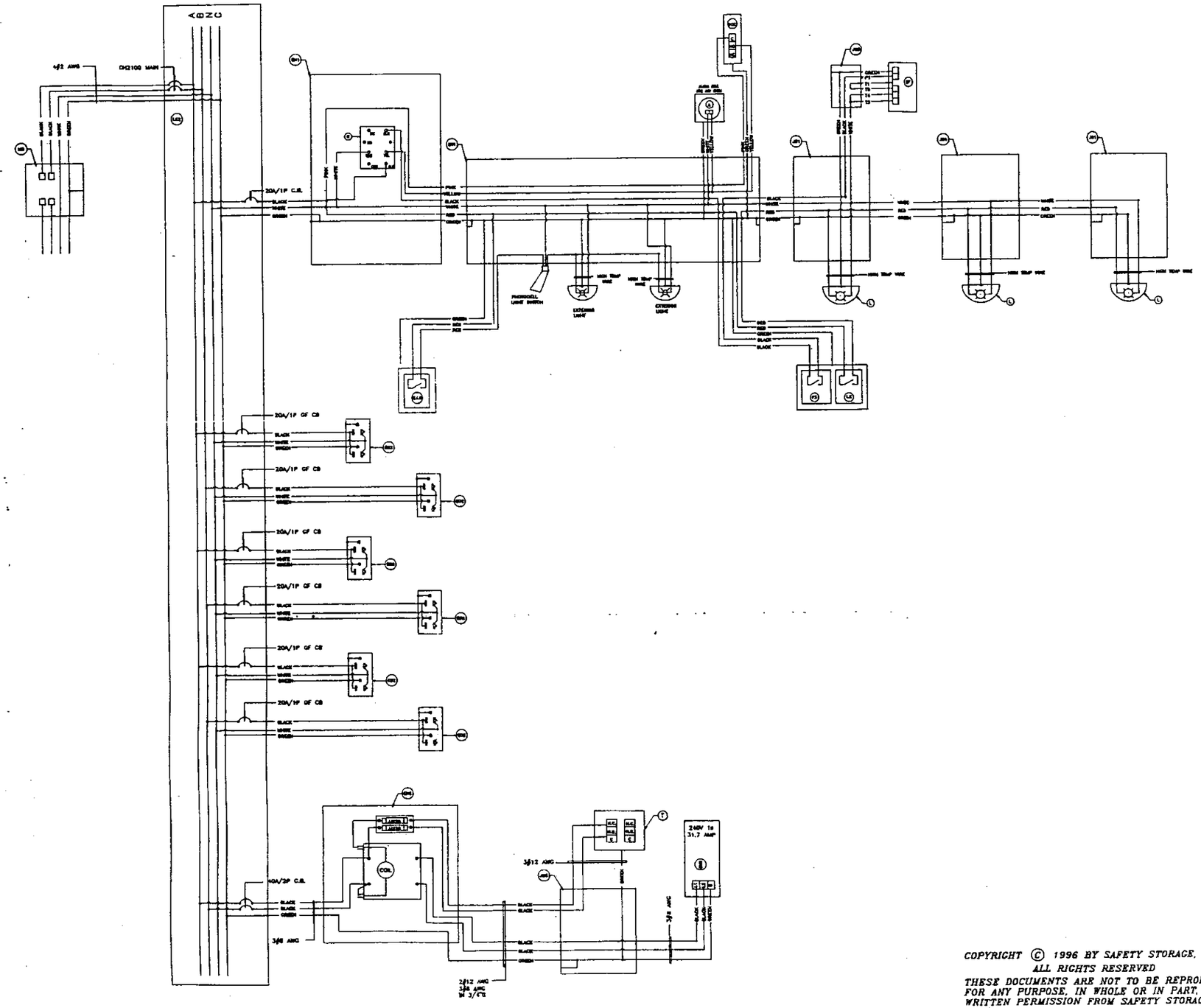
PRINCE WILLIAM SOUND
MODEL 2410C-7002/3 (COVER SHEET)

SIZE	DRAWING NO.	REV
D	DA1249-C	A

SCALE 1/1 | FILE: DA1249-C | SHEET 1 OF 1

DWG. NO.	SH	REV.
DA1249SC	1	A

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8-13-97	CDL



LEGEND

EQUIPMENT DESIGNATION	DESCRIPTION	REMARKS
A	ALARM BELL FOR DRY CHEMICAL	
EH2	7.6 KW EXPLOSION PROOF HEATER	
DCC	DRY CHEMICAL CONTACT ENCLOSURE	
EF	EP EXHAUST FAN (12", 450 CFM FAN)	
EL	NEMA-EP EXTERIOR LIGHT WITH PHOTOCELL SWITCH	
ELLS	NEMA-EP EXTERIOR LIGHT SWITCH	
EN1	6" x 6" x 4" NEMA 3R ENCLOSURE	
EN2	10"X 8"X 4" NEMA 3R ENCLOSURE WITH BACK PANEL	
EO2	DUPLEX EP-ELECTRICAL OUTLET	
PS, LS	NEMA-EP LIGHT & FAN SWITCH	
JB1	JUNCTION BOX WITH 1/2" HUBS	
JB3	JUNCTION BOX WITH 3/4" HUBS	
L	EP LIGHT FIXTURE	
LC1	NEMA 4X CIRCUIT BREAKER LOAD CENTER 1 PHASE, 3 WIRE, 120/240VAC, 125 AMP	
MB	NEMA 3R 100 AMP METER BOX	
R	GENERAL PURPOSE RELAY	
T	EXPLOSION PROOF THERMOSTAT	

240/120 VAC 1 PHASE

AMP / KVA LOAD	
MAX LINE AMPS	90.59
TOTAL KVA LOAD	21.74

NOTES: UNLESS OTHERWISE SPECIFIED;
1. ALL WIRE IS THHN INSULATED
2. ALL WIRE IS 12 AWG
3. ALL WIRE IN 1/2" CONDUIT

APPROVALS	DATE
DRAWN BY: C.D.LEDFORD	8-13-97
CHECKED BY:	
MFG. S.S.I.	
NEXT ASSY:	
DO NOT SCALE DRAWING	

SAFETY STORAGE
2301 BENT DRIVE
HOLLISTER, CA. 95023
PHONE: (408)637-5805
FAX: (408)637-7405

PRINCE WILLIAM SOUND
MODEL 2410C-7002/3 (WIRING DIAGRAM)

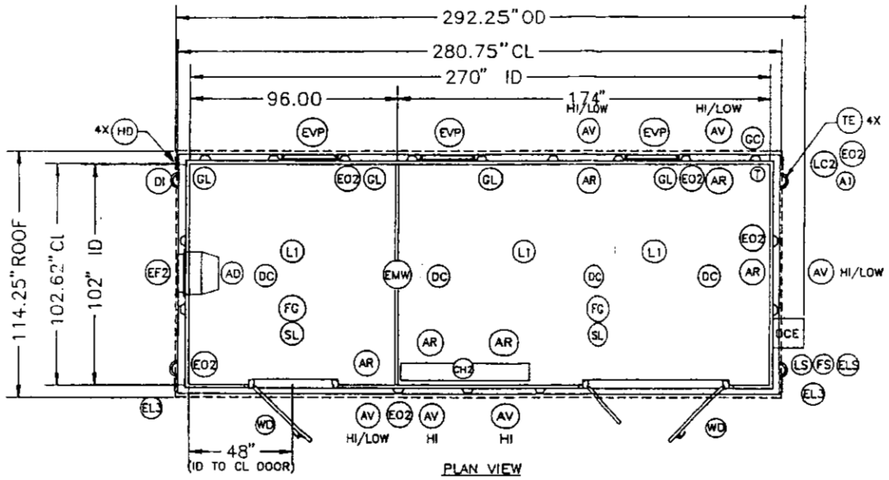
SIZE	DRAWING NO.	REV
D	DA1249SC	A

SCALE 1/20	FILE: DA1249SC	SHEET 1 OF 1

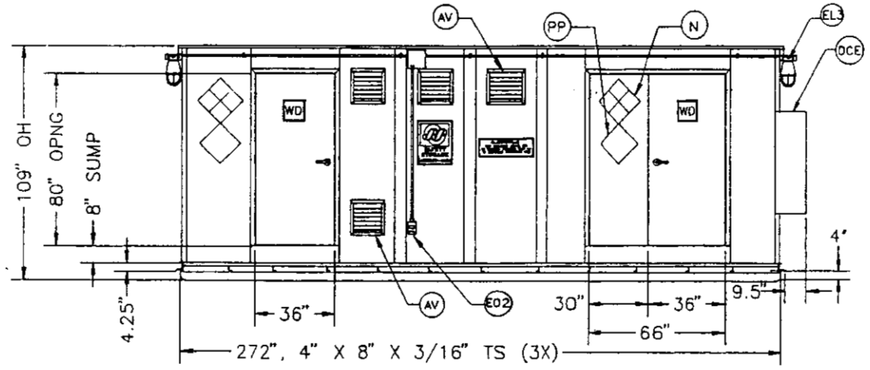
DWG. NO.	SH	REV.
DA1249-1	1	A

NOTES: UNLESS OTHERWISE SPECIFIED:

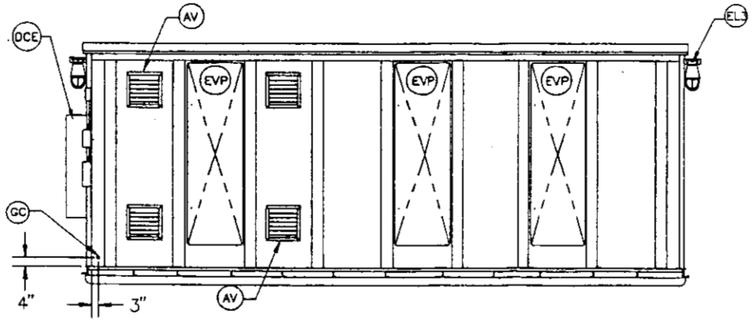
1. ONE (1) DOUBLE 66"W (30" & 36" LEAFS) x 80"H FR (NON-LABELED) DOOR
   ONE (1) SINGLE 36"W x 80"H FR (NON-LABELED) DOOR
2. BUILDING EQUIPPED WITH EXHAUST VENTILATION SYSTEM(S) VENTILATOR(S), OR NATURAL AIR VENTS TO PROVIDE VENTILATION AT A RATE OF NOT LESS THAN 1 CU.FT./MIN./SQ.FT. OF FLOOR AREA.
3. LEAK TIGHT SUMP OF THE MODEL 2410C DESIGNED FOR SECONDARY CONTAINMENT CAPACITY OF 915 GALLONS.
4. ALL INTERIOR AND EXTERIOR SURFACES COATED WITH CHEMICAL RESISTANT FINISH.
5. FMRC APPROVAL MARK (FM LABEL) LOCATED ON THE FRONT OF THE BUILDING.
6. ONE (1) 10" X 10" WINDOW IN EACH ACTIVE DOOR LEAF (2 TOTAL)
7. R11 INSULATION IN WALLS, CEILING, FLOOR, EVP(S)
8. DRY CHEMICAL SYSTEM: ONE(1) 50# BOTTLE WITH 4 NOZZLES
9. ONE (1) 26,000 BTU EP HEATER
10. TWO (2) CUSTOM LOADING RAMPS (48" X 108")
11. CUSTOM 8" SUMP
12. FOUR (4) TOWING EYES
13. TEN (10) AIR VENTS
14. FOUR (4) INTERIOR GROUNDING LUGS
15. SKID BASE & TRANSPORT EYES CONSISTING OF THREE (3) TUBES, CAPPED & SEALED 4" X 8" X 3/16" X 22 1/8" LONG, LOCATED ON SUMP BASE W/FOUR (4) CONTINUOUSLY WELDED TOWING EYES FOR FIELD TRANSPORT
16. SIGN TO READ: "NOTICE THIS BUILDING SHALL NOT BE LOCATED CLOSER THAN 20 FEET TO ADJACENT PROPERTY LINE"
17. 240V, SINGLE PHASE
18. NO WATER SPRINKLER SUB-ASSEMBLY
19. CUSTOM ROOF SNOW LOAD 119 PSF



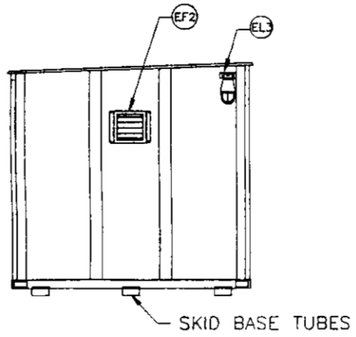
PLAN VIEW



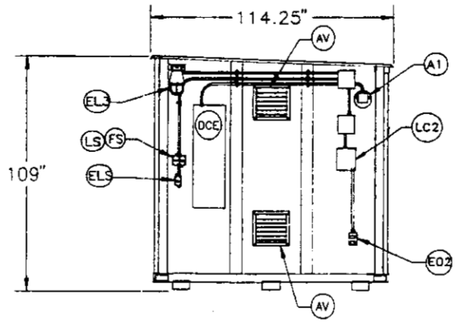
FRONT VIEW



REAR VIEW



LEFT SIDE VIEW



RIGHT SIDE VIEW

NOTE:

SIGN ON FRONT OF BUILDING TO READ:

— NOTICE —
THIS BUILDING SHALL NOT BE LOCATED CLOSER THAN 20' TO ADJACENT PROPERTY LINE

RAMP
RAMP
PEW4 PEW4 S19-690

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS ARE IN INCHES ± 1"

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/18/97	JJD

LEGEND

A1:	ALARM FOR DRY-CHEM
AD:	AIR DAMPER FOR EXHAUST FAN
AR:	ADJUSTABLE REGISTER FOR AIR INLET VENT
AV:	AIR INLET VENT
CH2:	CONVECTION HEATER 25,938 BTU/7.6 KW (EP)
DC:	DRY CHEM NOZZLE
DCE:	DRY CHEM ENCLOSURE W/AGENT CYLINDER
DI:	INSULATION
EF2:	INTERIOR EXHAUST FAN, 12" (EP)
EL2:	EXTERIOR LIGHT, NON-EP, PHOTO SENSOR AND SWITCH ACTIVATED, INCANDESCENT 150 WATT BULB
ELS:	EXTERIOR LIGHT SWITCH FOR EXTERIOR LIGHTS
EMW:	FULL HEIGHT EXPANDED METAL WALL W/ SUMP SEPARATOR
EO2:	DUPLEX ELECTRICAL OUTLET, 120 VOLT (EP)
EVP:	EXPLOSION VENT PANEL
FG:	FIBERGLASS FLOOR GRATING
FS:	FAN SWITCH (NON-EP)
GC:	GROUNDING CONNECTION
GL:	GROUNDING LUG
HD:	HOLD-DOWN BRACKET
L1:	LIGHT-150 WATT (EP)
LC2:	LOAD CENTER (1-PHASE)
LS:	LIGHT SWITCH (NON-EP)
N:	NFPA 704M RATING SIGN
PEW4:	10-GAL PORTABLE EYEWASH W/BODY SPRAY
PP:	PERMANENT D.O.T. PLACARD
SL:	SUMP LINER (HDPE)
T:	THERMOSTAT (EP)
TE:	TOWING EYE
WD:	10" X 10" WINDOW

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES ± 1"	APPROVALS	DATE
	DRAWN BY: JJD	8/18/97
	CHECKED BY:	
MATERIALS:	MFG. SSI	
INV. NUMBER:	NEXT ASSY:	
	DO NOT SCALE DRAWING	

SAFETY STORAGE
2301 BEAT DRIVE
HOLLISTER, CA 95023
PHONE: (408)637-3855
FAX: (408)637-7405

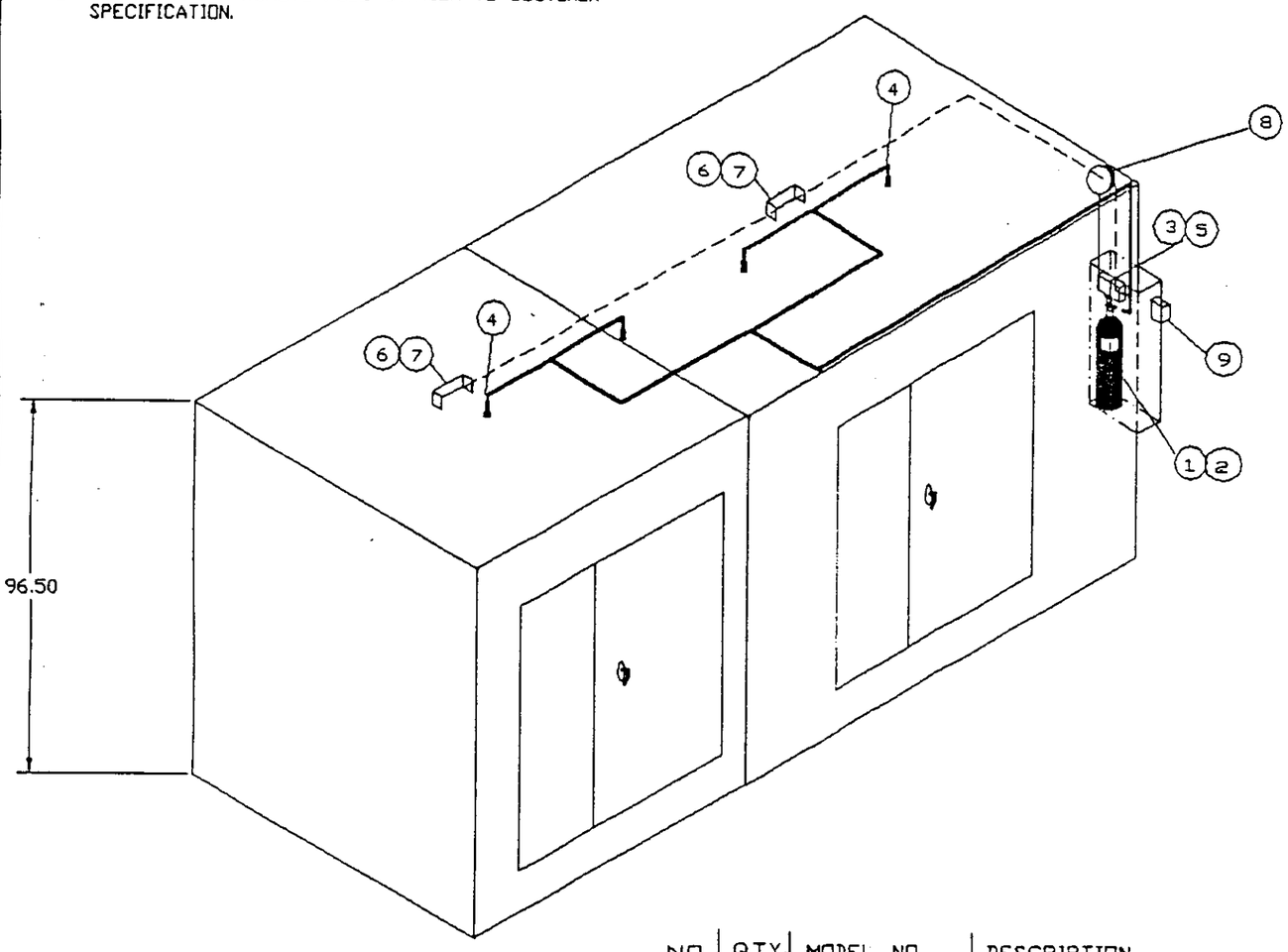
PRINCE WILLIAM SOUND
MODEL 2410C-7002/3 (ELEVATIONS)

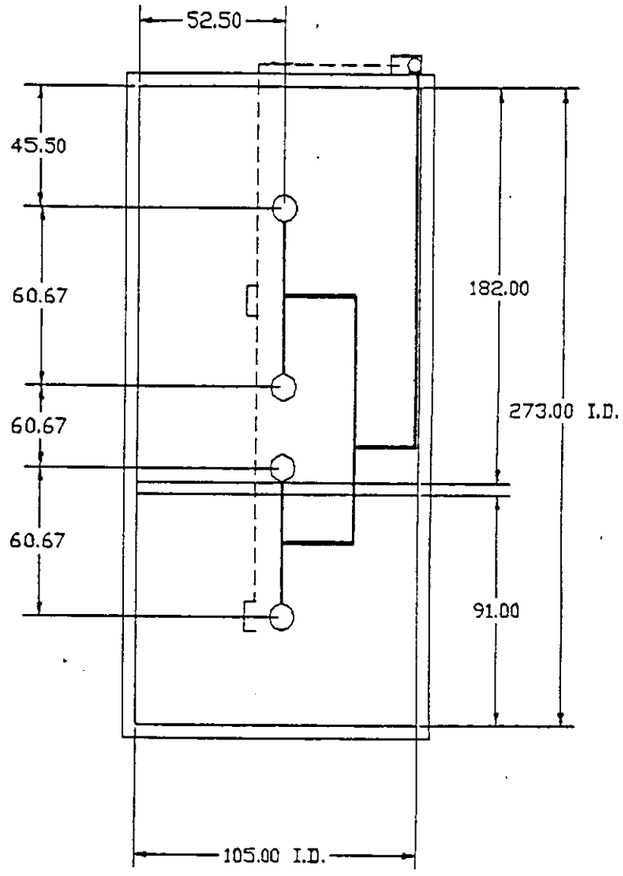
SIZE	DRAWING NO.	REV
D	DA1249-1	A

SCALE 1/32 | FILE: DA1249-1 | SHEET 1 OF 1

NOTES:

1. TANK TO BE LOCATED OUTSIDE OF HAZARD AREA IN A WEATHER PROTECTIVE ENCLOSURE.
2. LOCATE RPS-M REMOTE PULL STATION TO CUSTOMER SPECIFICATION.





OVERHEAD VIEW OF NOZZLE LOCATION

NO.	QTY.	MODEL NO.	DESCRIPTION
1	1	PCI-50sABC-90	50lb ABC PRESSURIZED CYLINDER - 90 DEGREE
2	1	MB-1	MOUNTING BRACKET
3	1	MCH	MECHANICAL CONTROL HEAD
4	4	N-TF-ABC	TOTAL FLOOD NOZZLES
5	1	MS-DPDT	DPDT MICRO SWITCH
6	2	FLK-1	FLK-1 TERMINAL LINK KIT
7	2	FL-165	FUSIBLE LINK 165 F
8	1	BAC-612	INDOOR/OUTDOOR 6" BELL
9	1	RPS-M	REMOTE MECHANICAL PULL STATION

REV.#	REVISION	DATE
A	Intial Drawing	12/1/96

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCES ARE:
2 PLACE DEC. ± .01
3 PLACE DEC. ± .005
FRACTIONS ± 1/64
ANGLES ± F

Pyro Chem, Inc.
301 Division St.
Boonton N.J. 07005

DWN BY LBG CHKD BY

TITLE SAFETY STORAGE
MODEL # 2410 / 2A4

S3-2410

REV. A

TATITLEK EVOS STATION