APPLICATION
SPECIAL USE PERMIT

ADMINISTRATIVE CHANGE OF OWNERSHIP OR MINOR AMENDMENT

[ ] Change of Ownership **[✓] Minor Amendment**

[*must use black ink or type*]

PROPERTY LOCATION: 611 South Pickett Street, Alexandria, Virginia

TAX MAP REFERENCE: 57.04 05 **ZONE:** I-Industrial

APPLICANT

Name: Easterns Farrington, LLC dba Easterns Automotive Group

Address: 22705 Commerce Center Court, Sterling, Virginia 20166

PROPERTY OWNER

Name: Greenhills Mayflower, LLC

Address: 4901 Fairmont Ave., Ste 200, Bethesda, Maryland 20814

SITE USE: Automobile and Trailer Rental and Sales

Business Name: **Current:** Easterns Automotive Group **Proposed (if changing):** N/A

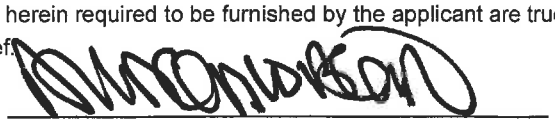
[ ] **THE UNDERSIGNED** hereby applies for a Special Use Permit for **Change in Ownership**, in accordance with the provisions of Article XI, Division A, Section 11-503 (5)(f) of the 1992 Zoning Ordinance of City of Alexandria, Virginia.

[✓] **THE UNDERSIGNED**, having read and received a copy of the special use permit, hereby agrees to comply with all conditions of the current special use permit, including all other applicable City codes and ordinances.

[✓] **THE UNDERSIGNED** hereby applies for a Special Use Permit for **Minor Amendment**, in accordance with the provisions of Article XI, Division A, Section 11-509 and 11-511 of the 1992 Zoning Ordinance of City of Alexandria, Virginia.

[✓] **THE UNDERSIGNED,** having obtained permission from the property owner, hereby requests this special use permit. The undersigned also attests that all of the information herein required to be furnished by the applicant are true, correct and accurate to the best of his/her knowledge and belief.

Duncan W. Blair, Attorney
Print Name of Applicant or Agent


Signature

524 King Street
Mailing/Street Address

703 836-1000 703 549- 3335
Telephone # Fax #

Alexandria, Virginia 22314
City and State Zip Code

dblair@landcarroll.com
Email address

June 4, 2018
Date

DO NOT WRITE IN THIS SPACE - OFFICE USE ONLY

Application Received: _____ Fee Paid: $_____

Legal advertisement: _____

ACTION - PLANNING COMMISSION _____ ACTION - CITY COUNCIL: _____

Special Use Permit # 2018-0050

The following information must be furnished to the Department of Planning and Zoning to determine if the current use conducted on the premises complies with the special use permit provisions and all other applicable codes and ordinances.

1. Please describe prior special use permit approval for the subject use.

Most recent Special Use Permit # 2017-0111

Date approved: 11 / 15 / 2017
month day year

Name of applicant on most recent special use permit Easterns Farrington, LLC

Use Automotive and Trailer Rental or Sales.

2. Describe below the nature of the *existing* operation *in detail* so that the Department of Planning and Zoning can understand the nature of the change in operation; include information regarding type of operation, number of patrons served, number of employees, parking availability, etc. (Attach additional sheets if necessary.)

There is not proposed change to the operations other than the installation of a Baywash system to rinse off wash cars for delivery to buyers. Since opening, Easterns has discovered that vehicles get quite dusty at the facility and desires to install a Eco-Friendly system to rinse cars off before being before being delivered to buyers. All vehicle prep work is performed at a different offsite location. The The system being proposed is a SPT Series Wash Rinse system (see design specifications attached as Exhibit A. The proposed system will discharge into the sanitary sewer system serving the property and will not discharge into the storm sewer system serving the property. Prior to submitting this application the applicant verified through due diligence with the Inventor/Manufacturer of the system, the City's Storm water and sanitary sewer divisions of TES, Code Administration and AlexRenew that the proposes system satisfies local and state regulations.

3. Describe any proposed *changes* to the business from what was represented to the Planning Commission and City Council during the special use permit approval process, including any proposed changes in the nature of the activity, the number and type of patrons, the number of employees, the hours, how parking is to be provided for employees and patrons, any noise emitted by the use, etc. (Attach additional sheets if necessary)

There is not proposed change to the operations other than the installation of a Baywash system to rinse and wash cars for delivery to buyers. See above narrative.

Special Use Permit #2018-00050

4. **Is the use currently open for business?** ☑ Yes ☐ No

If the use is closed, provide the date closed. _____ / _____ / _____
month day year

5. **Describe any proposed changes to the conditions of the special use permit:**
Delete condition 17 prohibiting the prohibition against car washing. Note that condition 11 is a prohibition against repair work which was repeated in condition 17.

6. **Are the hours of operation proposed to change?** ☐ Yes ☑ No
If yes, list the current hours and proposed hours:

Current Hours:	Proposed Hours:

7. **Will the number of employees remain the same?** ☐ Yes ☑ No
If no, list the current number of employees and the proposed number.

Current Number of Employees:	Proposed Number of Employees:

8. **Will there be any renovations or new equipment for the business?** X Yes ____ No
If yes, describe the type of renovations and/or list any new equipment proposed.
A BayWash SPT Series Rinse system and associated plumbing equipment to connect the sanitary sewer system serving the proerty will be installed.

9. **Are you proposing changes in the sales or service of alcoholic beverages?** ____ Yes X No
If yes, describe proposed changes:

10. **Is off-street parking provided for your employees?** [X] Yes [ ] No
If yes, how many spaces, and where are they located?
On site on the surface parking facility.

11. **Is off-street parking provided for your customers?** X Yes ___ No
If yes, how many spaces, and where are they located?
On site on the surface parking facility.

12. **Is there a proposed increase in the number of seats or patrons served?** [ ] Yes [✓] No
If yes, describe the current number of seats or patrons served and the proposed number of seats and patrons served. For restaurants, list the number of seats by type (i.e. bar stools, seats at tables, etc.)

Current: Proposed:

13. **Are physical changes to the structure or interior space requested?** [ ] Yes [✓] No
If yes, attach drawings showing existing and proposed layouts. In both cases, include the floor area devoted to uses, i.e. storage area, customer service area, and/or office spaces.

14. **Is there a proposed increase in the building area devoted to the business?** [ ] Yes [✓] No
If yes, describe the existing amount of building area and the proposed amount of building area.

Current: Proposed:

15. **The applicant is the** (check one) [ ] Property owner [✓] Lessee
[ ] other, please describe:

16. **The applicant is the** (check one) X Current business owner ___ Prospective business owner
[ ] other, please describe:

17. Each application shall contain a clear and concise statement identifying the applicant, including the name and address of each person owning an interest in the applicant and the extent of such ownership interest. If the applicant, or one of such persons holding an ownership interest in the applicant is a corporation, each person owning an interest in excess of ten percent (3%) in the corporation and the extent of interest shall be identified by name and address.

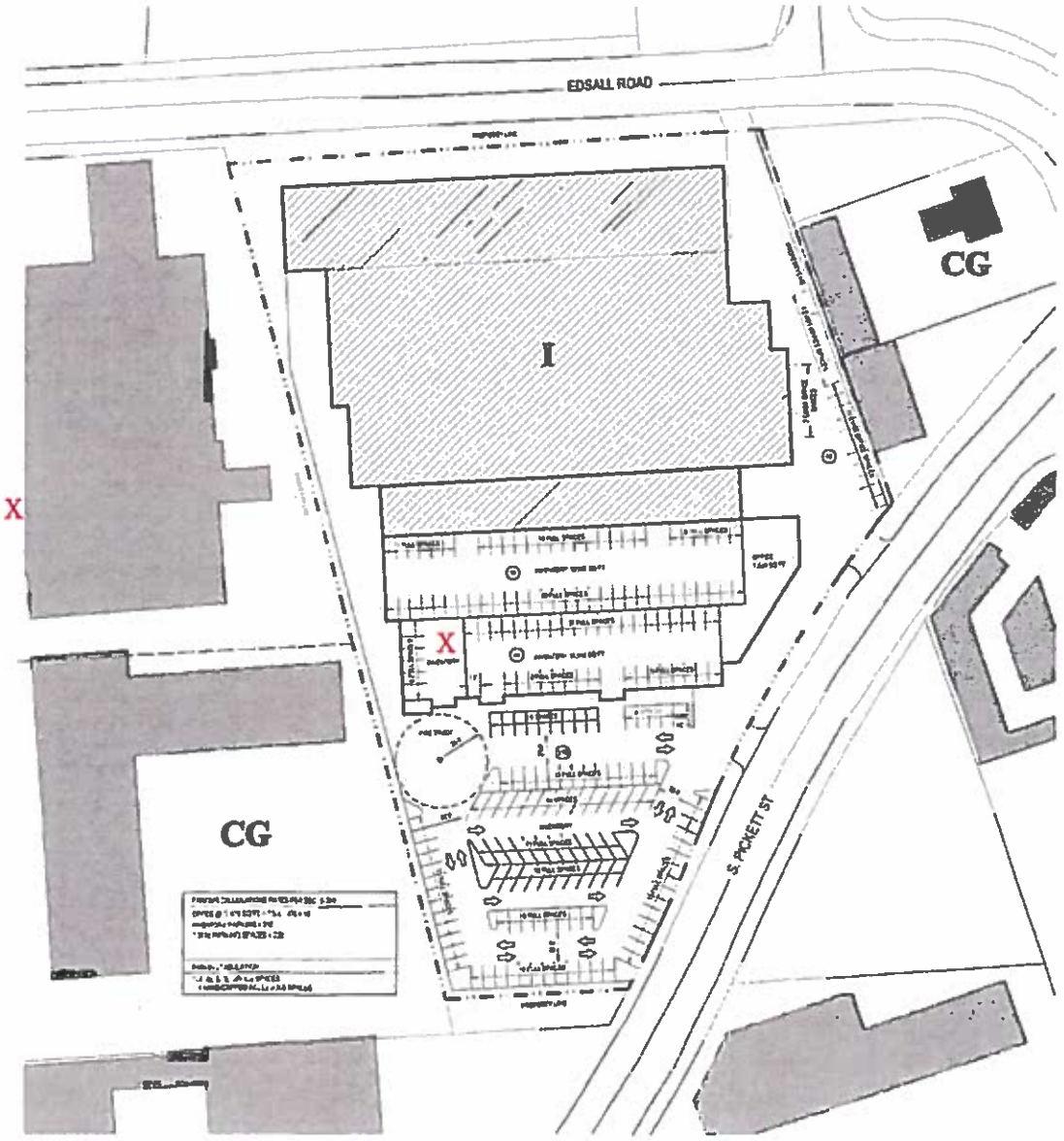
For the purpose of this section, the term "ownership interest" shall include any legal or equitable interest held in the subject real estate at the time of the application. If a nonprofit corporation, the name of the registered agent must be provided.

Please provide ownership information here:

Seyed A. Robert Bassam owns 100% of Easterns Farrington, LLC. Mr. Bassam's address

22705 Commerce Center Court, Sterling, Virginia 20166.

The Rinse system will installed in the bay marked X

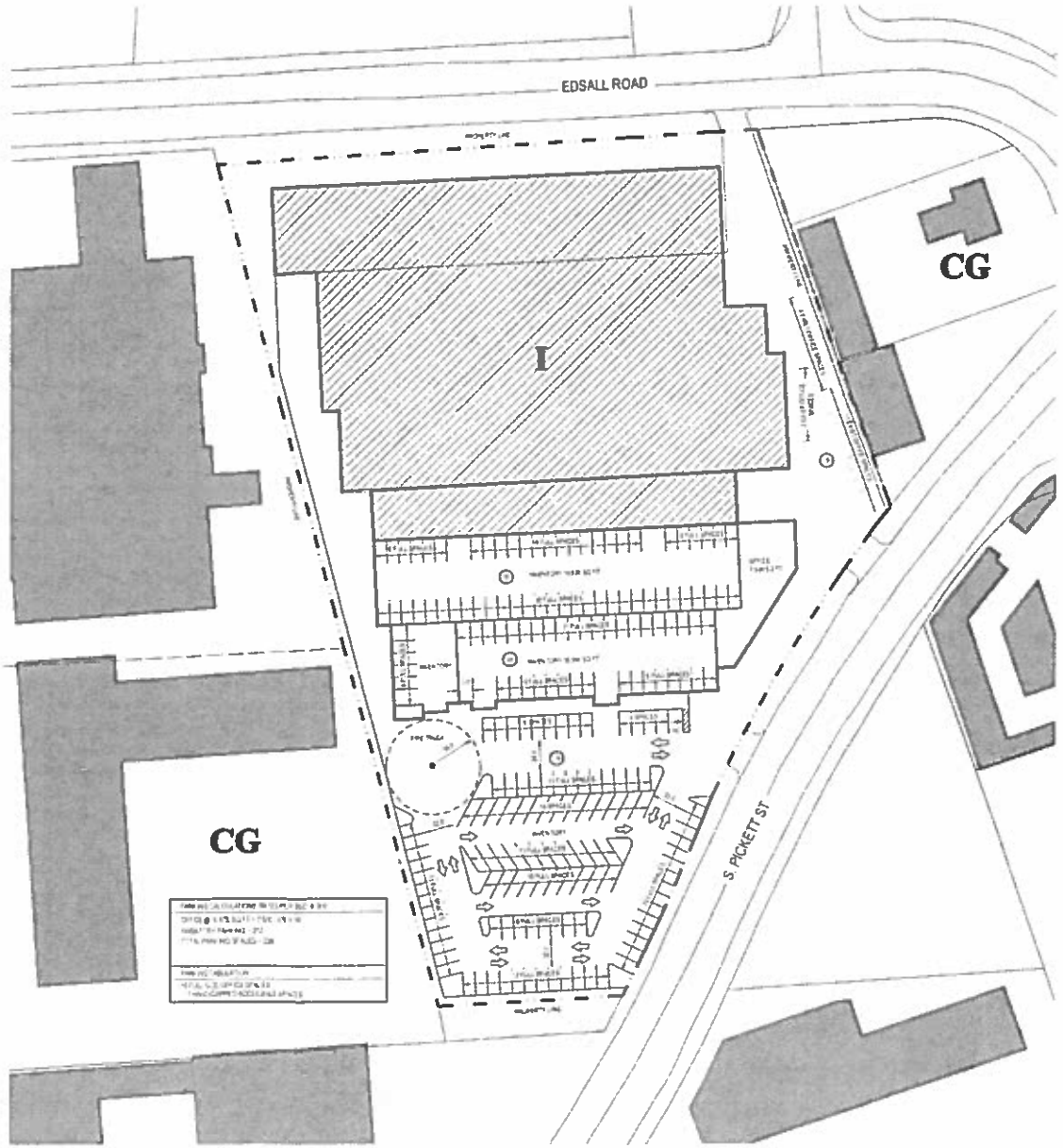


PARKING SITE PLAN

611 S. PICKETT ST
SITE STUDY

SITE PARKING STUDY

A1



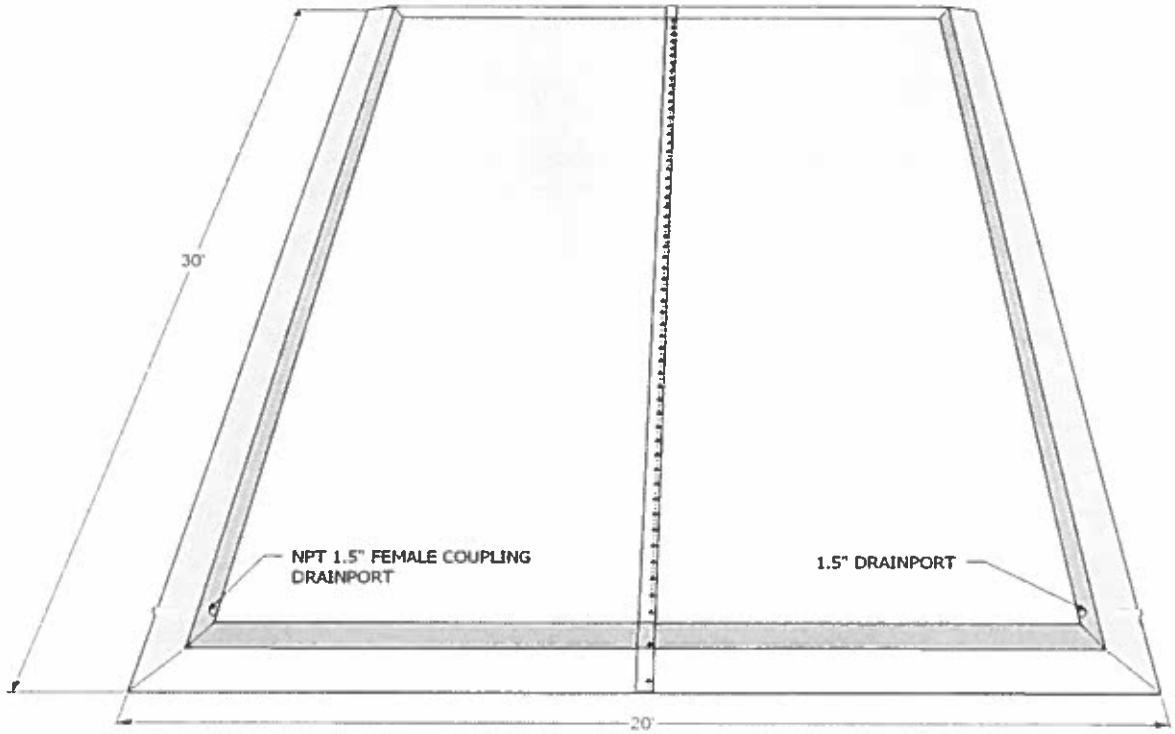
PARKING SITE PLAN

ARCHITECTS GROUP PRACTICE

611 S. PICKETT ST
SITE STUDY

SITE PARKING STUDY

A1

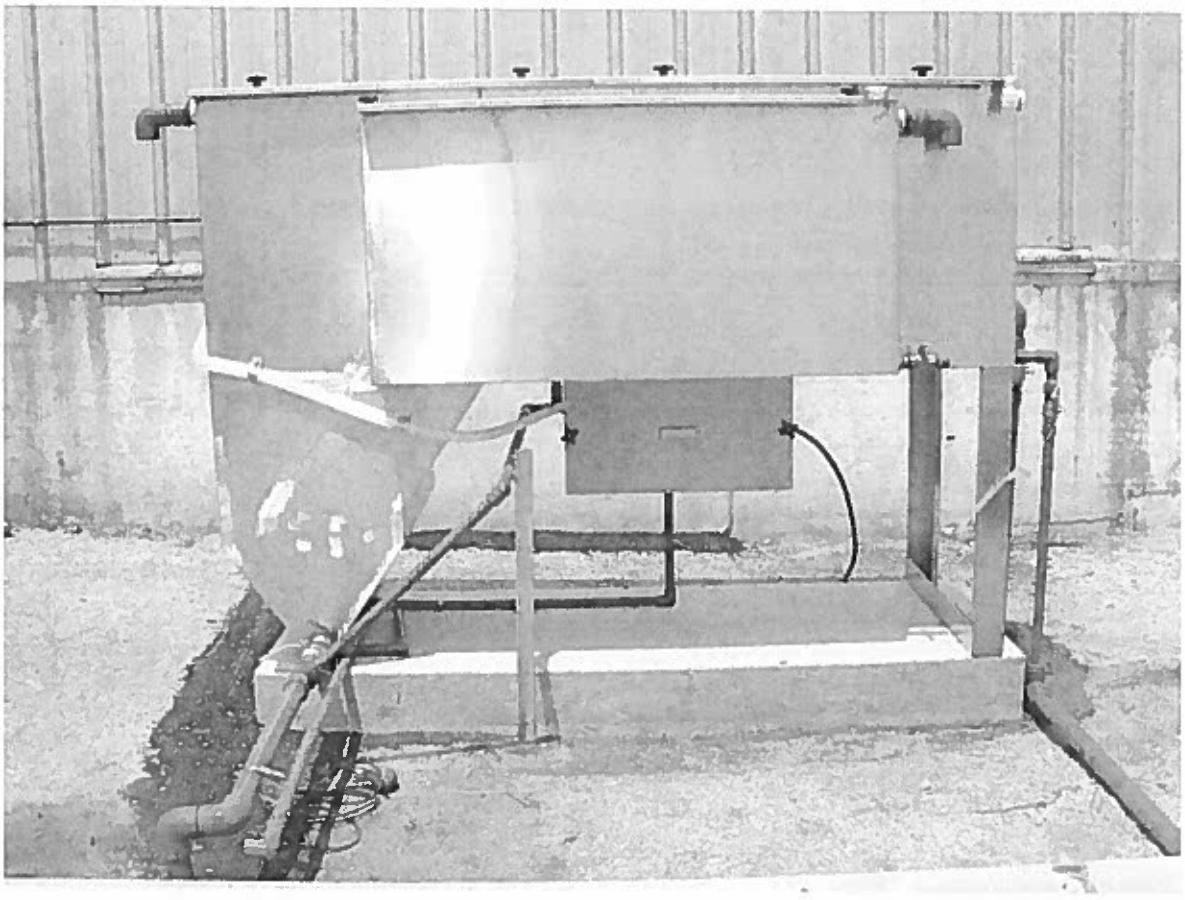


CROSS SECTION SIDE VIEWS

CUSTOM CP 20 X 30 X 3 5/8" HIGH
2 PANEL SECTIONS 10' WIDE

DWG NO:			
SCALE:	NA	WEIGHT:	NA
DRAWN:	M.R.P	DATE:	rev 8/4/2015

POLYSTAR Containment



SPT-SERIES

CLARIFIER OIL WATER SEPARATOR

SPECIFICATION, OPERATIONS & MAINTENANCE

Version 3.0 Date

2/1/2018

VERSION HISTORY

Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	Cameron Stoepker	05/17/16	Anne Goodwin	05/17/16	
2.0	Cameron Stoepker	12/16/16	Anne Goodwin	1/26/17	Updated with ozone information
3.0	Anne Goodwin	1/26/18	Anne Goodwin	2/1/18	Added calculations

PRODUCT SAFETY

⚠ Important:
Before installing and operating this equipment, read & study this manual thoroughly. Proper installation is essential to safe operation. In addition, the following points should be adhered to in order to ensure the safety of equipment and personnel:

All personnel who may be expected to use this equipment must be thoroughly trained in its safe and proper use.

Before flowing water from this device, check that all personnel are out of the stream path. Also, check to make sure stream direction will not cause avoidable property damage.

Become thoroughly familiar with the hydraulic characteristics of this equipment, and the pumping system used to supply it.

Open and close water valves supplying this equipment slowly, so that the piping fills slowly, thus preventing possible water hammer occurrence.

After each use, and on a scheduled basis, inspect equipment per instructions in MAINTENANCE.

⚠ Warning: The mounting structure must be able to withstand a horizontal reaction force of at least 200 lbs. at the height of the discharge pivot center and from any angle of rotation that the monitor is capable of turning. Serious injury to personnel and equipment can result from improper installation.

TABLE OF CONTENTS

1 SYSTEM DESCRIPTION

1.1 Design Parameters

The Model SPT Series Clarifier Oil Water Separator is designed and manufactured to provide for the precipitation and removal of suspended solids and the removal essentially all free and dispersed, non emulsified oil, from the oil water mixture at a flow rate of 10-100 GPM at a temperature of 55 degrees F. The design utilizes the difference in specific gravity between suspended solids, oil and water (buoyancy force) enhanced by the use of projected plate surface area and HD Q-PAC coalescing plates.

The separator is designed to receive groundwater by gravity/pumped flow that will not mechanically emulsify the oil and will process it on a once through basis. The tank will be a single wall, rectangular unit installed above grade. It will be constructed of Stainless Steel. The inclined plates are stainless steel and the HD Q-PAC coalescing plates are manufactured of UV-Resistant Polypropylene material.

Features:

- 10-100 GPM processing rate
- Stainless steel construction
- Separation Chamber
- Adjustable Weir for Water Level Control
- Adjustable Oil Skimmers
- Oil Collection Reservoir
- Coalescing Media Pack
- Sludge Chamber

1.2 Series Models

MODEL	SPT-10	SPT-20	SPT-30	SPT-50	SPT-100
Flow Rate, GPM	1-10	1-20	1-30	1-50	1-100
Coalescing Plates	12	12	24	36	52
Coalescing Media, CF	4	6	12	24	40
Approx. Dimensions, in (w x l x h)	30 x 84 x 58	42 x 80 x 70	48 x 110 x 70	54 x 116 x 72	70 x 126 x 88

1.3 System Operation and Architecture

1.2.1 *FABRICATION:* The clarifier/separator is a special purpose prefabricated inclined plate and parallel corrugated plate, rectangular, gravity displacement, type unit. The clarifier/separator shall be comprised of a tank containing an inlet compartment, sludge chamber, a separation compartment, and clean water outlet chamber.

1.2.2 *TANK:* The tank shall be a single wall construction of 12 gauge stainless steel conforming to ASTM A240, type 316 stainless steel. Welding will be in accordance with AWS D1.1 to provide a watertight tank that will not warp or deform under load. Pipe connections to the exterior shall be as follows:

1.2.3 *PIPE CONNECTIONS*: All connections 3" and smaller are FNPT couplings. All connections 4" and larger are flat face flanges with ANSI 150 pound standard bolt circle. Use flanged piping connections that conform to ANSI B16.5.

1.2.4 *SEPARATOR CORROSION PROTECTION*: (For Carbon Steel Only) after shop hydrostatic test has been successfully completed, a coating system will be applied to the interior and exterior surfaces of the separator. Interior and exterior shall be sandblasted to SSPC-SP10 & SSPC-SP6; Interior lined with Tnemec Series 61 liner to 9 mils MDFT; Exterior coated with polyamide epoxy to 6 mils MDFT.

1.2.5 *LIFTING LUGS*: The tank shall be provided with properly sized lifting lugs for handling and installation.

1.2.6 *COVERS:* The tank will be provided with vapor tight covers for vapor control. Gas vents and suitable access openings to each compartment will be provided. The covers shall be constructed of the same material as the tank and will be fastened in place. A gasket shall be provided for vapor tightness. 304 SS Latches will be provided for cover attachment.

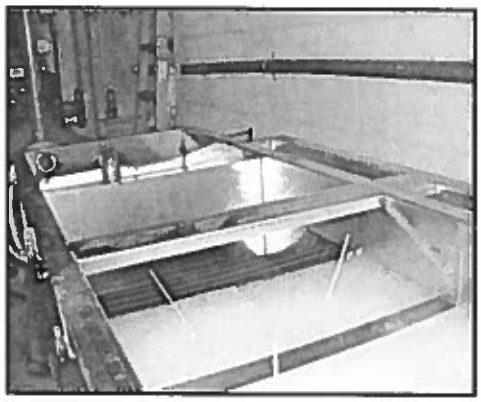
1.2.7 *INLET COMPARTMENT*: The inlet chamber shall be comprised of a non-clog diffuser to distribute the flow across the width of the CS chamber. The inlet compartment shall be of sufficient volume to effectively reduce influent suspended solids, dissipate energy and begin separation. The inclined plates will sit elevated on top of a sludge chamber. As the water moves upwards the suspended particles have their upwards velocity interrupted by the inclined plates. These particles drop down and slide down the inclined plate and join larger previously settled particles in sludge hopper. The sludge compartment will be provided to retain settleable solids.

1.2.8 *SEPARATION CHAMBER*: The oil separation chamber shall contain HD Q-PAC Coalescing Media containing a minimum of 132 square feet per cubic foot of effective coalescing surface area. The medias needle like elements (plates) shall be at 90 degrees to the horizontal or longitudinal axis of the separator. Spacing between these elements shall be

spaced 3/16" apart for the removal of a minimum of 99.9% of free droplets 20 micron in size or greater. The elements are positioned to create an angle of repose of 90 degrees to facilitate the removal of solids that may tend to build up on the coalescing surfaces, which would increase velocities to the point of discharging an unacceptable effluent.

Laminar flow with a Reynolds Number of less than 500 at a maximum designed flow rate shall be maintained throughout the separator packed bed including entrance and exit so as to prevent re-entrainment of oils with water. Flow through the polypropylene coalescing media shall be crossflow perpendicular to the vertical media elements such that all 132 square feet/cubic foot of coalescing media is available for contact with the coalescing surfaces.

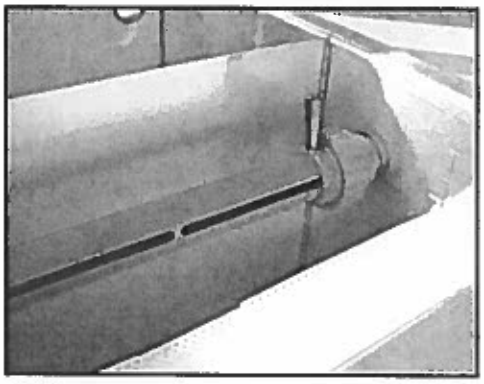
None of the coalescing media surfaces shall be pointing upward so as not to be available for contact with the cross-flowing oily water. The media shall have a minimum of 87% void volume to facilitate sludge and dirt particles as they fall off the vertical elements and settle in the sludge compartment. The media when installed in crossflow OWS shall meet US EPA Method 413.2 and also European Standard 858-1.



1.2.9 *BAFFLES:* An oil retention & underflow weir, and overflow weir. Position underflow weir to prevent re-suspension of settled solids.

1.2.10 *SLUDGE CHAMBER*: The sludge chamber shall be located prior to the coalescing compartment for the settling of any solids. It shall also prevent any solids from entering the clean water chamber.

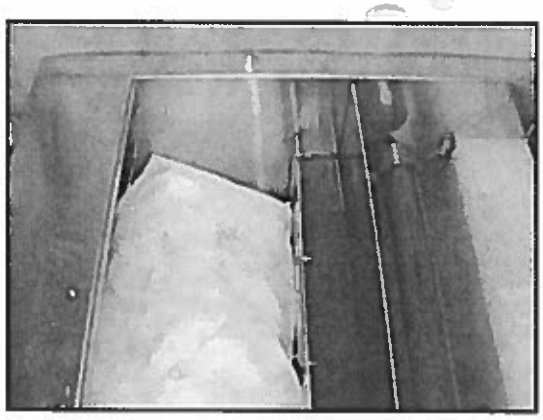
1.2.11 *OIL SKIMMER*: The clarifier compartment and the oil separation compartment will be provided with rotatable pipe skimmers for gravity decanting of the separated oil to an integral product storage tank.



1.2.12 *CLEAN WATER CHAMBER:* The tank will be provided with a clean water chamber, which allows the water to leave the separator, by pumped flow through the clean water outlet port.

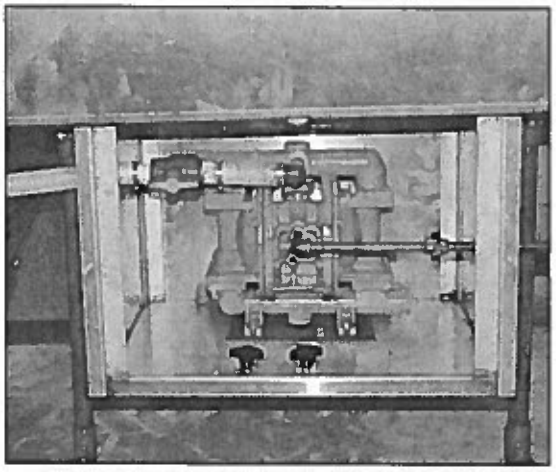
1.2.13 *VENTS:* 2" vents will be provided with vent piping to atmosphere.

1.2.14 *OPTIONAL POLISHING PACK:* A final polishing pack with an oil absorbent bag may be provided with the system. This pack will trap trace oils before water is discharged.



1.2.15 *OPTIONAL OZONE SYSTEM*: The system may be provided with an ozone generator to reduce odors.

1.2.15 *OPTIONAL TRANSFER & CONTROL SYSTEM*: The system may be provided with an air diaphragm transfer pump with Buna or equivalent diaphragms. The pump may be installed in a stainless steel chamber under the coalescing chamber. A pneumatic level controller may be installed in the sump or catch basin for automatic start and stop of the pump.



SYSTEM INSTALLATION

2.1 System Installation

Each SPT system installation is different. Please adhere to the following instructions and any design plans provided.

2.1.1 SPT INSTALLATION: When placing the separator for system operation, be sure it is installed in a concrete foundation, which provides adequate support under full load operating conditions. Even if a mounting skid is used, a concrete pad or other properly designed structure must be installed as a foundation. The length and width of this pad are dependent upon the footprint of the unit. Thickness of the concrete pad depends on local soil and frost conditions. A local qualified civil engineer should be contacted to determine these dimensions.

For Equipment Subject to Traffic Loads:
A concrete slab must be installed around the equipment if the separator is going to be subject to traffic loads. It should be designed to carry the load and transmit the load into adjacent, undisturbed soil, not onto the tank sidewalls!

If a concrete pad is not installed and the equipment is subject to traffic loads, deformation or in some cases total collapse of the equipment may occur. JDI, Inc. cannot be held responsible for equipment subjected to such loads!

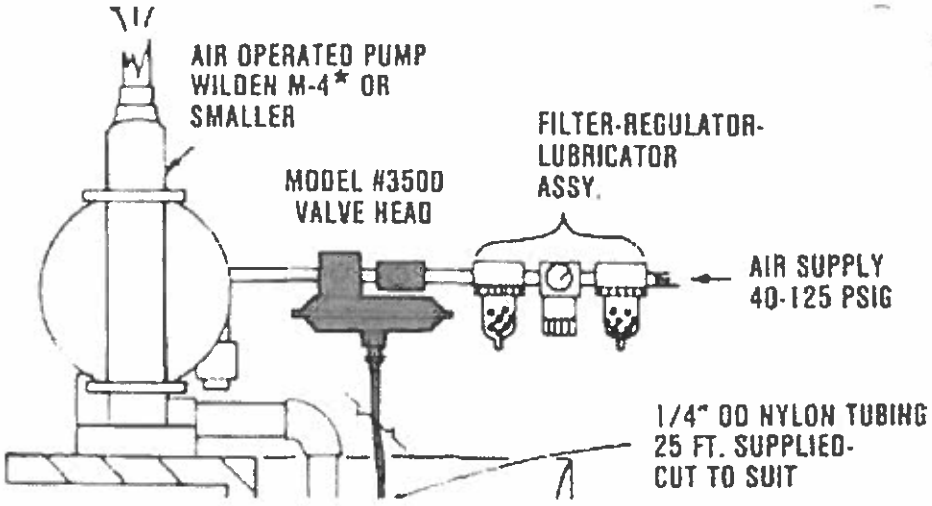
Leveling:
1. At this point the equipment should be set exactly in place and the anchor bolts should be installed.

2. Remove any lids.

3. The tankage should now be made as level as possible. The absolute minimum requirements being, within +/- 1/16" per foot from inlet to outlet end of tank and +/- 1/16" per foot from side to side, maximum of +/- 1/4" total. Shim the tank, if necessary, until these parameters are met. We recommend the use of stainless steel shim stock. When installing shims, make sure to locate them under all vertical tank supports.

NOTE: We cannot stress enough the leveling process. It is better to invest a little time at this point than to try to correct an improperly leveled tank later. A level installation functions better, has a better appearance and will give you fewer problems in the future.

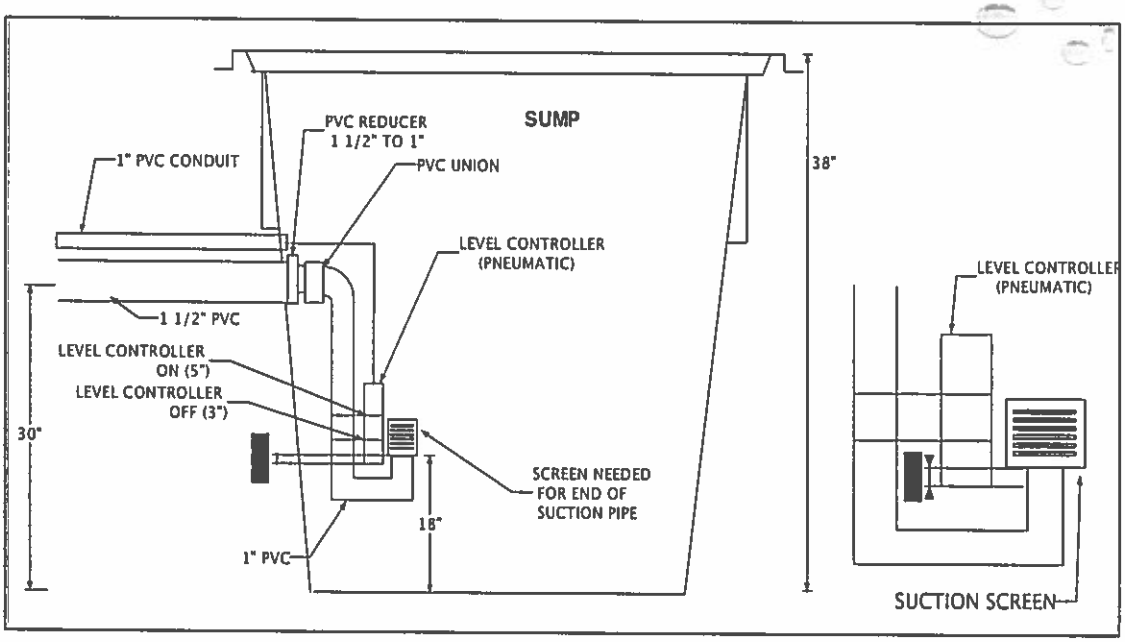
2.1.2 *AIR SUPPLY*: The SPT clarifier/separator needs to be provided with a suitable air supply (typically 8-12 CFM at 40 PSI). An air dryer and a regulator must be placed in-line in front of any components of the pump and level controller. (Demonstrated below)



2.1.3 PUMP AND LEVEL CONTROLLER INSTALLATION: Water enters the CT-10 System via air powered diaphragm pump. The pump and controller are generally installed in the factory. The controller is located under the SPT and is controlled through a charge of air within the level sensing tube. When installing the tube it is critical that it be placed so that oil may enter the system and that the pump does not run dry. An illustration is included below to show the proper installation method.

As you can see from the illustration below a 1" PVC Conduit holds the nylon tubing for the level controller. This is critical to protect the tube from any kinks or pinches that may happen during installation rendering the controller useless. A suction screen is needed at the end of the suction pipe to keep debris from fouling up the system. Without the screen solids may enter and either become clogged or travel through the system, however it is important to contain the solids in the sump for best results.

Once the level controller has been installed it is important the pump be configured correctly. To check this make sure air is being brought into the unit, the level controller is installed correctly, and the plumbing is completed. This includes removing any additional plastic plugs that may be placed in the manifold and replacing them with the proper threaded plugs. Once set it is time to test the pump for operation. To do this: Make sure that the sump is filled with water enough to engage the level controller head. Turn on the air. If installed correctly the pump should prime itself and begin to move water into the SPT. If water does not move into the SPT check the plumbing for any leaks. If pump does not turn on check the air supply or reconfigure the level controller to resolve the problem.



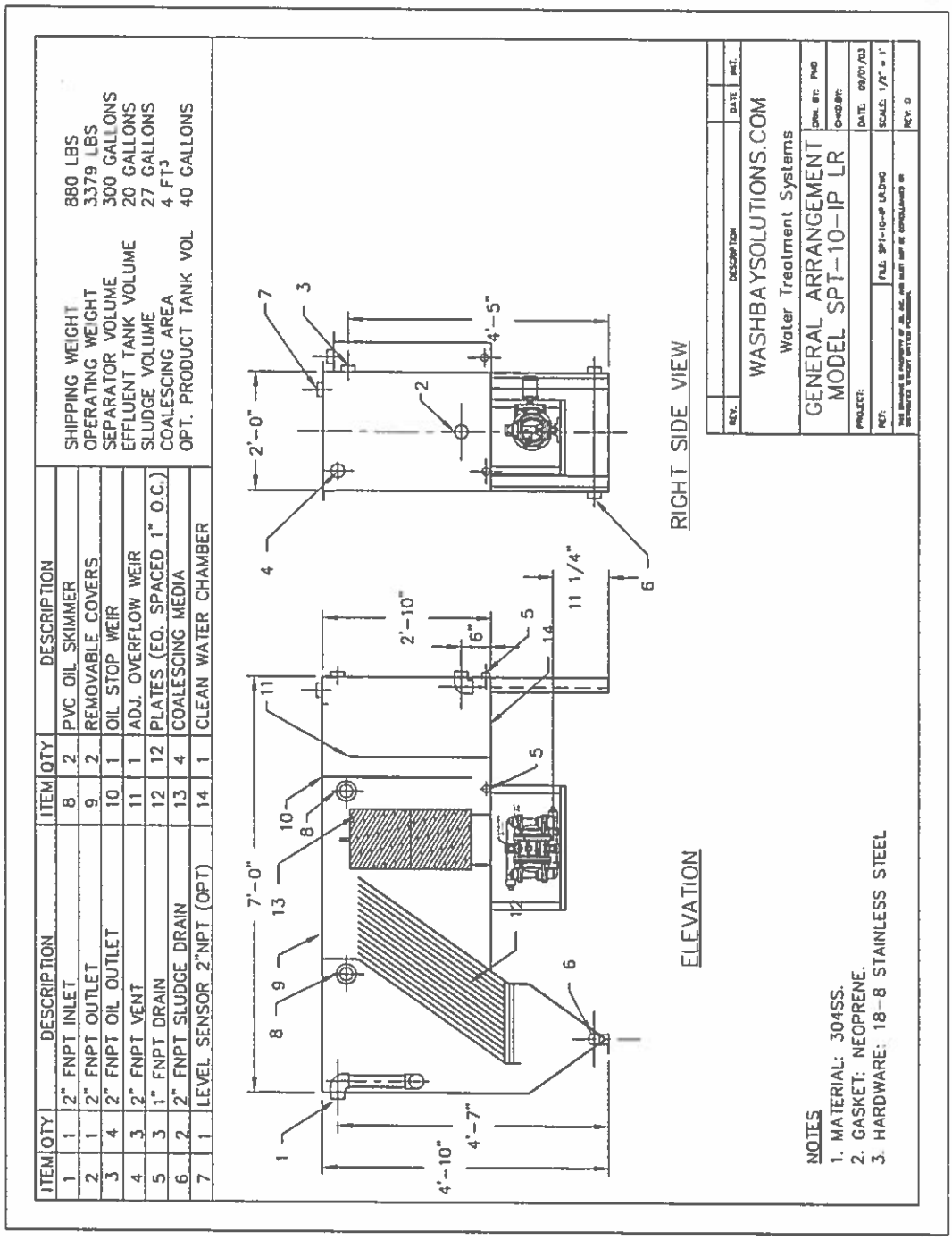
2.1.4 PLUMBING INSTALLATION: Installation of the SPT plumbing will vary to fit site specifics. A sample configuration is shown in Appendix E. If the SPT is not gravity drained, a sump pump and float switch will be located in the outlet of the SPT. Be sure to configure the float so that the pump does not run dry. This can be done with zip ties and a little trial and error to get the appropriate height.

2.1.5 OPTIONAL OZONE GENARATOR. The Ozone Generator must be securely mounted to a clean surface sheltered from direct exposure to the elements (rain, sun and dirt). Mount above the maximum water level, if possible. Mounting hardware is not included.

After mounting, attach the check valve and tubing assembly to the barb fitting coming out from the bottom right side of the generator. Make sure the flow arrow on the check valve points away from the generator and toward the SPT. Soften the tubing if necessary by dipping it in warm water. Connect one end of the tubing supplied in the parts bag to the larger end of the check valve and tubing assembly. Connect the other end of the tubing to the dispersion stone.

Place the Dispersion Stone into the first chamber of the SPT approximately 1 foot from the bottom for maximum ozone saturation in the water. It is best to put a sinker weight on the stone to keep it from floating up and use string to keep it from sinking all the way to the bottom of the tank. Note: The Dispersion Stone is delicate. Be sure to place it where it will not be stepped on or crushed. Finally, plug the generator into a Ground fault circuit interrupter (G.F.C.I.) protected outlet.

2.1.6 SPT GENERAL ARRANGEMENT DRAWING



2.2 SYSTEM START-UP

2.2.1 *INITIAL START-UP*:

This procedure is to be followed after the installation of the separator or after the separator has been drained for maintenance and is ready to be restarted.

1. Ensure that the owner supplied upstream influent flow regulating valve is closed.

2. Before starting the flow to the unit, remove the coalescer access cover and ensure that the HD Q-PAC packs have not shifted and are securely fastened. The separator should contain plate packs, polishing pack and adjustable oil skimmer pipe tube. (Slot of skimmer to be turned upward away from water)

3. Ensure that there are not obstructions in the water outlet piping.

4. With the coalescer access cover off, fill the tank with clean water, establishing flow from the effluent opening. Check for leaks, both external and internal remedy any found.

5. Allow the influent oil water mixture into the OWS tank.

6. Replace the coalescer access cover and bolt down liquid tight.

2.2.2 *NORMAL OPERATION*:

Carefully maintain flow at the rate set when flow was established. Once a sufficient quantity of oil has accumulated in the separator, turn the slot of the skimmer into the oil layer (The oil will then be decanted into an integral oil storage compartment or to a separate tank outside of the separator). Disposal of the oil must comply with regulations of the authority having jurisdiction.

3 SYSTEM MAINTENANCE AND SERVICE

3.1 GENERAL CONTACT INFORMATION

This section will cover the maintenance and trouble-shooting of the system by major section. For any questions or specific part manuals, please contact JDI, Inc./WBS at 800-453-8639.

3.2 SPT MAINTENANCE

3.2.1 The separator should be checked periodically to determine if excessive amounts of solids and debris have accumulated. If this happens the solids may accumulate enough to plug the lower part of the HD Q-PAC plates. In this case, efficiency will be reduced and oil in the outlet water may exceed specified effluent limits.

3.2.2 After the first month of operation, the inlet area should be inspected and cleaned as follows:

1. Stop the flow of influent to the separator.
2. Remove separator cover.
3. Dispose of separated oil per regulatory procedures.
4. Remove water from separator through drain or hose.

3.2.3 Measure and record the depth of the solids. Use this measurement as the timing basis for the next solids inspection and clean out. Consult OWS drawing for depth of sludge baffle. Solids should not exceed this depth.

3.2.4 The HD Q-PAC plates can be either cleaned in place or removed and cleaned .

1. For cleaning in place, connect a water hose (1-50 psig) and insert in plate spacing on top of the plate packs. As the water flushes the dirt out of the plate packs, it should be removed by the vacuum hose.

2. For removing plate packs outside of separator. Flush with water hose (1-50 psig) over an area to prevent discharge of flushed water into groundwater. It is only necessary to remove all sludge from between the plates and any very heavy oil coating.

3.2.5 Examine tank interior for damage and repair any damage to internal coating.

3.2.6 To restart separator, reinstall HD Q-PAC plate packs and polishing pack in original position. Make sure that both are securely in place so that they do not float when unit is operational.

3.2.7 For start up, repeat steps in section 2 of these instructions.

3.3 RECOMMENDED MAINTENANCE PROCEDURES

Recommended Maintenance Procedures			
Time Interval	**Equipment Section Location**	**Maintenance Action**	**Purpose**
Weekly	Wash pad	Remove solids and debris from wash pad	To keep solids from fouling equipment
	Clarifier Section	Drain sludge from Clarifier back to settling basin and wash plates	To maintain efficient operation of clarifier
	Clarifier internal oil storage tank	Check oil level in Clarifier and drain if needed	To maintain efficient operation of clarifier
	Sump pit	Remove all solids, debris, and oil	To keep solids from fouling equipment
Monthly	Clarifier Section	Wash internal plates and drain sludge from Clarifier back to settling basin	To maintain efficient operation of clarifier and to keep solids from fouling equipment
Every 3 months	Level switches and solenoids	Check for proper operation	To maintain proper system operation
Every 6 months	Oil Water Separator Section	Wash out and drain back to settling basin	To remove sludge in plates
	Internal oil storage tank	Drain oil tank and haul offsite per local regulations	To maintain efficient operation of oil water separator section

3.4 OZONE GENERATOR MAINTENANCE

Cleaning the Dispersion Stone
Periodically, the dispersion stone may clog up with mineral deposits reducing the amount of ozone flow through the stone. The stone will appear a darker color. Remove the dispersion stone. Soak it in lemon juice or vinegar for a few hours to overnight until the discoloration is gone and the dispersion stone is a uniform color. Rinse the dispersion stone thoroughly with fresh water. Reinstall the dispersion stone.

NOTE: Sometimes the stain will be permanent; if ozone bubbles still flow from the dispersion stone the stain will not affect operation.

3.5 SPT Troubleshooting

Regularly monitor the quality of the effluent leaving the separator. If any loss in effluent quality is observed, steps should be taken to correct the problem immediately. Some things to check if effluent quality has deteriorated are:

1. Have you exceeded the separators rated flow? If so, return the flow rate to the design flow rate.

2. Have you allowed the sludge to accumulate to a point where it has started to affect the performance of the separator? If so, take steps to have the sludge removed immediately. If it cannot be pumped out, you will have to drain the separator and remove the accumulated sludge.

3. Check the influent for surfactants or chemical emulsifiers. If any are present, you may need additional treatment in order to meet discharge requirements.

4. Are you pumping into the separator? If so, you may be mechanically emulsifying the influent oil. Sample the oil water from both before and after the pump. There should be no differences between the two samples. If you are mechanically emulsifying the oil you may have to change your influent pump to a low RPM positive displacement pump or similar pump that will cut down on shearing.

5. Check to make sure that the oil depth in the separator is not too great; a deep layer of product will reduce the efficiency of the separator. Free product should be removed and the separator put back in service.

TROUBLESHOOTING GUIDELINES

PROBLEM	POSSIBLE CAUSE	DIAGNOSTIC TECHNIQUE	CORRECTIVE ACTION
EFFLUENT CONCENTRATION TOO HIGH	Oil Concentration too Great for Design	Sample Influent	Decrease the Flow Rate
	Flow Too Great For Design	Check Flow	Decrease the Flow Rate
	Plates Blocked	Inspect, Remove Plates if Necessary	Clean Per Par. 3.2.4 Instructions and Reinstall.
	Solids have Accumulated Into Coalescer Plates	Check Depth of Solids In Coalescer Compartment	Remove Solids From Compartment
TANK IS OVERFLOWING	Output Line Restricted	Check Flow	Remove Restriction
WASHBAY FLOODING OR WATER ISN'T PUMPING OUT OF PIT – SEE ATTACHED PUMP TROUBLESHOOTING GUIDE IN APPENDIX C FOR MORE DETAILS	Debris in pump suction line or in pump	Check sump pump	Remove obstructions
	Sump pit inlet screen plugged	Check Screen	Clean or Replace Screen
	Frozen water in lines	Thaw out with warm water	Wrap piping with insulation wrap
	No air or power to system or sump pump	Check breakers and/ or replace fuses	Check air supply and re-charge air pocket

Note: For proper operation, outlet line should be as large as outlet nozzle unless unit is to be operated at very large flows.

3.6 Ozone Generator Troubleshooting

The areas to check on the generator to determine the nature of a problem are as follows:

1. The green power light on the front panel – should be on if the system is in operation.
2. The 4 Ozone Module indicator lights on the front panel – should be green while the system is in operation.
3. There should be air bubbles in the water.
4. The fan on the bottom of the ZO-400 – should be on when the system is in operation.
5. The condition of the water – should be clear and odor-free.

SYMPTOM: Green power light off – system not functioning

Probable cause	Corrective action
No power to unit	Check power source and cord
Tripped circuit breaker	Reset circuit breaker
G.F.C.I. tripped	Reset G.F.C.I.
Defective electrical system	Return for service/repair

SYMPTOM: Ozone module light turns red

Probable cause	Corrective action
Ozone module dead	Replace ozone module (note: system will run fine with a bad ozone module
Indicator PCB malfunction	Replace indicator PCB
Ozone module disconnected	Check electrical connection to Ozone module

SYMPTOM: everything works correctly, but water is dirty

Probable cause	Corrective action
Excessive load	If extra high load, continue 24hr. operation and add small amount of chlorine
pH not balanced	Adjust pH to 7.2 to 7.8
Total alkalinity incorrect	Adjust total alkalinity to 80 – 150 PPM
Dirty, loose, or cracked filter	Replace filter
Clogged dispersion stone	Clean dispersion stone
Kink or break in ozone tubing	Replace (or un-kink) tubing
Run time insufficient	Increase run time

APPENDIX A: WARRANTY

A. This equipment is warranted as to workmanship, material and performance when properly installed, used, and cared for, and provided that the original design criteria represent actual field data at the time of operation. Should any parts or parts prove defective within twelve (12) months from date of shipment or initial start-up (whichever comes first), it will be replaced F.O.B. destination without charge, provided the part (or parts) is returned transportation charges prepaid.

B. No allowance will be made for labor, transportation, or other charges incurred in the replacement or repair of defective parts by the customer. This warranty does not apply when damage is caused by conditions such as sand or abrasive materials pumped with the fluids, lightning, improper maintenance, improper voltage supply, careless handling, improper installation, stray electrical interference, or due to substances or factors that were unknown at the time of purchase. Buyer shall have no claim, and no product or part shall be deemed defective, by reason of failure to resist erosive or corrosive action, nor for problems resulting from buildup of material within the equipment.

C. Purchaser shall be responsible for the costs of removal, disassembly, failure analysis, fault isolation, reinstallation, re-inspection and retrofit required of warranted parts.

D. This warranty applies only to seller's equipment, under use and service in accordance with the seller's written instructions, recommendations and ratings for installation, operating and maintenance, and service. All claims for defective products, parts, or work under this warranty must be made in writing immediately upon discovery and, in any event, within one year of purchase.

E. This warranty is a *Limited Warranty*, anything in the warranty notwithstanding. Implied warranties for particular purpose and merchantability shall be limited to the duration of express warranty. This warranty does not apply to goods or parts not manufactured by the seller, instead the seller's obligation for these goods or parts is limited to the actual warranty extended to the seller by the manufacturer.

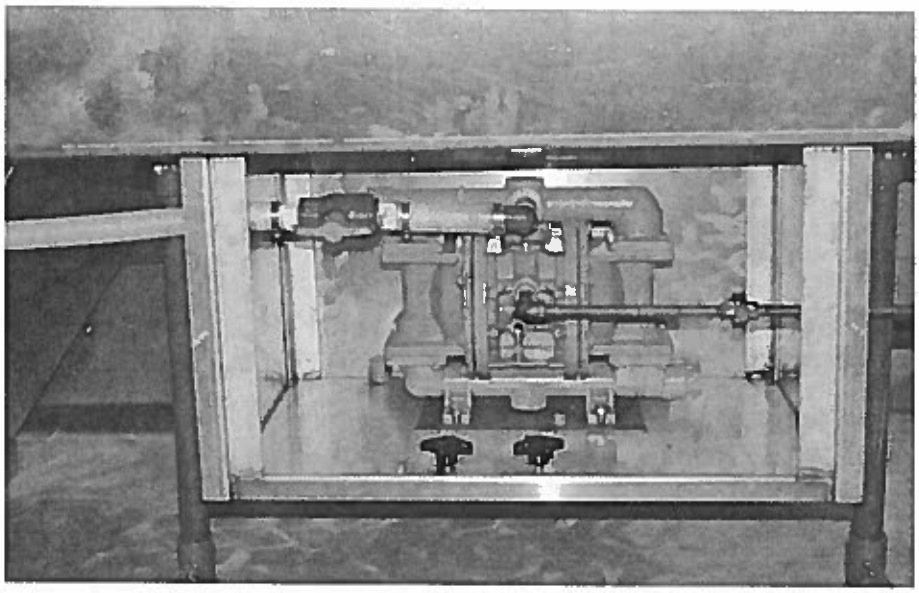
F. The manufacturer expressly disclaims and excludes any liability of consequential or incidental damages for breach of any express or implied warranty. Consequential damages for the purpose of this document shall include, but not be limited to, loss of use, income or profit, any additional expenses incurred, or loss of or damages to property occasioned by or arising out of in-operation, failure to meet expectations, use, the operation, installation, repair or replacement of the equipment or otherwise.

G. This Warranty does not cover parts not provided by Seller, and does not cover the following:

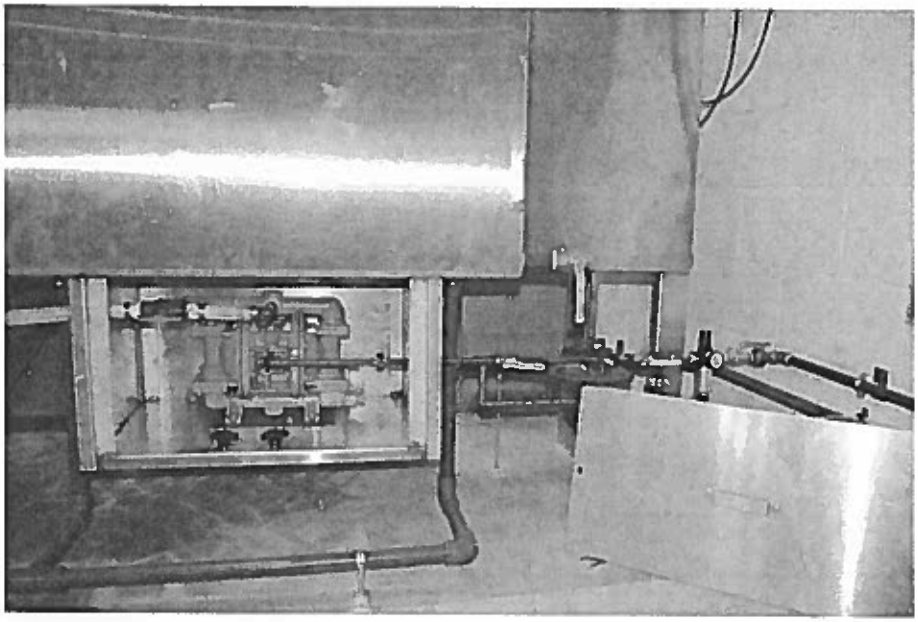
1. Damage or malfunction by decomposition from freezing or extreme temperatures, chemical action or wear caused by abrasive materials
2. Damage or malfunction resulting from misuse, abuse, improper servicing, any other than its intended use, accident, neglect or from improper operation, maintenance, installation, adjustments and modifications that deviate from original manufacturer's specifications
3. Units altered in any way that deviates from original manufacturer's specifications including filed modifications
4. Damage to components from fluctuations in electrical or water supply
5. Normal maintenance service and replacement of maintenance items
6. Field labor charges in connection with adjustments, disassembly or reassembly
7. Transportation charges in connection with the repair or replacement of defective parts
8. Freight damage

H. Seller will not be held liable for any claims in regard to water effluent or air emissions quality.

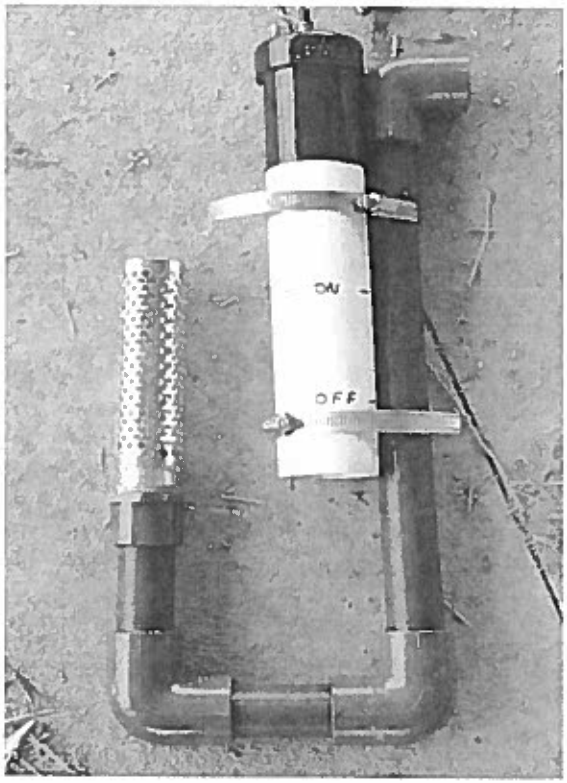
Appendix B: Installation Photos



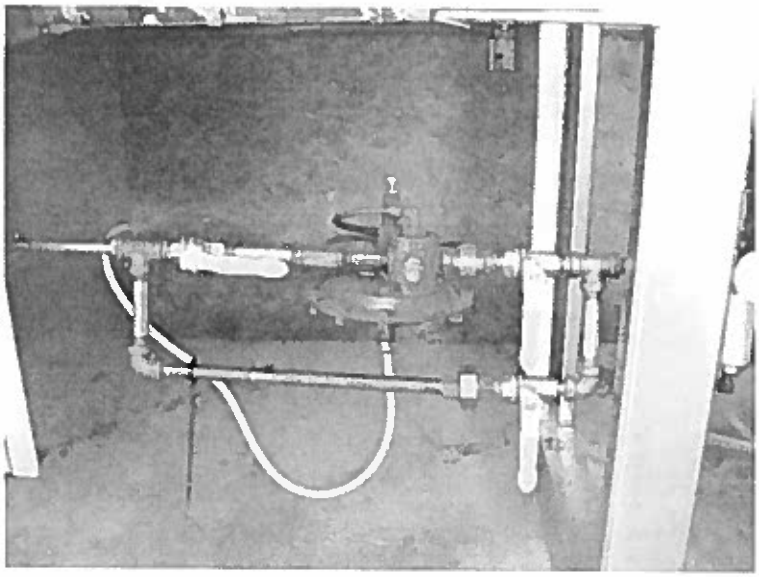
Pump Outlet and Air Supply



Pump and Level Controller Setup

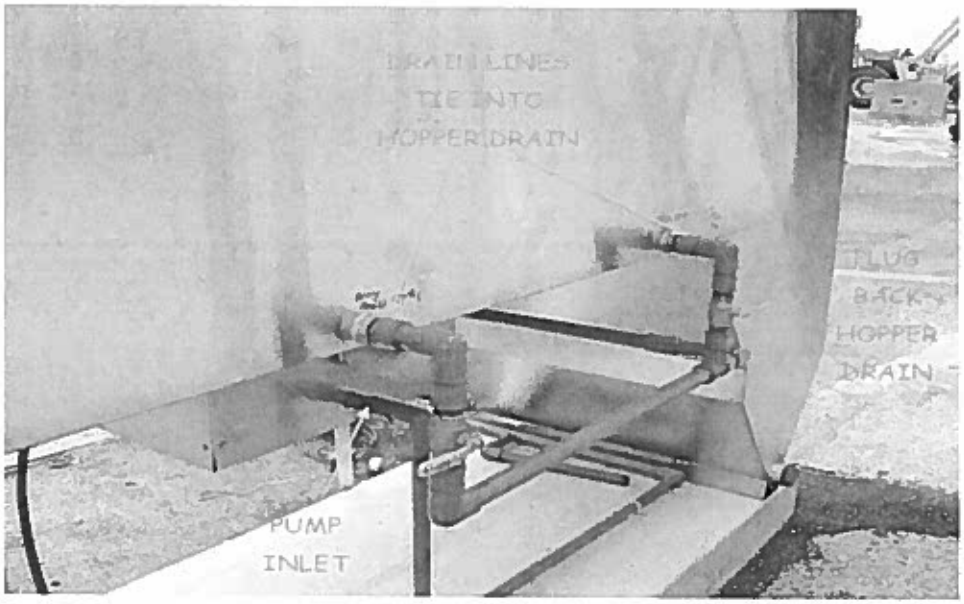


Level Sensor
Installation

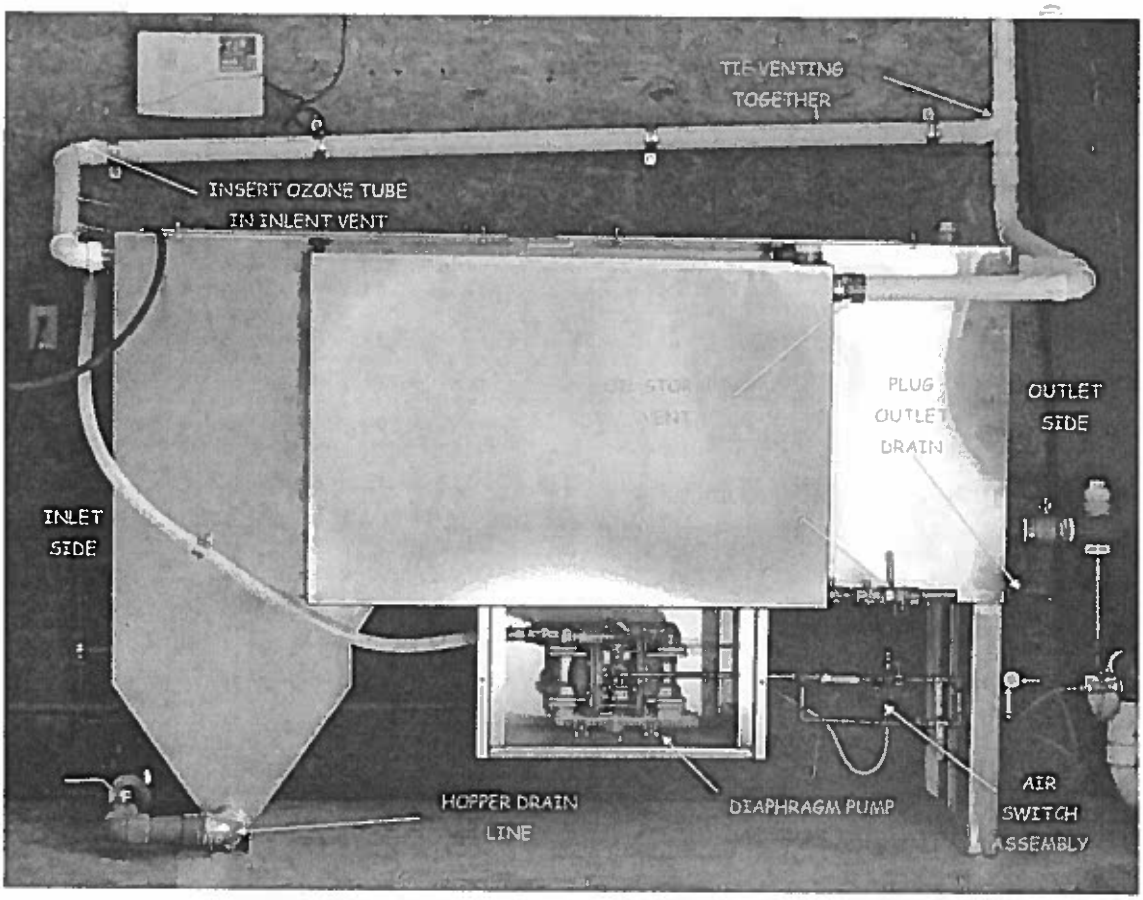


Manual Bypass
Level Controller

SPT Side View



SPT Drains and Pump Inlet


TIE VENTING TOGETHER
INSERT OZONE TUBE IN INLENT VENT
PLUG OUTLET DRAIN
OUTLET SIDE
INLET SIDE
HOPPER DRAIN LINE
DIAPHRAGM PUMP
AIR SWITCH ASSEMBLY

SPT Front

APPENDIX C: PUMP TROUBLE-SHOOTING GUIDE

SUGGESTED OPERATION & MAINTENANCE

OPERATION: The pumps are pre-lubricated and do not require in-line lubrication. Additional lubrication will not damage the pump, however if the pump is heavily lubricated by an external source, the pump's internal lubrication may be washed away. If the pump is then moved to a non-lubricated location, it may need to be disassembled and re-lubricated as described in the ASSEMBLY/ DISASSEMBLY INSTRUCTIONS.

Pump discharge rate can be controlled by limiting the volume and/or pressure of the air supply to the pump. A regulator is used to control air pressure while a needle valve is used to control volume. Pump discharge rate can also be controlled by throttling the pump discharge by partially closing a valve in the discharge line of the pump. This action increases friction loss which reduces flow rate. (See Section 5.) This is useful when the need exists to control the pump from a remote location. When the pump discharge pressure equals or exceeds the air supply pressure, the pump will stop; no bypass or pressure relief valve is needed, and pump damage will not occur. The pump has reached a "deadhead" situation and can be restarted by reducing the fluid discharge pressure or increasing the air inlet pressure. The pumps run solely on compressed air and do not generate heat, therefore your process fluid temperature will not be affected.

MAINTENANCE AND INSPECTIONS: Since each application is unique, maintenance schedules may be different for every pump. Frequency of use, line pressure, viscosity and abrasiveness of process fluid a ll a ffect the parts life of a Wilden pump. Periodic inspections have been found to offer the best means for preventing unscheduled pump downtime. Personnel familiar with the pump's construction and service should be informed of any abnormalities that are detected during operation.

RECORDS: When service is required, a record should be made of all necessary repairs and replacements. Over a period of time, such records can become a valuable tool for predicting and preventing future maintenance problems and unscheduled downtime. In addition, accurate records make it possible to identify pumps that are poorly suited to their applications.

TROUBLESHOOTING

Pump will not run or runs slowly.

1. Ensure that the air inlet pressure is at least 0.3 bar (5 psig) above startup pressure and that the differential pressure (the difference between air inlet and liquid discharge pressures) is not less than 0.7 bar (10 psig).
2. Check air inlet filter for debris (see SUGGESTED INSTALLATION).
3. Check for extreme air leakage (blow by) which would indicate worn seals/bores in the air valve, pilot spool and main shaft.
4. Disassemble pump and check for obstructions in the air passageways or objects which would obstruct the movement of internal parts.
5. Check for sticking ball check valves. If material being pumped is not compatible with pump elastomers, swelling may occur. Replace ball check valves and seals with proper elastomers. Also, as the check valve balls wear out, they become smaller and can become stuck in the seats. In this case, replace balls and seats.
6. Check for broken inner piston which will cause the air valve spool to be unable to shift.
7. Remove plug from pilot spool exhaust.

Pump runs but little or no product flows.

1. Check for pump cavitation; slow pump speed down to allow thick material to flow into liquid chambers.
2. Verify that vacuum required to lift liquid is not greater than the vapor pressure of the material being pumped (cavitation).
3. Check for sticking ball check valves. If material being pumped is not compatible with pump elastomers, swelling may occur. Replace ball check valves and seats with proper elastomers. Also, as the check valve balls wear out, they become smaller and can become stuck in the seats. In this case, replace balls and seats.

Pump air valve freezes.

1. Check for excessive moisture in compressed air. Either install a dryer or hot air generator for compressed air. Alternatively, a coalescing filter may be used to remove the water from the compressed air in some applications.

Air bubbles in pump discharge.

1. Check for ruptured diaphragm.
2. Check tightness of outer pistons (refer to Section 7).
3. Check tightness of fasteners and integrity of O-rings and seals, especially at intake manifold.
4. Ensure pipe connections are airtight.

Product comes out air exhaust.

1. Check for diaphragm rupture.
2. Check tightness of outer pistons to shaft.

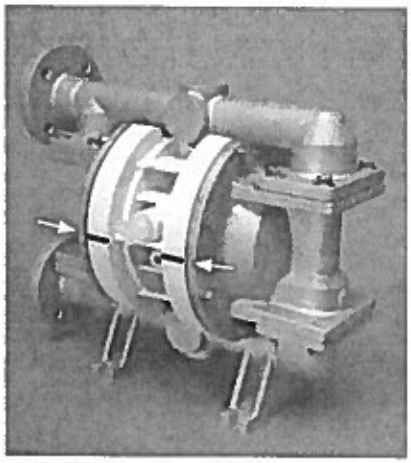
PUMP DISASSEMBLY

Tools Required:

- 13 mm (1/2") Box Wrench
- 2 – 25 mm (1") Sockets or Adjustable Wrench
- Adjustable Wrench
- Vise equipped with soft jaws (such as plywood, plastic or other suitable material)

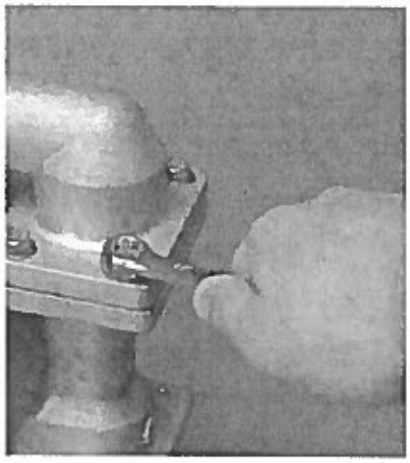
CAUTION: Before any maintenance or repair is attempted, the compressed air line to the pump should be disconnected and all air pressure allowed to bleed from the pump. Disconnect all intake, discharge and air lines. Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container. Be aware of any hazardous effects of contact with your process fluid.

NOTE: The model used for these instructions incorporates rubber diaphragms and balls. Models with PTFE diaphragms and balls are the same except where noted.



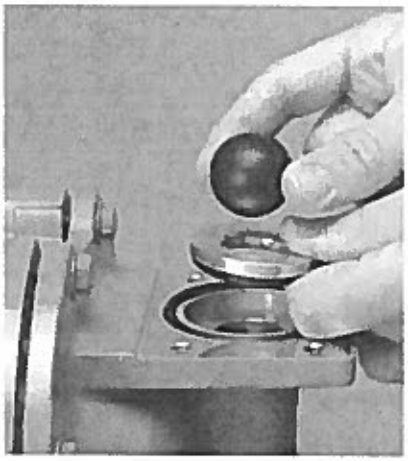
Step 1

Please note alignment marks on center section. Use to properly align liquid chamber to center section.



Step 2

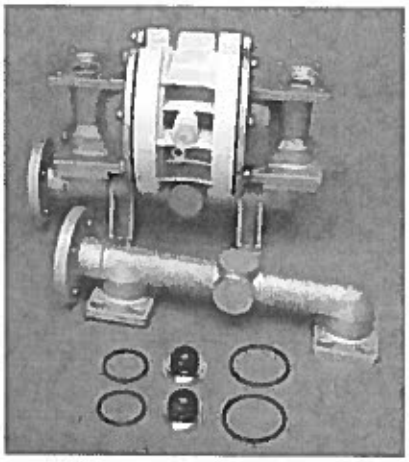
Using a 13 mm (1/2") wrench, loosen the discharge manifold from the liquid chambers.



Step 3

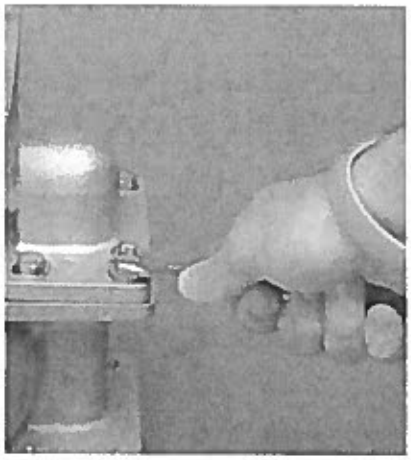
Remove the discharge manifold to expose the valve balls, valve seats and valve seat O-rings.

PUMP DISASSEMBLY



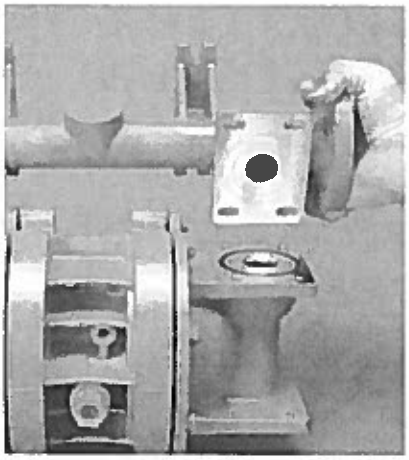
Step 4

Remove the discharge valve balls, seats and valve seat O-rings from the discharge manifold and liquid chamber, inspect for nicks, gouges, chemical attack or abrasive wear. **NOTE:** Replace worn parts with genuine parts for reliable performance.



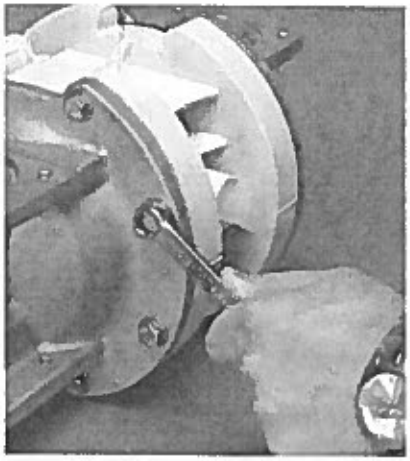
Step 5

Using a 13 mm (1/2") wrench, remove the inlet manifold.



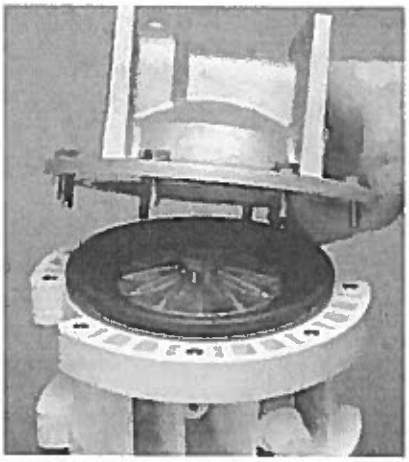
Step 6

Remove the inlet valve balls, seats and valve seat O-rings from the liquid chamber and inlet manifold, inspect for nicks, gouges, chemical attack or abrasive wear.



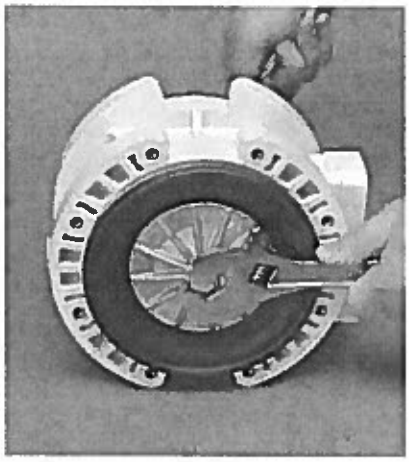
Step 7

Using a 13 mm (1/2") wrench, remove the liquid chambers from the center section.



Step 8

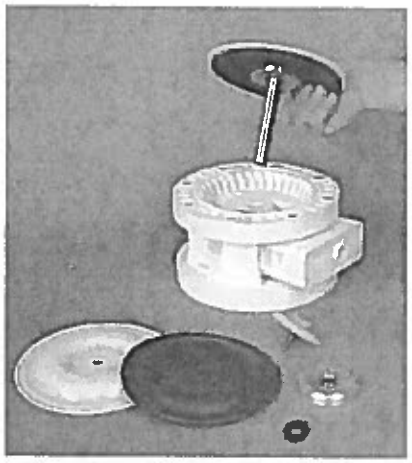
The liquid chamber should be removed to expose the diaphragm and outer piston. Rotate center section and remove the opposite liquid chamber.



Step 9

Using two adjustable wrenches or 25 mm (1") sockets, remove diaphragm assembly from center section assembly.

PUMP DISASSEMBLY

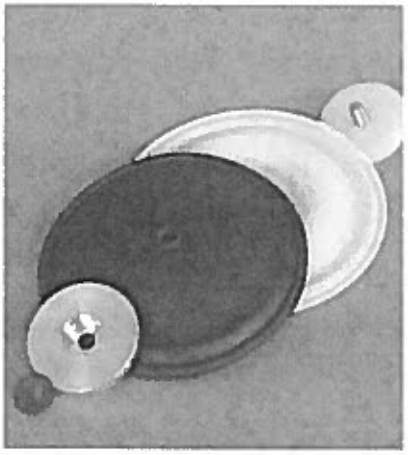


Step 10

After loosening and removing the outer piston the diaphragm assembly can be disassembled.

Step 11

To remove the remaining diaphragm assembly from the shaft, secure shaft with soft jaws (a vise fitted with plywood or other suitable material) to ensure shaft is not nicked, scratched, or gouged. Using an adjustable wrench, remove diaphragm assembly from shaft. Inspect all parts for wear and replace with genuine parts if necessary.



Step 12

Inspect diaphragms, outer and inner pistons for signs of wear. Replace with genuine parts if necessary.

GROUNDING STRAP FOR CSA PX200 PUMPS

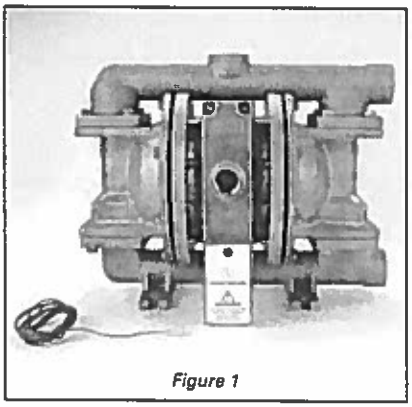


Figure 1

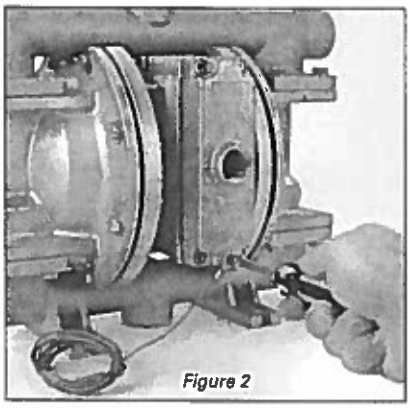


Figure 2

Canadian Standards Association (CSA) configured p umps m ust b e electrically grounded using the grounding strap provided (Figure 1). Improper grounding can cause improper and dangerous operation. To properly attach the grounding strap to a CSA configured pump, identify the designated grounding location on the muffler plate; using the provided self-tapping screw and grounding wire, thread the grounding screw through the grounding wire lug, into the muffler plate and tighten securely (figure 2). Completion of the pump grounding procedure must be done in accordance with local codes, or in the absence of local codes, an industrial or nationally recognized code having jurisdiction over the specified installation.

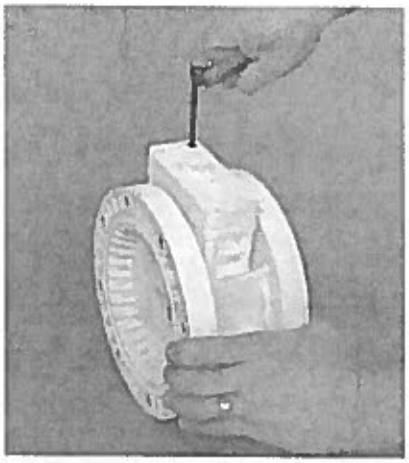
AIR VALVE DISASSEMBLY

Tools Required:

- 5 mm (3/16") Allen Wrench
- Snap Ring Pliers
- O-Ring Pick

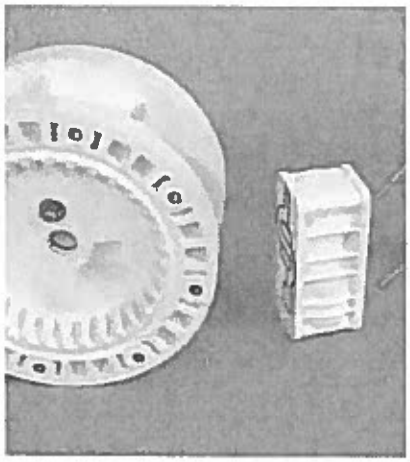
CAUTION: Before any maintenance or repair is attempted, the compressed air line to the pump should be disconnected and all air pressure allowed to bleed from the pump. Disconnect all intake, discharge and air lines. Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container. Be aware of hazardous effects of contact with your process fluid.

A 6 mm (1/4") air inlet connects the air supply to the center section. Proprietary composite seals reduce the coefficient of friction and allow the Pump to run lube-free. Constructed of polypropylene, the air distribution system is designed to perform in on/off, non-freezing, non-stalling, tough duty applications.



Step 1

Loosen the air valve bolts utilizing a 5 mm (3/16") Allen wrench.



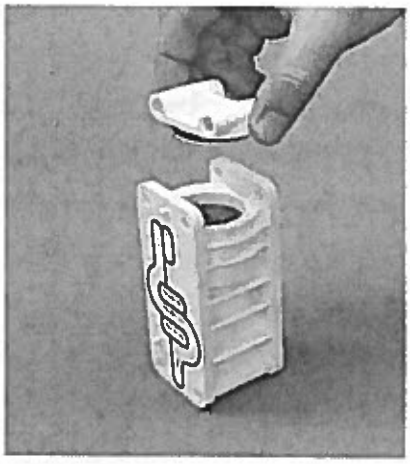
Step 2

Remove muffler plate and air valve bolts from air valve assembly exposing muffler gasket for inspection. Replace if necessary.

Step 3

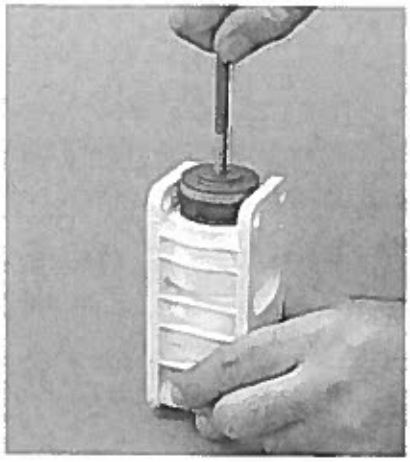
Lift away air valve assembly and remove air valve gasket for inspection. Replace if necessary.

AIR VALVE DISASSEMBLY



Step 4

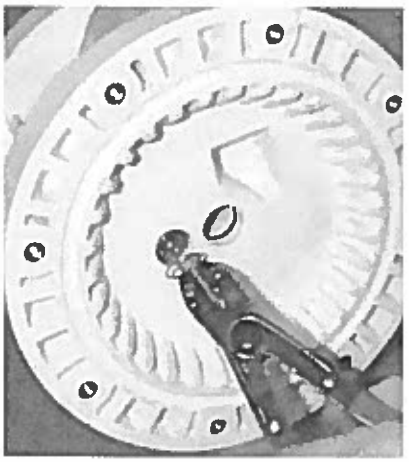
Remove air valve end cap to expose air valve spool by simply lifting up on end cap once air valve bolts are removed.



Step 5

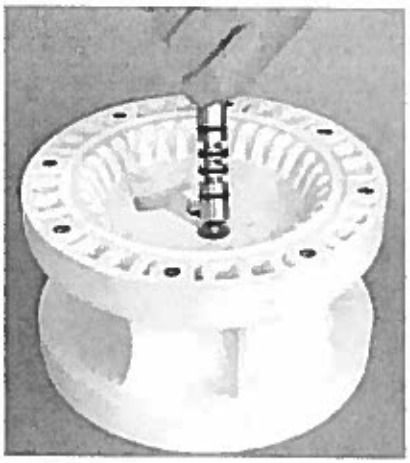
Remove air valve spool from air valve body by threading one air valve bolt into the end of the spool and gently sliding the spool out of the air valve body. Inspect seals for signs of wear and replace entire assembly if necessary. Use caution when handling air valve spool to prevent damaging seals.

NOTE: Seals should not be removed from assembly. Seals are not sold separately.



Step 6

Remove pilot spool sleeve retaining snap ring on both sides of center section with snap ring pliers.



Step 7

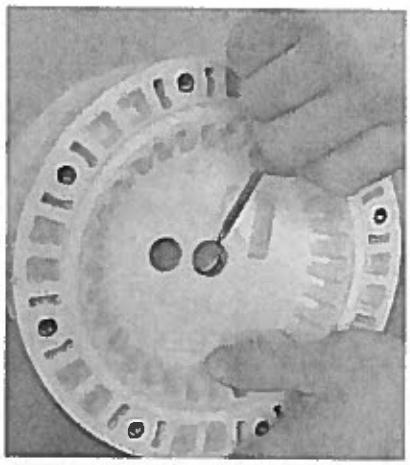
Remove pilot spool sleeve from center section.

Step 8

With O-ring pick, gently remove the O-ring from the opposite side of the center hole cut on the spool. Gently remove the pilot spool from sleeve and inspect for nicks, gouges or other signs of wear. Replace pilot sleeve assembly or outer sleeve O-rings if necessary. During reassembly never insert the pilot spool into the sleeve with the center cut side first, this end incorporates the urethane O-ring and will be damaged as it slides over the ports cut in the sleeve.

NOTE: Seals should not be removed from pilot spool.
Seals are not sold separately.

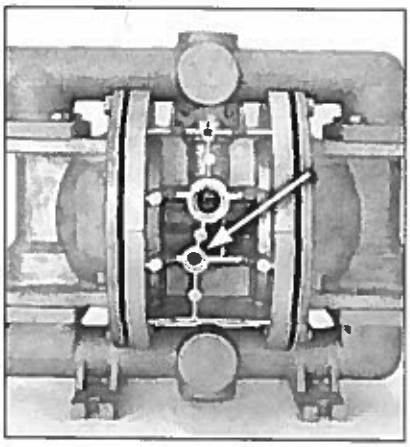
AIR VALVE DISASSEMBLY



Step 9

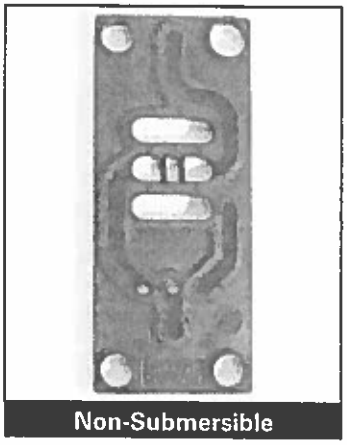
Check center section Glyd™ rings for signs of wear. If necessary, remove Glyd™ rings with O-ring pick and replace.

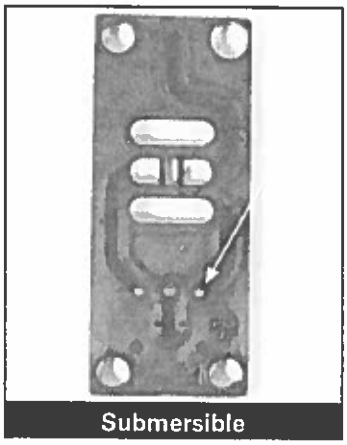
SUBMERSIBLE PRO-FLO X™



Step 1

Install a 1/4" NPT pipe plug (00-7010-08 or 00-7010-03) into the pilot spool bleed port located at the front of the center section.





Step 2

Next, install an optional submersible air valve gasket (02-2621-52). The submersible air valve gasket can be purchased as a spare part or included with the purchase of a new pump.

REASSEMBLY HINTS & TIPS

ASSEMBLY:

Upon performing applicable maintenance to the air distribution system, the pump can now be reassembled. Please refer to the disassembly instructions for photos and parts placement. To reassemble the pump, follow the disassembly instructions in reverse order. The air distribution system needs to be assembled first, then the diaphragms and finally the wetted path. Please find the applicable torque specifications on this page. The following tips will assist in the assembly process.

- Lubricate air valve bore, center section shaft and pilot spool bore with NLGI grade 2 white EP bearing grease or equivalent.
- Clean the inside of the center section shaft bore to ensure no damage is done to new shaft seals.
- A small amount of NLGI grade 2 white EP bearing grease can be applied to the muffler and air valve gaskets to locate gaskets during assembly.
- Make sure that the exhaust port on the muffler plate is centered between the two exhaust ports on the center section.
- Stainless bolts should be lubed to reduce the possibility of seizing during tightening.

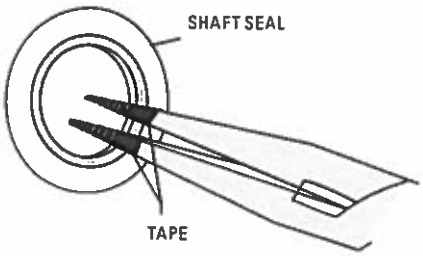
MAXIMUM TORQUE SPECIFICATIONS

Description of Part	Torque
Air Valve	3.1 N•m (27 in-lb)
Outer Pistons, All Diaphragms	40.7 N•m (30 ft-lb)
Top and Bottom Manifold	8.5 N•m (75 in-lb)
Liquid Chamber to Center Section	8.5 N•m (75 in-lb)

MAXIMUM TORQUE SPECIFICATIONS

Description of Part	Torque
Air Valve	11.3 N•m (100 in-lb)
Dial Set Screw	11.3 N•m (100 in-lb)
Outer Pistons, All diaphragms	47.1 N•m (30 ft-lb)
Top and Bottom Manifold	8.5 N•m (75 in-lb)
Liquid Chamber to Center Section	8.5 N•m (75 in-lb)

Figure A



SHAFT SEAL INSTALLATION:

PRE-INSTALLATION

- Once all of the old seals have been removed, the inside of the bushing should be cleaned to ensure no debris is left that may cause premature damage to the new seals.

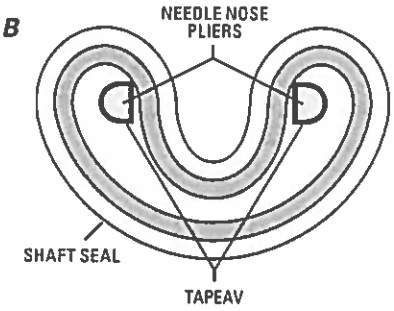
INSTALLATION

The following tools can be used to aid in the installation of the new seals:

Needle Nose Pliers
Phillips Screwdriver
Electrical Tape

- Wrap electrical tape around each leg of the needle nose pliers (heat shrink tubing may also be used). This is done to prevent damaging the inside surface of the new seal.
- With a new seal in hand, place the two legs of the needle nose pliers inside the seal ring. (See Figure A.)
- Open the pliers as wide as the seal diameter will allow, then with two fingers pull down on the top portion of the seal to form kidney bean shape. (See Figure B.)
- Lightly clamp the pliers together to hold the seal into the kidney shape. Be sure to pull the seal into as tight of a kidney shape as possible, this will allow the seal to travel down the bushing bore easier.
- With the seal clamped in the pliers, insert the seal into the bushing bore and position the bottom of the seal into the correct groove. Once the bottom of the seal is seated in the groove, release the clamp pressure on the pliers. This will allow the seal to partially snap back to its original shape.
- After the pliers are removed, you will notice a slight bump in the seal shape. Before the seal can be properly resized, the bump in the seal should be removed as much as possible. This can be done with either the Phillips screwdriver or your finger. With either the side of the screwdriver or your finger, apply light pressure to the peak of the bump. This pressure will cause the bump to be almost completely eliminated.
- Lubricate the edge of the shaft with NLGI grade 2 white EP bearing grease.
- Slowly insert the center shaft with a rotating motion. This will complete the resizing of the seal.
- Perform these steps for the remaining seals.

Figure B



APPENDIX D: CALCULATIONS

RECTANGULAR OWS

Cust: **JDI, INC. WASHBAYSOLUTIONS**

MODEL: **SPT-20**

INPUTS

Media

Media Length	1	ft.
Media Height	2	ft.
Force Media Width	3	ft.

Tank

Tank Length	8	ft.
Oil Storage Capacity	0	gal.

Inputs

Flowrate	20	gpm
Temperature	55	°F
High Temperature	90	°F
Oil Specific Gravity	0.9	
Solids Specific Gravity	2.5	
Media Spacing	0.1875	in.
Removal	20	micron

Intermediate Calcs

Water Viscosity	0.01232	poise
Product Rise Rate	0.00345	ft./min.
Solid Drop Rate	0.05223	ft./min.
Min. media area	775.02	sq.ft.
Media Volume Req'd	5.87	cu.ft.
Hydraulic Diameter	0.031	ft.

OUTPUTS

Media

Media Width	3	ft.
Actual Coalescing Area	792	sq.ft.
Actual Settling Area	198	sq.ft.
Actual Media Volume	6	cu.ft.
Fluid Velocity in Pack	0.45	ft./min.
Specific flowrate	0.0253	gpm/sq.ft.
Detention Time in Pack	2.2	min.
Actual Safety Factor	1.02	
Reynolds No. (Low/High)	17	28

HYDRO-QUIP

RECTANGULAR
OIL WATER SEPARATOR

Client: **JDI, INC.**
Model: **SPT-20 CLARIFIER OIL WATER SEPARATOR**

Given the following data:

Q =	20	flowrate (gpm)
T =	55	fluid temperature (°F)
Psg =	0.9	oil specific gravity
S =	0.188	media spacing (in.)
SP =	132	media specific surface area (sq.ft./cu.ft.)
M =	20	micron removal size (microns)

determine the media pack size needed to meet the effluent quality requirements. For a rectangular model separator, the tank requirements are:

L =	1	media length (ft.)
H =	2	media height (ft.)
Lt =	8	tank length (ft.).

First, determine the rate of rise of the oil particles according to Stokes Law:

Vr = C1 * (Wsg - Psg) * (M / 10000)^2 / Wv = 0.003 ft./min.

where:

C1 = Combination of conversion factors =	107.2	
Wsg = Water specific gravity at given low temperature =	1.00	
Wv = Water viscosity at given temperature =	0.0123	poise.

Next calculate the surface area needed to accomplish separation based on the above Vr:

Amin = Q / Vr / C2 775.0 sq.ft.

where:

C2 = Conversion factor (7.48 gal./cu.ft.).

Now determine the minimum volume of media required for this separation:

Vmin = Amin / SP 5.9 cu.ft.

HYDRO-QUIP

Given the following media pack width, determine the operating characteristics of the pack:

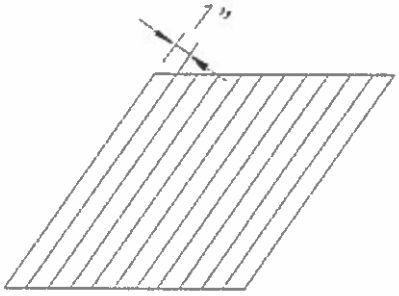
W = 3 media width (ft.)

Media Pack Characteristics

Actual Coalescing Area	792	sq.ft.
Actual Settling Area	198	sq.ft.
Actual Media Volume	6	cu.ft.
Fluid Velocity in Pack	0.45	ft./min.
Specific flowrate	0.0253	gpm/sq.ft.
Detention Time in Pack	2.2	min.
Actual Safety Factor	1.0	
Reynolds No. (Low Temp.)	17	
Reynolds No. (High Temp.)	28	

Since the Reynolds Number is less than 500, the flow in the pack is laminar, and optimal separation will be acheived.

PROJECTED AREA CALCULATIONS



AT = N (AP) COS(55)

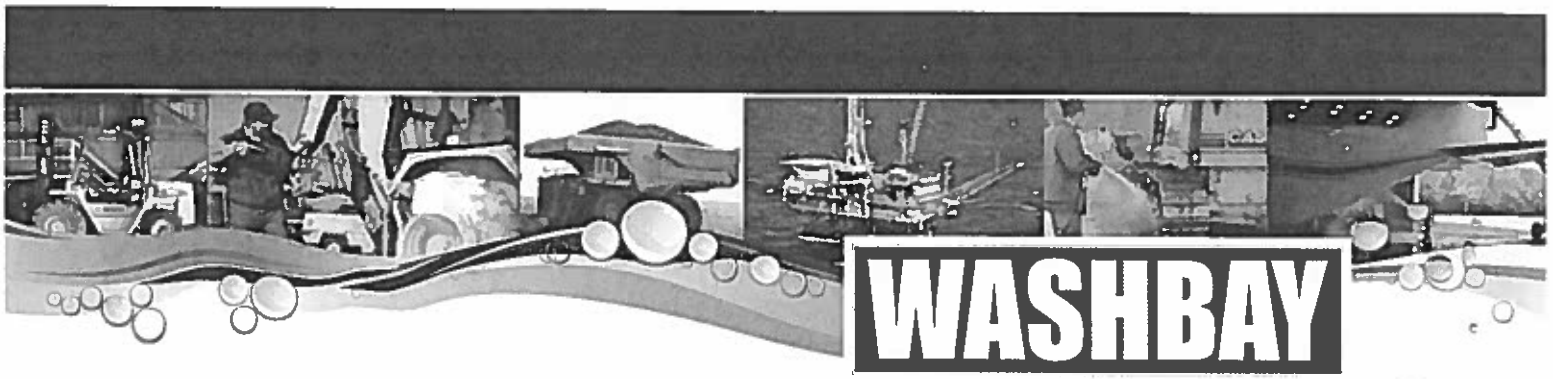
N = # OF PLATES = 12

AP = AREA PER PLATE = 3 X 4 = 12 SQ. FT.

55° ANGLE OF INCLINATION

AT = (12) X (12) X (COS 55)

AT = 144 SQ. FT. PROJECTED PLATE AREA



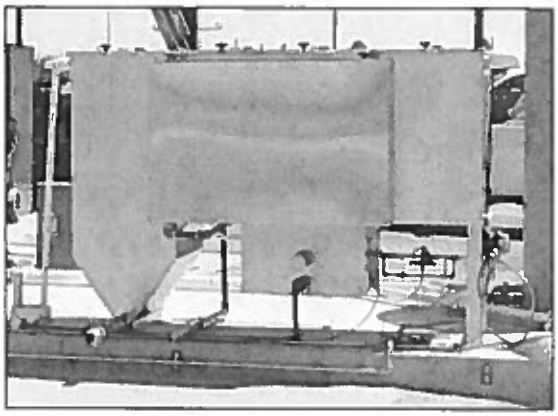
WASHBAY
SOLUTIONS.COM

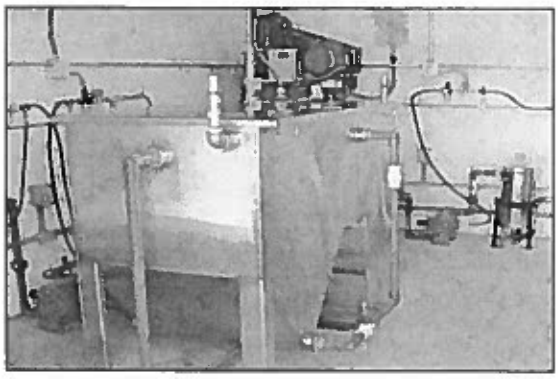
SPT-Series
Stainless Steel Sewer Pretreatment Systems

The SPT Series Integrated Sewer Pretreatment Systems have been specially designed for treating wash water from commercial and industrial washing operations. These heavy-duty stainless steel systems integrate an oil/water separator with an inclined plate clarifier to remove solids, floating oils and odors from the waste stream so you can either reuse the water or discharge to the sanitary sewer.

Applications:
Heavy Equipment Washing
Aircraft Maintenance
Truck & Bus Washing
Forklift Wash Facilities
Military Bases

Benefits:
Low Maintenance
Stainless Steel Construction
Non-plugging Coalescing Plates
99% Removal of oil droplets
No chemicals or filters to replace
Ozone generator for odor control
Two-year Warranty





This cost-effective system will help satisfy local, state, and EPA environmental requirements as well as reduce water usage and operating costs. We offer a range of sizes and auxiliary wash equipment that can be engineered for your particular application.

SPT Series Specifications

Leasing or Rental Options Available

	SPT-10	SPT-20	SPT-30	SPT-40	SPT-50	SPT-75	SPT-100
Flow Rate, GPM	1-10	1-20	1-30	1-40	1-50	1-75	1-100
Internal Tank Capacity, GAL	300	652	700	917	968	1150	1775
Sludge Volume, GAL	27	40	60	80	85	105	106
Coalescer Plate Area, SQ FT	41	82	124	165	211	300	400
Coalescing Media, FT3	4	8	12	16	24	36	48
Ozone Generation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Product Tank, GAL	30	30	30	30	30	30	30
Polishing Pack	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Approx. Dimensions, FT	3'W x 8'L x 5'H	4'W x 8.5'L x 6'H	4'W x 9'L x 6'H	5'W x 9'L x 6'H	4'W x 9.8'L x 6'H	4.5'W x 10'L x 7'H	5.3'W x 10.5'L x 7.3'H
Construction	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel

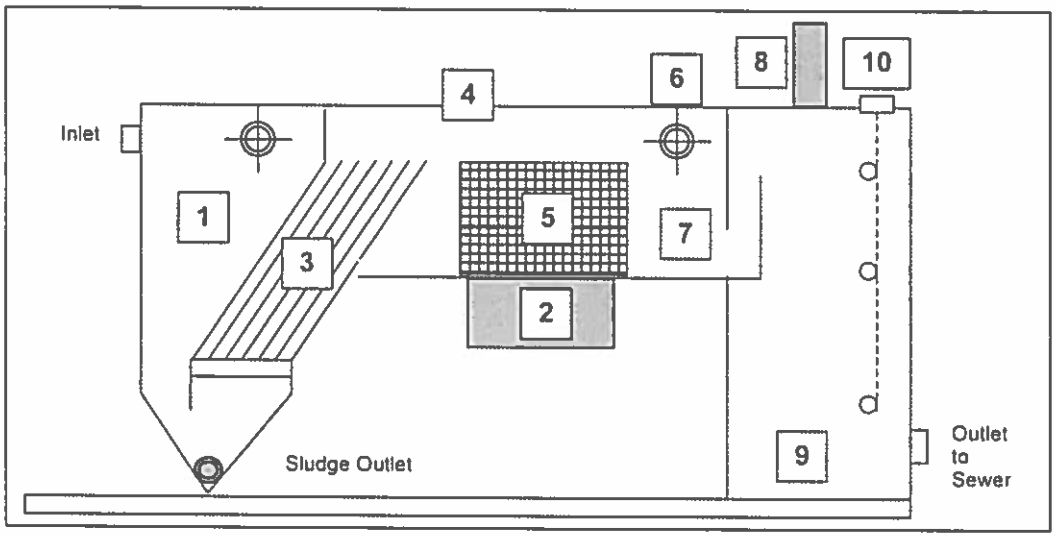
LEASING OPTIONS AVAILABLE • GIVE US A CALL at 800-453-8639 • www.washbaysolutions.com

WASHBAY SOLUTIONS.COM

JDI, Inc. SPT - Series System's Components

1. **Solids/Sand Interceptor Compartment** - The water is pumped into the system through a non-clogging diffuser pipe to distribute the flow. The inlet interceptor chamber is designed to capture suspended solids, dissipate energy and begin separation.

2. **Pump** - Water is pumped into the system via an air diaphragm pump.



3. **Inclined Plates** - Inclined plates above the sludge chamber catch suspended particles as the water stream moves into the separation chamber.

4. **Separation Chamber** - After the water travels up the inclined plates, it flows into the stainless steel separation chamber containing the coalescing media.

5. **Coalescing Media Packs** - Our high efficiency European coalescing media pack in the separation chamber further slows the water velocity so oil drops out of suspension and clings to the media. This smaller, "Next Generation" media will remove 99% of free oil droplets **20 microns** or larger.

6. **Oil Skimmer** - The oil that has dropped out of suspension is then skimmed off the top of the separation chamber and into a tank for easy removal.

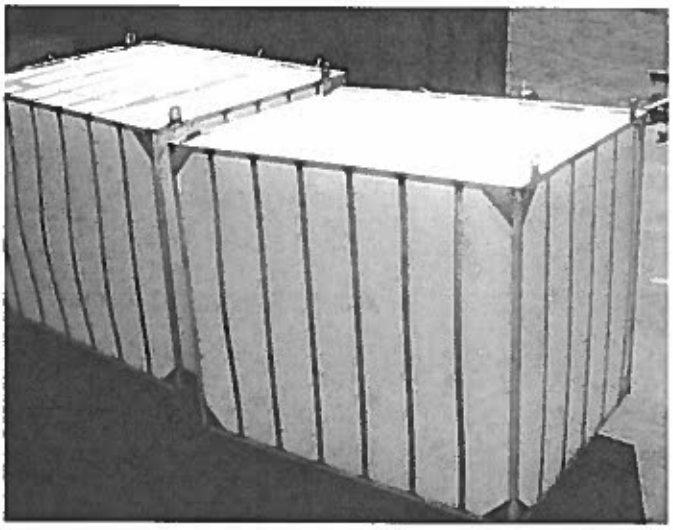
7. **Baffles** - An underflow weir will prevent re-suspension of solids while an oil retention weir will keep the oil in the separation compartment.

8. **Ozone Generator** - The water is injected with ozone to kill odor-causing bacteria.

9. **Clean Water Chamber** - The third stage is a clean water chamber where the clean water will flow out for reuse or to the drain.

10. **Float Control System** - SPT Series Systems come with optional control systems for simple, automatic operation.

HD Q-PAC
Revolutionary Coalescing Media



- Meets EPA Method 1664 and European Standard EN- 858
- For the separation of 20 micron oil with little suspended solids present
- Only available in polypropylene
- 132 ft^2 per 1ft^3 of surface area
- Meets a discharge limit of 5ppm

Different from traditional corrugated and inclined plate coalescing media, HD Q-PAC offers the highest effective coalescing surface of any media on the marketplace. With all rounded elements, the entire surface area is available to support oil droplet coalescence. This eliminates the need for second-stage polishing to achieve oil removal.

SPECIFICATIONS

The oil water separator's separation chamber shall contain HD Q-PAC coalescing media, having a minimum of 132 ft^2/ft^3 (423 m^2/m^3) of effective coalescing surface.

Much of the surface shall be in the form of parallel rods that can be oriented perpendicular to the horizontal or longitudinal axis of the separator, creating an angle of repose of 90° to facilitate the removal of solids that might otherwise obstruct passageways and increase velocities to the point of discharging an unacceptable effluent. The rods shall be spaced 3/16" apart for removal of at least 99.9% of free oil droplets 20 microns or greater in size. Laminar flow, with a Reynolds Number of less than 500 at maximum flow rate, shall be maintained throughout the separator packed bed including exit and entrance so as to prevent any re-entrainment of oils with the water.

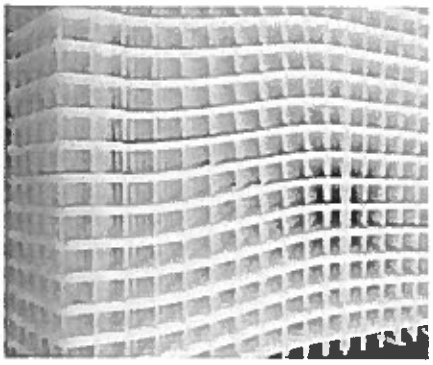
Flow through the polypropylene coalescing media shall be crossflow perpendicular to the vertical media elements such that all 132 ft^2/ft^3 of coalescing media is available for contact with rising free oils.

None of the coalescing surfaces shall be pointing upward so as not to be available for contact with the rising oil droplets in the crossflowing oily water.

The media shall have a minimum of 87% void volume to facilitate removal of sludge and dirt particles as they fall off the vertical elements and settle in the sludge collection compartment of the oil water separator.

When installed in a crossflow oil water separator, the media shall meet US EPA Method 1664 Revision A and also European Standard EN 858-1 for oil water separators.

Physical Data	
Material:	Polypropylene
Specific Surface Area:	132 ft^2/ft^3 (433 m^2/m^3)
Bulk Density:	7.5 lb/ft^3 (120 kg/m^3)
Void Fraction:	87%
Smallest Grid Opening:	0.16" x 0.16"
Standard Module Size:	12" x 12" x 12" (305mm x 305mm x 305mm)
Operating Flow Rates:	1–12 gpm/ft^2 (530 L/m^2-min)
Temperature Limit:	200°F (93°C)



EN 858-1 TEST

HD Q-PAC fulfills the European Union's EN 858-1 Test Method for Class I Coalescing Separators

EN 858-1 Test Procedure	
Light Liquid:	density 0.85 g/cm^3*
Water Quality:	potable or purified surface water
Solubility of Light Liquid:	nil, unsaponifiable
Water Turn Over:	minimum of four volumes of test unit
Liquid Flux:	25–40 $m^3/hr\text{-}m^2$ (10–15 gpm/ft^2)
Maximum Residual Light Liquid:	5 mg/L**
Results using HD Q-PAC at Danish Institute of Technology	
Depth HD Q-PAC:	610 mm (24 inches)
Inlet Oil Concentration:	4250 mg/L
Liquid Flux:	31.1 $m^3/hr\text{-}m^2$ (12.7 gpm/ft^2)
Outlet Oil Concentration:	0.98 mg/L***
Oil Droplets > 20µ:	none observed

* Fuel oil, per ISO 8217, designation ISO-F-DMA
** Hydrocarbon content analysis with prescribed Infrared Spectroscopy procedure.
*** Average of five repetitions, data range 0.9–1.1 mg/L

HYDRO QUIP

Whether an off-the-shelf unit or customized equipment, we'll help you determine the best solution for your application and site-specific needs.

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FAX: 508-399-5352
108 Pond St, Seekonk, MA 02703
hqisales@hydroquipinc.com
www.hydroquipinc.com

ADMINISTRATIVE SPECIAL USE PERMIT

INSTRUCTIONS AND CHECKLISTS

CITY OF ALEXANDRIA, VIRGINIA

DEPARTMENT OF PLANNING AND ZONINNG

INTRODUCTION

On December 13, 2008, City Council adopted changes to the City's Zoning Ordinance to permit some small businesses to operate in the City with approval of an Administrative Special Use Permit (SUP). The changes will simplify the process for businesses to obtain zoning approval for building uses such as small commercial schools, childcare centers and small restaurants in certain locations. Previously, these uses were subject to review and approval through a formal hearing process and required the submission of a Special Use Permit request. Under the new regulations, some of these uses can now be approved as either permitted or administrative uses, rather than requiring a Special Use Permit.

These changes, which were a result of the efforts of the Small Business Task Force, Planning and Zoning staff, the Planning Commission and both businesses and residents, came about after significant public outreach and several public hearings.

An Administrative SUP will require that an applicant submit information to the Department of Planning and Zoning about the requested use. The applicant will also have to certify that they will be able to comply with specific requirements for the proposed use.

Uses that qualify for an Administrative SUP under the new ordinance include:

- Child care center or preschool in a church or school building in residential zones
- Small garden centers in certain commercial zones
- Outdoor food and crafts market in certain commercial zones
- Overnight pet accommodations in a shopping center
- Live Theater in Arlandria
- Valet Parking in Old Town (KR zone)
- In Industrial or Flex space centers:
    - Light auto repair
    - Catering operation
- Full service restaurants of 60 seats or less, except in Old Town (CD and KR zones), where a full SUP is required.

The Department of Planning and Zoning has prepared this checklist and worksheets to assist applicants in understanding and providing information necessary for obtaining approval of an Administrative SUP.

Any questions should be directed to the Department of Planning and Zoning, 703-838-4666.

This information is also available on our website at
http://www.alexandriava.gov/planning/info/default.aspx?id=6644

How to use the Checklist and Worksheets:

1. *This guide is designed to help you -- applicants, businesses and citizens – understand the process and requirements for administrative Special Use Permit (SUP) uses.*

2. *For technical language and legal standards for administrative SUP uses, please refer to the Zoning Ordinance, Section 11-513.*

3. *Please follow the information on pages 2-5 to understand how to get an administrative SUP started and approved, steps the City will take to help you and to learn about the general operating requirements for all administrative SUP uses.*

4. *Then, review the specific worksheet that applies to your business. The worksheet will help you determine if an administrative SUP will work for you or whether you have to apply for a full Special Use Permit.*

5. *Answer the questions on the worksheet page for your business and attach it to your application for administrative SUP approval. In some cases, additional information will be required.*

6. *Additional conditions may be required by the Director if reasonably necessary to support the use and its compatibility with the neighborhood.*

7. *For additional information or any questions about this checklist, the worksheets, administrative SUPs, or the process for approval, please contact Planning and Zoning at 703-838-4666.*

THE CITY WILL HELP YOU

Planning and Zoning staff is available to help you with the successful opening of your business. Staff will answer your questions, provide information and make sure that your business can operate in the location that you have chosen. We will also perform the following tasks to process your administrative SUP.

Provide public notice of the request for approval of an administrative SUP

- **Property will be posted with a placard describing the request**
- **Emails will be sent to community and business associations**
- **Information about the request will be posted on the City's website**
- **The request will be advertised in a local newspaper**

Transmit the request to other City departments

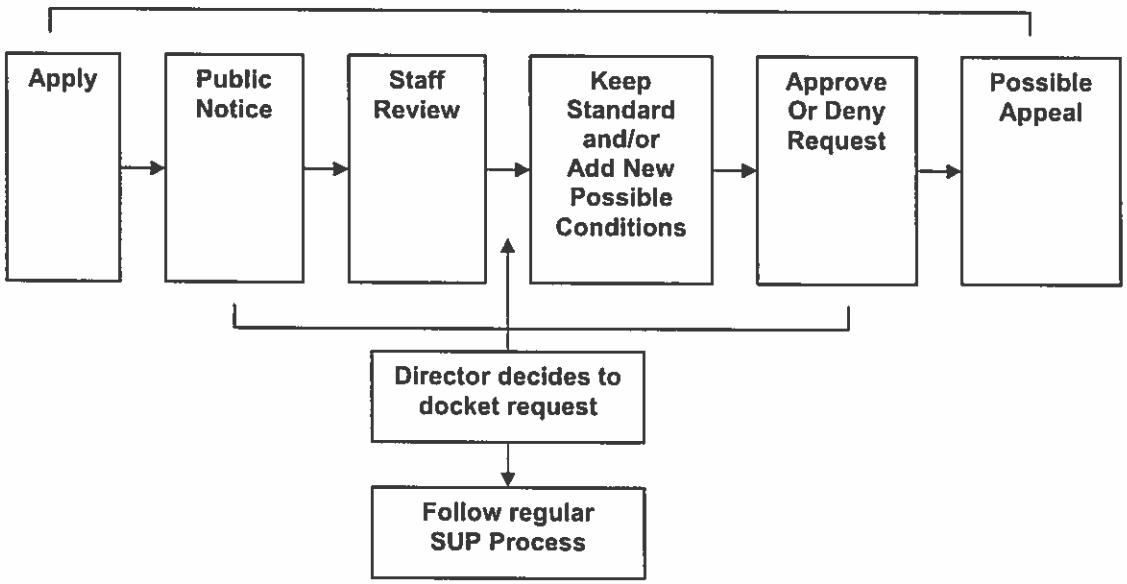
Review comments from City departments and the public

Determine if other conditions, in addition to the standard conditions, are needed

Determine, based on comments from City Departments and the public, if the requested use needs to be docketed for public hearing

Provide written decision to the applicant, and place on the City's website, either approving or denying the requested use

Administrative SUP Process Timeline
(approximately 30 days from application to decision by director)



APPLICANT'S PROCESS CHECKLIST

Before Submitting Your Application

☐	**Schedule a Meeting (Recommended)** It is strongly recommended that you schedule a meeting with P&Z staff for information about the application process and advice to help your business open smoothly. Contact Planning and Zoning Staff at 703/838-4666.
☐	**Contact the Small Business Development Center (Recommended)** The Small Business Development Center (703/778-1292) is a helpful resource before, during and after the Administrative SUP process.
☐	**Review Small Business Guide (Recommended)** It is recommended that you read the Alexandria Small Business Guide for additional information about opening a business in Alexandria. The Small Business Guide is available on the Planning & Zoning Website at www.alexandriava.gov/planning .

Submit Your Application

☐	**Submission Requirements** The required Administrative SUP application includes: [ ] Application Form [ ] Supplemental Worksheet for Specific Use [ ] Floor Plan [ ] Site Plan/Survey Plat [ ] Application Fee - $250.00 [ ] Other items that may be required by City staff

It is in your best interest to do the following while your application is being processed

☐	**Research Other Required Licenses or Permits** Depending on your business, you may need several other city or state licenses or permits. For example, you may need to contact the Virginia Alcohol, Beverage and Control Board, the Building & Code Administration or the State Department of Social Services. All agencies have different requirements and processes for issuing licenses or permits, so **contact them early in the process.**
☐	**Contact Associations and Neighbors** It is recommended that you contact your local civic and business associations, as well as immediate neighbors. Letting them know about your business will help the application process go smoothly. It also may help in the marketing of your business. Planning and Zoning staff can help you locate contact information.

After your request has been approved

☐	**Pick Up Administrative SUP Certificate** When your application has been approved, you will be contacted by Planning and Zoning staff. A $500 contribution to the Streetscape Improvement Fund is required **BEFORE** the SUP certificate for any new business can be released. After the $500 contribution is received, you will need to sign and agree to follow the conditions of the administrative special use permit.
☐	**Get Business Licenses and Other Permits** You will need to apply for other permits and licenses such as building permits, health permit, child care permits. The Planning and Zoning staff will sign off on your business license after you sign for the Administrative SUP.

GENERAL STANDARDS FOR ALL USES

This page applies to all types of businesses seeking Administrative SUP approval. It lists the standard conditions that will appear as part of the permit to operate the business. If you believe that you will not be able to comply with any of the standards, please contact Planning and Zoning staff, as you may not be eligible to apply for an Administrative SUP.

PERMIT AND CONDITIONS

- Only the person who receives the permit may be in charge of the use that is approved. If there is a change in the future, including a sale of the business, then administrative approval and a new SUP is needed.
- The SUP permit must be displayed at the business. The list of requirements for the business must be available if anyone asks to see it.
- The applicant must conduct employee training sessions to discuss all SUP provisions and requirements, and methods to prevent underage sales of alcohol.
- As part of the application and approval process, the Director may add further operating requirements to the business if necessary for the specific use and its compatibility with the neighborhood.

TRANSPORTATION AND TRANSIT

- Encourage customers and employees to use different methods of travel to the business, including bus, bicycle and Metro.
- Encourage employees and customers to use mass transit or to carpool when traveling to and from the business.
- Post signs at the business and on the internet about carpooling, DASH and METRO routes and where to buy transit passes.

PARKING

- Participate in organized parking programs adopted by the City for the area.
- Require employees who drive to work to use off-street parking.
- Inform customers about where to park by installing signs visible from the street.

TRASH/LITTER

- Keep trash and garbage inside the building or outside in sealed containers. Trash and debris may not accumulate outside of those containers. Outdoor trash receptacles must be screened.
- Litter on and near the business must be picked up at least twice every day and at the close of the business, and more often if necessary.
- **Applicants of new businesses will be required to make a $500 contribution to the Streetscape Improvement Fund before the administrative SUP is issued.**

POLICE

- Before opening the business, contact the Crime Prevention Unit of the Alexandria Police Department for a security survey and robbery awareness program for employees.

NOISE

- Loud noise is not permitted. The business must obey the City's noise ordinance.
- Outdoor speakers are not permitted. Amplified sound cannot be audible at the property line.

BUILDING AND LANDSCAPING IMPROVEMENTS

- Improvements, including landscaping, may be required and must be maintained.
- **Applicants of new businesses will be required to make a $500 contribution to the Streetscape Improvement Fund before the administrative SUP is issued.**

FOR YOUR INFORMATION

Special Use Permits Eligible for Administrative Approval

Certain uses of land that have potentially negative impacts on surrounding properties require special use permit approval from City Council. The City Council may impose conditions on the operation of the special use in order to protect the health, safety and welfare of the surrounding area. For new uses and for intensifications or amendments of existing uses, the Planning Commission and City Council conduct public hearings and decide whether to approve the request. The Director of Planning and Zoning, however, may approve a special use permit administratively if it is only a change in ownership or a minor amendment of a previously approved special use permit.

Special Use Permit for Change of Ownership

If the existing special use permit for an operation restricts the ownership of the use, a prospective owner may not take ownership of the operation until he receives special use permit approval for the change of ownership. Pursuant to Section 11-503, the director may approve the change and transfer the special use permit to a new owner, if the following conditions apply:

1) The applicant is not requesting a change in the conditions of the special use permit;
2) there have been no substantiated violations of the special use permit conditions;
3) there are no changes proposed or anticipated in the operation of the use involved;
4) the director has concluded that no new conditions or no amendments to existing conditions are necessary; and
5) following notice of the application in a newspaper of general circulation in the City, no person has requested that the director forward the application to the Planning Commission or City Council.

If the application does not meet any one of the above conditions, it must be docketed for the next available Planning Commission and City Council public hearings. If the Director approves a special use permit for change in ownership, the new owner must sign an agreement stating that he/she will to continue to comply with the special use permit conditions.

Special Use Permit for Minor Amendment

Pursuant to Sections 11-509 and 11-511 of the zoning ordinance, the director may approve minor amendments to approved special use permits. Only changes that constitute no more than a minimal enlargement or extension of the special use permit or that are so insignificant they will have little or no zoning impact on the surrounding neighborhood are eligible for administrative approval. If a change will intensify the use, it requires Planning Commission and City Council approval. Changes that intensify a use include any increase in the following:

1) Hours of operation;
2) number of seats;
3) number of employees; visitors of customers; or
4) number of vehicle trips generated.

The Director may not administratively approve minor amendments if any of the following apply:

1) He/She has received written or oral complaints that the use is in violation of the zoning ordinance;
2) at the time the special use permit was approved, opposition was presented to the Planning Commission or City Council; or
3) new conditions or amendments to existing conditions are necessary.

Notice of the application is published in a newspaper of general circulation in the City and is sent to docket subscribers.

Approval Process

For both change in ownership and minor amendment special use permits, the approval process generally takes between four and six weeks from the time an application is submitted. During that time, staff will review the application, inspect the subject property for compliance with special use permit conditions and advertise the proposed change in the newspaper to provide an opportunity for citizens to comment on the change and, in the case of minor amendments, send notice to the Planning Commission and City Council members. If the Director determines that the Planning Commission and City Council must consider the application, he/she will docket the application for the next available Planning Commission and City Council hearings. At that time, the Director may require additional information regarding the application.

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