OWS INSTALLATION & START-UP

SUPPLEMENTAL INSTRUCTIONS

1. INTRODUCTION

1.1. Follow these Supplemental Instructions as well as all instructions covered in the most recent edition of Containment Solutions™ Tank Installation Instructions (Pub. No. INS1300)

1.2. The purpose of this manual is to provide detailed instructions on the installation and start-up of Containment Solutions, Inc. (FGS) fiberglass underground Oil/Water Separators (OWS). These tanks are used for stormwater runoff and vehicle equipment washdown.

1.3. Note: OWS tank installation is a very specialized procedure. If you do not have the proper experience, please contact a contractor who does, or call Fiber Glass Systems, L.P. for a list of experienced contractors.

1.4. Important Information

1.4.1. Proper installation and operation of each OWS tank is essential:

1.4.2. To ensure the safety of all individuals involved in the OWS tank installation and start-up.

1.4.3. To prevent OWS tank damage and/or failure, which could lead to environmental contamination.

1.4.4. To ensure the performance of the OWS to meet desired effluent quality.

1.4.5. To validate the OWS tank warranty.

2. HANDLING & STORAGE

2.1. Take extreme care when unloading the ows tank, as weight distribution will be uneven.

2.2. See Figure 2-1 below for common terms used throughout this document.

3. PRE-INSTALLATION TESTING

3.1. Upon delivery, inspect the OWS for exterior damage that may have occurred during shipping and job site handling.

3.2. Remove the manway cover plate(s) and inspect the interior to ensure that all baffles, coalescer packs and internal piping are secure and have not been damaged during transport.

4. BURIAL DEPTH & COVER

4.1. Install the OWS with sufficient truck access (top-side clearance) for removal of oil, sludge, and water.

5. INSTALLATION PROCEDURE

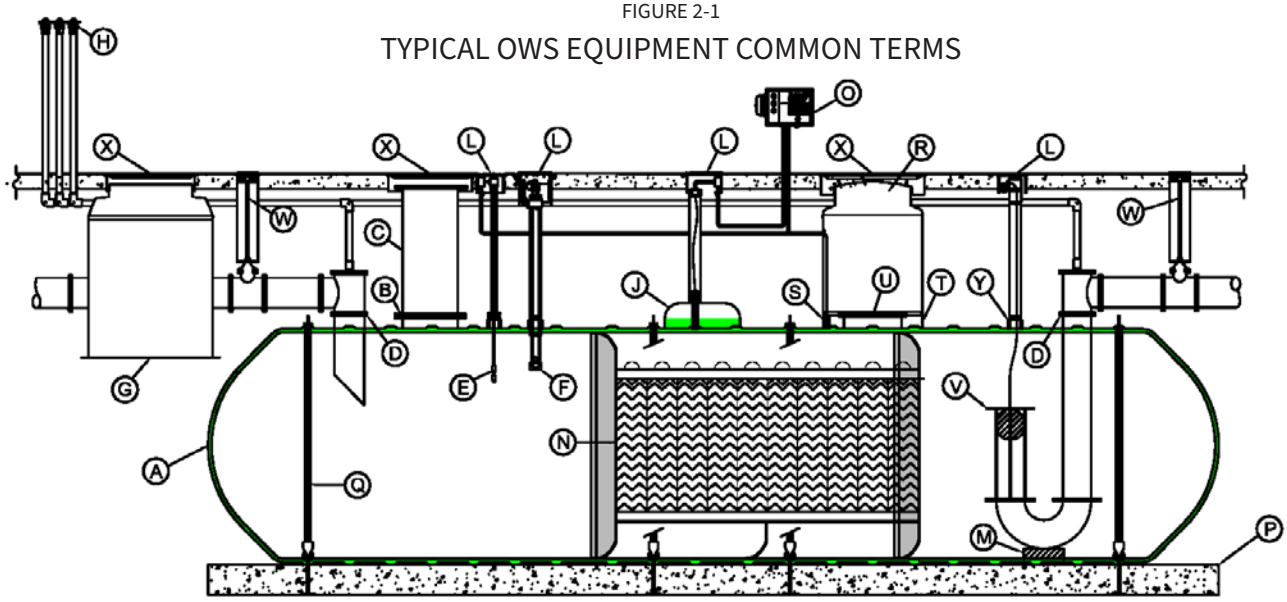
5.1. OWS tanks must be installed in either of the following positions:

5.1.1. A level and plumb position

5.1.2. The outlet side 1/2” to 1” lower than the inlet side

FIGURE 2-1

TYPICAL OWS EQUIPMENT COMMON TERMS



MARK	EQUIPMENT LISTING
A	FGS HYDROSTATIC DOUBLE WALL FIBERGLASS TANK
B	FGS 22" FLANGED MANWAY
C	FGS 22" MANWAY EXTENSION WITH BLANK COVER
D	FGS 12" INLET / OUTLET NOZZLE WITH VENT
E	MODEL "FOWS-5OU" DUAL-FLOAT INTERFACE SENSOR
F	FGS FACTORY INSTALLED SLOTTED OIL SUCTION PIPE
G	FGS FIBERGLASS DROP OUT BOX
H	2" UPWARD "V" VENT CAP - INLET / OUTLET / TANK
I	4" NPT TANK MOUNTED FITTING - TANK VENT
J	FGS RESERVOIR AND FHRB 810 HYDROSTATIC SENSOR
K	4" NPT TANK MOUNTED FITTING - SPARE / GAUGE
L	SMALL ACCESS MANHOLE

M	FGS 16" X 16" FRP PUMP PLATFORM
N	FGS REMOVABLE COALESCER PACKS
O	MODEL "CPF" CONTROL PANEL WITH ALARM
P	FGS PRECAST CONCRETE DEADMAN ANCHORS
Q	FGS HOLD DOWN ANCHORING SYSTEM (4 TYP.)
R	FGS 42" SW RTS (WT34) WATER TIGHT TANK SUMP
S	FCBS COLLAR LEAK DETECTION SENSOR
T	FGS 42" CONTAINMENT COLLAR
U	FGS 29" OVAL FLANGED MANWAY WITH BLANK COVER
V	FGS OIL STOP VALVE - OUTLET
W	INLET / OUTLET SHUT-OFF VALVE
X	LARGE ACCESS MANHOLE
Y	4" NPT TANK MOUNTED FITTING - VALVE FLOAT CABLE

5.2. Note: To avoid freeze damage, install the OWS tank so the highest liquid level (usually the inlet and outlet tee/elbow height) is below the frost line - or supply a temperature activated heating device for the OWS. To avoid heat damage, do not exceed a temperature of 150° F. The heating device sensor should be located at the highest liquid level point and have appropriate overheat protection.

6. PIPING

6.1. Always install an appropriate-sized dropout box, catch basin, or interceptor upstream of the OWS tank. They should be sized to collect leaves, rags, cigarette butts, gravel, sand, etc. to minimize the frequency of OWS tank maintenance as well as contaminant discharge.

6.2. Plug the inlet and effluent pipe until the drainage site is paved and dropout box, catch basin, or interceptor is installed.

6.3. Inlet and effluent piping to and from the OWS tank must be greater than or equal to the tank inlet and outlet nozzle size.

6.4. Inlet and effluent piping should be sized to handle the flow through them and maintain laminar flow.

6.5. Inlet and effluent piping must be the same size.

6.6. Slope inlet piping to OWS tank 1/4" to 1/16" per foot downward to maintain proper gravity flow.

6.7. Slope the effluent piping away from the OWS tank following the same pitch as the inlet piping.

6.8. For cleaning and maintenance activities inside the OWS tank and for emergency situations:

6.8.1. Use a minimum 42" diameter street box with an inside minimum clearance of 38.5' above the 30" manway to allow room for access during periodic maintenance and cleaning.

6.8.2. A means to shut-off flow into OWS during maintenance should be installed. Such means include, but are not limited to, butterfly valves, gate valves, or blind flanges.

6.8.3. Both valves MUST BE 100% OPEN during normal operation to prevent flow turbulence and over pressurization. If customer closes only outlet valve, tank can be overpressurized.

6.8.4. Valves must be the same size as the piping with no valve seat or trim reduction.

7. OIL STOP VALVE

7.1. Oil Stop Valves 8" diameter and smaller will be installed at the factory and shipped complete to the jobsite.

7.2. Oil Stop Valves 10" diameter and greater will be installed and fitted at the factory, then removed, packaged and shipped separately with the tank and installed at the jobsite by the contractor. The package will include all nuts, bolts, washers, and gaskets to mount the Oil Stop Valve to the fiberglass internal down pipe and the pump platform. Oil Stop Valves will be fitted for installation with all holes drilled and aligned for mounting to pump platform and outlet pipe flange.

7.3. For both factory and field installed Oil Stop Valves, access to the valve is required. A factory installed cable is included to give access to the ball float inside the tank. This cable is to be brought through the designated tank mounted fitting to grade or optional manway and secured by the installing contractor to allow future access to the Oil Stop Valve float (see Figure 7-1).

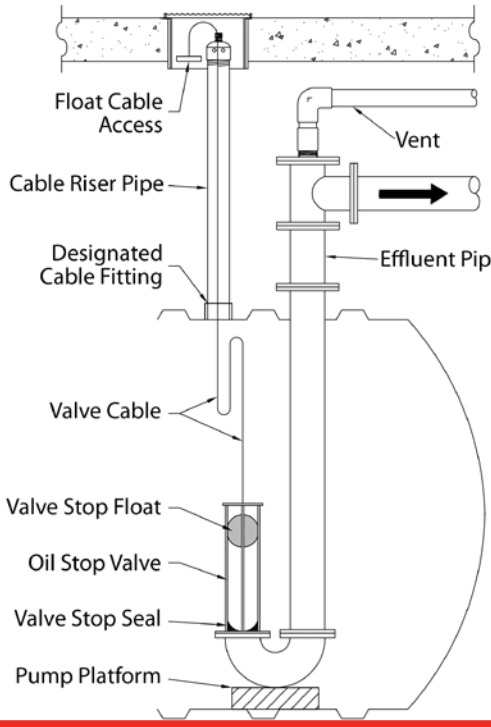
7.4. The provided cable is used to dislodge the float from the Oil Stop Valve seal under normal operating conditions. Visual contact of the condition of the valve ball and periodic cleaning of the valve seal is recommended.

7.5. It is important to verify that the oil stop valve ball float is operational during two phases of the installation.

7.5.1. Prior to installation, verify the ball float is moving up and down by pulling cable and looking through the 4" fitting where the cable pull is installed. A flashlight should be used to visually determine the ball float moves freely. When pulling the cable to verify movement, the weight of the ball float can also be felt.

7.5.2. After tank installation and prior to the installation of the 4" pipe for cable pull, visually verify that the ball float is operational.

FIGURE 7-1



8. OIL STOP VALVE INSTALLATION

8.1. For Oil Stop Valves not installed at the factory, follow these instructions.

8.2. Insert the Oil Stop Valve through the provided manway.

8.3. Place Oil Stop Valve on pump platform (see Figure 7-1).

8.4. Line up pre-drilled holes on pump platform with holes on Oil Stop Valve bottom plate.

8.5. Align Oil Stop Valve flange holes with pre-installed effluent pipe (see Figure 7-1).

8.6. Connect Oil Stop Valve and flange with provided nuts, bolts, washers and gaskets.

9. VALVE CABLE INSTALLATION

9.1. For all Oil Stop Valves bring valve cable through the designated tank fitting.

9.2. Feed valve cable up through the cable riser pipe (see Figure 7-1).

9.3. Continue to bring the valve cable through the riser into the float cable access box. Leave enough slack in the cable to allow free movement of range for the valve float.

9.4. Secure the cable end inside the float cable access box for future use and testing (see Figure 7-1).

10. POST INSTALLATION OIL STOP VALVE TEST (PRIOR TO FILLING TANK WITH WATER)

10.1. Pull on valve cable to ensure the valve stop float moves freely.

10.2. Secure cable end in float cable access box.

10.3. To ensure proper operation of the Oil Stop Valve, tank must be filled with water for the valve float to be clear of the valve seal. This will ensure proper flow conditions at all times.

11. POST INSTALLATION OIL STOP VALVE TEST (AFTER TANK IS FILLED WITH WATER)

11.1. If a secondary method is needed to verify the ball float is operating in the open position, isolate the vent pipe over the outlet pipe.

11.2. Close the outlet gate valve.

11.3. Remove the cap on the oil stop valve cable pull pipe. This also ensures the tank is vented so it cannot be overpressured.

11.4. Apply 5psi air pressure to the vent pipe at the outlet. This will force air backward into the oil stop valve and free the ball valve.

11.5. You should be able to hear the air bubbles coming through the ball float from the cable pull pipe.

NOTICE

Indicates a potentially hazardous situation, which if not avoided may result in property damage.

11.6. After the tank has been in operation, if there is no flow coming from the outlet pipe prior to pulling on the float cable, verify there has not been a spill event. If a spill event has occurred and the ball float is closed, pulling on the cable will release the spill through the outlet pipe.

12. VENTING

12.1. Both the inlet and effluent piping tees/elbows MUST be vented to the atmosphere.

12.1.1. Inlet and effluent tees must be fitted with tapped blind flanges to accept vent piping.

12.2. The vent should not be connected to the manway lid.

12.3. The monitoring cavity of hydrostatically monitored OWS tanks must be vented.

12.4. All vents (primary tank, piping, and annular space) must be separate, not joined together.

12.5. The OWS primary tank vent should either be at the 4” fitting marked VENT or the 4” fitting marked SPARE.

12.6. Owner must provide flame arrestors as required by governing codes or for safety.

13. OWS ELECTRONICS

13.1. Electronic monitoring equipment must be installed AFTER the OWS has been installed and PRIOR to start-up operations. OWS electronics include:

13.2. Model CPF Oil/Water Separator Control Panel

13.3. Model FOWS Oil/Water Separator Interface Sensor

13.4. Model FHRB 810 Reservoir Sensor (for hydrostatically monitored double-wall OWS tanks)

13.5. Model FDAS 710 Annular Space Sensor (for dry monitor double-wall OWS tanks)

14. INSTALLATION OF ELECTRONICS

14.1. Intrinsically safe wiring must be kept separate from nonintrinsically safe wiring. An approved seal should be used at the point where the intrinsically safe control circuit wiring enters the hazardous zone. For intrinsically safe wiring of OWS Control Panels use 14-16 AWG Type MTW or THHN wire. For additional guidance on “Hazardous Locations Installations” and intrinsically Safe Devices” consult ANSI/ ISA Standard RP-2-6 or NEC Articles 500 through 516.

14.1.1. All splices, conduits, and wiring runs should be suitable to prevent moisture from entering the wiring components. Failure to do so could result in the system not operating properly.

14.1.2. Flexible liquid tight conduit is recommended for use between the FOWS housing and the junction box.

14.1.3. Connect the sensor wiring to the CPF Oil/Water Separator Control Panel per CPF Schematic Detail.

15. CPF - CONTROL PANEL

15.1. See Containment Solutions Pub. No. 7023 (Specification) and Pub. No. ELC-7047 (Installation and Operation Manual).

16. INTERFACE SENSOR

16.1. See Containment Solutions Pub. No. ELC-7054 (Oil/Water Interface Float Switch - Model FOWS).

17. RESERVOIR SENSOR - HYDROSTATICALLY MONITORED ANNULAR SPACE TANK

17.1. See Containment Solutions Pub. No. ELC-7024 - Hydrostatic Brine Reservoir Dual Float Sensor - model FHRB 810.

18. ANNULAR SPACE SENSOR - DRY ANNULAR SPACE TANK

18.1. See Containment Solutions Pub. No. ELC 7021 - Dry Annular Space Float Switch - model FDAS 710

19. ELECTRONIC SYSTEM TEST

19.1. The on/off switching control operation of the CPF panels makes it simple to test and trouble-shoot the system. Pressing the TEST button performs a functional test of the horn, all indicator lights, and all relay contacts. Before pressing TEST, make sure all externally controlled devices are on standby or are accordingly addressed.

19.2. To check the operation of the CPF from a field wiring location (e.g. at the field sensor location), simply place a jumper wire between the field wire pair for normally open sensors, or open the field wire pair for normally closed sensors. This action will set the CPF into alarm mode.

20. FILLING TANKS

⚠CAUTION

Keep tank vented to prevent pressurization of tank when adding water. As the tank nears full, reduce the fill rate to prevent pressurization or tank damage may occur. This may result in personal injury or property damage.

20.1. Place the hose through the fitting so the hose outlet is resting inside the OWS tank.

20.2. Open the inlet and effluent pipe valves.

20.3. Fill the tank with clean water using any of the following:

20.3.1. Tanker truck

20.3.2. Fire hose

20.3.3. Garden hose

20.4. The OWS tank can be filled through any of the following tank openings:

20.4.1. OWS inlet or effluent piping

20.4.2. Manway

20.4.3. 4” OIL OUT Fitting

20.4.4. 4” GAUGE Fitting

20.5. Check the water level using a gauge stick.

20.6. NOTE: The OWS is full when the gauge stick water level reading equals the height of the effluent piping above the tank top as measured from the OWS tank bottom. Also watch for water leaving the tank through the effluent piping.

20.7. Verify that water flows through the OWS to ensure that no blockage exists.

20.8. Check the effluent outlet to ensure that water is flowing.

20.9. Check the inlet piping for water backup.

21. OPERATIONS & MAINTENANCE

21.1. As with any OWS, proper maintenance is an important factor to ensure optimal performance. Reference the most recent edition of Containment Solutions OWS Operations & Maintenance Instructions (Pub. No. INS1316).