



## MSR Recommended Maintenance Procedures Vault Type Installation

### Maintenance:

1. After approximately 250 hours of actual flowing operation (or six months installation, whichever is sooner), the inlet area of the separator should be checked to determine if an excessive amount of solids have accumulated. If this happens, a settling tank should be installed upstream of the separator to remove the solids. Otherwise, the solids may accumulate enough to plug the lower part of the modules. In this case, efficiency will be reduced and hydrocarbons in the outlet water may exceed allowable limits.

2. After approximately the first 1000 hours of operation, the inlet area should be cleaned as follows:

- a. Remove cover or open lids as appropriate.
- b. Remove the water from the vault.
- c. Remove any sludge accumulation. Note sludge quantity and position.

The plate modules may either be cleaned in place or removed and cleaned.

To clean the modules, first stop the flow to the unit, remove the oil, and drain or pump out the water.

For cleaning in place, connect a pressure water hose (at least 60 psig) to the special plate cleaning wand. Provide a vacuum truck or other means of disposing of the sludge and dirt in the vessel. Turn on the water to produce a spray from the wand and insert slowly into each solids dump hole of the plate modules (the large holes; the wand is too large to be inserted in the small holes), starting at the upstream end. As the water flushes the dirt out of the plate modules into the inlet chamber, it should be removed by the vacuum hose or to an oily water sewer. Note: if desired, the water can be collected and recycled to the inlet of the separator later after cleaning.

For cleaning out of the vessel, remove plate modules, flat and corrugated seal sheets. Flush with hose to oily water drain. NOTE: DO NOT DISASSEMBLE PLATE MODULES. Use a hose to flush the tank and sweep all sediment out of the drain connections. A fire hose at 10-15 psi or a standard garden hose with spray nozzle at

normal domestic pressure are effective cleaning tools, or the cleaning wand can be used out of the system as well as in place. In a similar manner steam hoses can be used to flush plate modules. **Take extreme care using steam as high temperatures will damage the plates.** Examine tank interior for damage and repair any damage to internal coating (if provided). Inspect skimmers (if provided) for damage and replace as necessary.

To restart unit, reinstall modules and seals. To reinstall modules, follow the following steps:

1. Install plate modules, stacking them the same way they were previously installed, starting on one side of the plate area.
2. Install the flat sheet seals in the space between the plate packs and the vault wall. Install the corrugated sheet between the flat sheet and the vault wall. The fit is supposed to be tight, so it may be necessary to flatten the corrugated sheet slightly by pulling on the ends, or use a board
3. For start-up fill with clean water and open any valves that might have been closed so that water will flow in the event of rain. Note: The quantity of sludge found in the Inlet section should be used as a basis for determining the next interval before cleaning.

If the sludge level is very low, the cleaning interval can be extended. If the sludge is more than 1/3 up the plate modules, the interval should be shortened.

Note:

Plates do not need to be cleaned until white. Some oil on the plates will not cause deterioration of performance. It is only necessary to remove all sludge from between the plates and any very heavy oil coating.