

Site Name: _____ LDEQ Agency Interest (AI) #: _____

RAC Client: _____

RAC Project Name: _____

RAC Project Number: _____

MAINTENANCE SCHEDULE – LIQUID RING PUMP SYSTEM		
WEEKLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Check oil level (if oil seal) and condition for the Liquid Ring Pump (LRP).		
2. Check for water in oilsight gauge; drain off if necessary (if oil seal).		
3. Observe scavenge line flow for the LRP.		
4. Check the operation of the transfer pumps.		
5. Note the backpressure of the Stripper blower.		
6. Note backpressure of Air/Oil Demister filter. Should be (<) 4 PSIG. Replace as required (if oil seal).		
7. Monitor the operation of the Stripper effluent pump and note the reading of the totalizing flow meter.		
8. Drain solids from the bottom of AWS-1.		
9. Check bag filter and carbon pressures. Change bags as necessary to maintain flow. Note the differential pressures from vessel to vessel.		
10. Check levels on storage tanks. Empty, as necessary.		
11. For systems with Liquid carbon, check backpressure and flow rate through totalizer. If flow rate is less than influent flow rate or 5 GPM, whichever is greater, back flush carbon vessel by switching the influent and effluent lines on the vessel. Allow 2-3 cycles and return hoses to original positions.		
12. Check all return lines from AWS-3 (if oil seal) and carbon tanks. Make sure they free flow back to the AWS-1 tank.		
13. Check air readings from each extraction line to calculate equivalent COC removal.		

Notes: _____

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MAINTENANCE SCHEDULE – LIQUID RING PUMP SYSTEM		
MONTHLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Check transfer pumps and conductivity probes for signs of Mineral deposits and clean if necessary.		
2. Grease the bearings on the Liquid Ring Pump (LRP) (every other month). Give each grease fitting 2 shots of grease.		
3. Check and clean conductivity level probe rods in AWS-1.		
4. Check and clean sight glass gauge for silt, iron, and calcium build-up. Replace sight glass if needed.		
5. Inspect the OWS packing.		
6. Check all hoses for deterioration.		
7. Inspect the aeration tubes in the stripper.		
8. Clean radiator of dust, dirt, leaves, etc.... (if oil seal).		
9. Tighten nuts and bolts on liquid ring flanges and hose clamps.		
10. Check all hoses for deterioration.		
11. Inspect walls, motors, fans, components for any damages or corrosion.		
12. Check the separation tanks AWS-1, AWS-2 and AWS-3 for solids or scaling.		

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MAINTENANCE SCHEDULE – LIQUID RING PUMP SYSTEM		
QUARTERLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Chemically descale transfer pump and conductivity probes and discharge check valve.		
2. Clean Liquid Ring Pump (LRP) oil strainer for oil seal and wye strainer for water seal.		
3. Check LRP system piping for leaks.		
4. With power off, perform a wire pull test and tighten all electrical connections in the control panel.		
5. With the power off, check all electrical connections at the motor junction boxes. Check the wires for corrosion.		
6. Grease motors.		
7. Test high level and high temperature sensors and alarms.		
8. Test E stop button.		
9. Calibrate vacuum transducer. With vacuum off, check and set the zero setting. With the vacuum running at a constant vacuum. Check and adjust the span screw, clockwise to adjust reading higher.		
10. General structure inspection. Door, ceiling, wall panels for leaks or damage.		

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MAINTENANCE SCHEDULE – PUMP AND TREAT SYSTEM		
WEEKLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
14. Check operation of down well pumps.		
15. Check the operation of the transfer pumps.		
16. Monitor the operation of the Stripper effluent pump and note the reading of the totalizing flow meter.		
17. Check bag filter and carbon pressures. Change bags as necessary to maintain flow. Note the differential pressures from vessel to vessel.		
18. Check levels on storage tanks. Empty, as necessary.		
19. For systems with Liquid carbon, check backpressure and flow rate through totalizer. If flow rate is less than influent flow rate or 5 GPM, whichever is greater, back flush carbon vessel by switching the influent and effluent lines on the vessel. Allow 2-3 cycles and return hoses to original positions.		

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MAINTENANCE SCHEDULE – PUMP AND TREAT SYSTEM		
MONTHLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
13. Check transfer pumps and conductivity probes for signs of Mineral deposits and clean if necessary.		
14. Check and clean conductivity level probe rods in sump.		
15. Check and clean sight glass gauge for silt, iron, and calcium build-up. Replace sight glass if needed.		
16. Inspect the OWS packing.		
17. Check all hoses for deterioration.		
18. Check all hoses for deterioration.		
19. Inspect walls, motors, fans, components for any damages or corrosion.		
20. Gauge wells to ensure pump intake is set at appropriate depth.		

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MAINTENANCE SCHEDULE – PUMP AND TREAT SYSTEM		
QUARTERLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Clean OWS and packing.		
2. Pull wires in control panel to inspect for damage.		
3. Fill OWS and Air Stripper and restart system.		
4. Inspect conductivity probes and clean if necessary.		
5. Clean bag filter housing.		
6. List volume of waste fluid and sludge materials generated in comments section.		

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MAINTENANCE SCHEDULE – POSITIVE DISPLACEMENT PUMP SYSTEM		
WEEKLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Check gear oil, temperature and condition of the PD vacuum pump, note any excessive temperature rise, oil consumption or vibration.		
2. Check the operation of the transfer pumps.		
3. Check the backpressure of the Stripper blower.		
4. Monitor the operation of the stripper effluent pump and note the reading of the totalizing flow meter.		
5. Drain solids from the bottom of AWS-1.		
6. Check AWS-1 inlet strainer. Strainer can be removed after the first month of operation.		
7. Check, and drain/flush solids from the bottom of AWS-1 tank.		
8. Check levels on storage tanks. Empty as necessary.		
9. Check bag filter and carbon pressures. Change bags as necessary to maintain flow. Note the differential pressures from vessel to vessel.		
10. For systems with Liquid carbon, check backpressure and flow rate through totalizer. If flow rate is less than influent flow rate or 5 GPM, whichever is greater, back flush carbon vessel by switching the influent and effluent lines on the vessel. Allow 2-3 cycles and return hoses to original positions.		
11. Check air readings from each extraction line to calculate equivalent COC removal.		

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MAINTENANCE SCHEDULE – POSITIVE DISPLACEMENT PUMP SYSTEM		
MONTHLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Check transfer pumps for signs of mineral deposits and clean if necessary.		
2. Grease the bearings on the liquid ring pump (every other month). Give each grease fitting 2 shots of grease.		
3. Check and clean conductivity level probe rods in AWS-land sump.		
4. Check and clean sight glass gauge for silt, iron, and calcium build-up. Replace sight glass if needed.		
5. Inspect the OWS packing.		
6. Inspect the aeration tubes in the Stripper.		
7. Tighten nuts and bolts on flanges and hose clamps.		
8. Check all hoses for deterioration.		
9. Inspect walls, motors, fans, and components for any damage or corrosion.		
10. Check the separation tank for solids or scaling.		

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MAINTENANCE SCHEDULE – POSITIVE DISPLACEMENT PUMP SYSTEM		
QUARTERLY MAINTENANCE TASKS		
Task	<input type="checkbox"/> When Complete	Comments
1. Chemically descale transfer pump and conductivity probes and discharge check valve.		
2. Clean all wye-strainers.		
3. Check PD blower vacuum system piping for leaks.		
4. With power off, perform a wire pull test and tighten all electrical connections in the control panel.		
5. With the power off, check all electrical connections at the motor junction boxes. Check the wires for corrosion.		
6. Check gear oil level, top off as needed.		
7. Refer to PO O&M manual for greasing and oil service. Transfer pump and air stripper blower motors have sealed bearings and do not require greasing.		
8. Test high level and high temperature sensors and alarms.		
9. Test the Stop button.		
10. Calibrate vacuum transducer. With vacuum off, check and set the zero setting. With the vacuum running at a constant vacuum. Check and adjust the span screw, clockwise to adjust reading higher.		
11. General structure inspection. Inspect door, ceiling, and wall panels for leaks or damage.		

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MAINTENANCE SCHEDULE – AIR STRIPPER CLEANING		
QUARTERLY MAINTENANCE TASKS		
Task	<input type="checkbox"/> When Complete	Comments
7. Clean AWS-1.		
8. Clean AWS-2 and transfer lines.		
9. Clean OWS and packing.		
10. Clean Air Stripper and aeration tubes.		
11. Clean air stripper sump.		
12. Fill AWS-1, AWS-2, OWS, and Air Stripper and restart system.		
13. Inspect conductivity probes and clean if necessary.		
14. Clean bag filter housing.		
15. List volume of waste fluid and sludge materials generated in comments section.		

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MAINTENANCE SCHEDULE - SVE SYSTEM		
WEEKLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Check gear oil, temperature and condition of the vacuum pump, note any excessive temperature rise, oil consumption or vibration.		
2. Check the operation of the transfer pumps.		
3. Check AWS-1 inlet strainer. Strainer can be removed after the first month of operation.		
4. Check, and drain/flush solids from the bottom of AWS-1 tank.		

Notes: _____

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MAINTENANCE SCHEDULE - SVE SYSTEM		
MONTHLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Check transfer pumps and conductivity probes for signs of mineral deposits and clean if necessary.		
2. Grease the bearings on the motor (every other month). Give each grease fitting 2 shots of grease.		
3. Check and clean conductivity level probe rods in AWS-1.		
4. Check and clean sight glass gauge for silt, iron, and calcium build-up.		
5. Check vacuum gauges to ensure that max. Vacuum is not exceeded.		
6. Inspect air filter on optional CFM gauge for moisture. Drain high vacuum switch.		
7. Check motor amp draw. Check all switches for proper operation. Check all wiring for loose connections.		
8. Tighten nuts and bolts on flanges and hose clamps.		
9. Check moisture separator for pressure drop across filter/moisture demister (pressure drop should not exceed 6" H ₂ O (0.44 in Hg) under normal operating conditions.)		
10. Inspect walls, motors, fans, components for any damages or corrosion.		

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MAINTENANCE SCHEDULE - SVE SYSTEM		
QUARTERLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Chemically descale transfer pump and conductivity probes and discharge check valve optional.		
2. Clean all wye-strainers.		
3. Check vacuum system piping for leaks.		
4. With power off, perform a wire pull test and tighten all electrical connections in the control panel.		
5. With the power off, check all electrical connections at the motor junction boxes. Check the wires for corrosion.		
6. Check gear oil level, top off as needed optional.		
7. Refer to PO O&M manual for greasing and oil service. Transfer pump motors have sealed bearings and do not require greasing.		
8. Test high level and high temperature sensors and alarms.		
9. Test the Stop button.		
10. Calibrate vacuum transducer. With vacuum off, check and set the zero setting. With the vacuum running at a constant vacuum. Check and adjust the span screw, clockwise to adjust reading higher.		
11. General structure inspection. Inspect door, ceiling, and wall panels for leaks or damage.		

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MAINTENANCE SCHEDULE – OZONE SPARGE SYSTEM		
WEEKLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Check O2, O3, oxygen delivery pump, and air flow booster contactors.		
2. Check the O3 production.		
3. Check the O2 purity for proper production of O3.		
4. Monitor the reactor pressure and O2 flow and compare against the manufacturers specifications.		
5. Check O2 compressor inlet air filters. If needed clean or replace.		
6. Check air flow booster compressor inlet air filters. If needed clean or replace.		
7. Check water separator for proper function and check filters and O-ring. If needed clean or replace.		
8. Check each ozone injection point for ozone leaks.		
9. Inspect enclosure intake filters.		
10. Test all auto drains.		
11. Inspect HVAC and/or ventilation filters and louvers.		
12. Test operation of heaters and exhaust fans.		
13. Cycle through all ozone points, check, and record pressure and flow at each point. If high breakthrough pressures are present injection point may be plugged or scaled over.		
14. Check system lag times for proper settings.		
15. Inspect integrity of hoses, fittings, piping, and valves.		
16. Inspect O2 moisture indicators. Blue indicates that no moisture is present, pink or white indicates that moisture is present. If moisture indicator is pink or white disable ozone production and contact factory.		
17. Check valve run times to insure system is running properly on each point.		
18. Check to see that the product type (O2, O3, etc..) is properly selected.		

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MAINTENANCE SCHEDULE – OZONE SPARGE SYSTEM		
MONTHLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Check pressure gauge to ensure that maximum pressure is not exceeded.		
2. Check motor amp draw. Check all switches for proper operation. Check all wiring for loose connections.		
3. Check for loose fittings and bolts.		
4. Check functionality of check valve.		
5. If applicable, check oil level and condition. Replace as recommended by manufacturer.		

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MAINTENANCE SCHEDULE – OZONE SPARGE SYSTEM		
QUARTERLY MAINTENANCE TASKS		
Task	<input checked="" type="checkbox"/> When Complete	Comments
1. Check Ozone Sparge system piping for leaks.		
2. Inspect all plastic fitting in system for integrity.		
3. With power off, perform a wire pull test and tighten all electrical connections in the control panel.		
4. With the power off, check all electrical connections at the motor junction boxes. Check the wires for corrosion.		
5. Check compressor oil level, top off as needed.		
6. Refer to O&M manual for greasing and oil service.		
7. Test high level and high temperature sensors and alarms.		
8. Test the Stop button.		
9. General structure inspection. Inspect door, ceiling, and wall panels for leaks or damage.		

Notes: _____

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Note: Non-routine maintenance for the 6-month and 12-month service kits should be conducted as a System Repair (SR) not routine Operation & Maintenance (O&M).