

DESCRIPTION:	12 Monthly Zone 1 Lubrication and Service	FREQUENCY:	12 Months
LOCATION:	Rosewood Sewerage Treatment Plant	STANDARD JOB No.:	LTS315

Tools & Equipment
Spare Parts/Materials List
Castrol Oil – Whitmor WOM 14 – Submersible pumps, WAS & WAS Thickening pumps
Castrol Oil – ATF DEX III - Rotary Drum Thickener Mixer, speed motor variator.
Castrol Grease – AP3 - Rotary Drum Thickener – support bearings.
Chevron Grease – Black Pearl EP2 or equivalent (Caltex EMG 2) – Aerator & mixer motors
Castrol Oil – Tribol 800-320 – Inlet Works Screw Compactor drive unit.
Castrol Oil – Alpha SP220 – Poly pumps reduction box
Reference
CST Wastewater Solutions, O&M Manual – Screen Extractor, Model SF4 x 5.0 mm
CST Wastewater Solutions, O&M Manual – Rotary Drum Thickener, Model EM ID8020-M2NV
Liquitek Pty. Ltd. O&M Manual – AquaDDM Mixers, Model FSS (Aqua-Aerobic Systems Direct Drive Mixer)
Liquitek Pty. Ltd. O&M Manual – Aqua-Jet Aerators, Model FSS (Aqua-Aerobic Systems Surface Aerator)
Grundfos O&M Manual Rosewood STP – Polymer Dosing Skid
KSB O&M Manual - Amarex KRT Submersible Pump (RAS)
KSB O&M Manual – Sewatec Dry-Installed Volute Casing Pump (WAS)
Maintenance Group
Inlet Works – Screen Extractor
Rotary Drum Sludge Thickener
WAS Thickener Feed Pump
Demand Aeration Tank (DAT)
Intermittent Aeration Tank (IAT)
Waste Activated Sludge (WAS) Pump Station
Return Activated Sludge (RAS) Pump Station
Submersible Pump Lagoon 2
Effluent Pump Station
Chlorine Contact Tank
Turbidity Analyser Skid
Service Water Pumps (feeds plant)
Recycled Water Pumps (golf course)
Polymer Dosing Skid
Procedural Steps
Before isolating any equipment, where possible observe in running condition. Check for correct operation.

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Inlet Works – Screen Extractor
Check Screen Extractor (screw conveyor) for noise, vibration and/or leaks.
Check Screen Extractor supports and fasteners are secure and for defects and/or damage.
Check screw brushes for wear.
Check Screen Extractor washing system nozzles & pipe work for damage, blockages.
Screen Extractor drive unit for noise, vibration and/or leaks.
Check basket for excessive wear.
Check anti wear plates for excessive wear.
Replace oil in drive gearbox with Tribol 800-320.
Rotary Drum Sludge Thickener
Check Sludge Tank for damage, leaks and/or defects.
Check Sludge Tank Mixer for noise, vibration and/or leaks.
Check Rotary Drum Sludge Thickener for noise, vibration and/or leaks.
Check Rotary Drum Sludge Thickener drive unit for noise, vibration and/or leaks.
Isolate Rotary Drum Sludge Thickener.
Remove Rotary Drum cover and inspect belt for stretching, tears or any other type of defects.
Carry out internal inspection of Rotary Drum.
Replace cover and return to service.
* Note Motovario Worm Gear Reducers are oiled for life and do not have oil plugs.
* Note Motovario TXF Motor Variator is oiled for life.
WAS Thickener Feed Pump
Check pump/motor for vibration, noise and/or leaks
Check fasteners are secure.
Replace pump oil checking for contamination, Whitemor WOM 14.
Remove WAS Thickener Feed Pump coupling guard and inspect coupling alignment.
Inspect coupling rubbers. Replace coupling guard.
Demand Aeration Tank (DAT)
Check aerators and mixer anchor points and shackles on DAT.
Tow in DAT Aerator No.1 checking cables (mooring lines), anchor points and shackles.
Remove rag and other contaminants from cables and aerator.
Remove fan cowling and clean cooling fins, replace cowling.
Grease bearings with Caltex EMG 2. Refer to attached Motor Lubrication except from O&M manual.
Return DAT Aerator No.1 to correct operating position.
Repeat as above for DAT Aerator No.2 and DAT Mixer.

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	Intermittent Aeration Tank (IAT)
	Check aerator and mixer anchor points and shackles on IAT.
	Tow in IAT Aerator No.1 checking cables (mooring lines), anchor points and shackles.
	Remove rag and other contaminants from cables and aerator.
	Remove fan cowling and clean cooling fins, replace cowling.
	Grease bearings with Caltex EMG 2. Refer to attached Motor Lubrication except from O&M manual.
	Return IAT Aerator No.1 to correct operating position.
	Repeat as above for IAT Aerator No.2 and IAT Mixer.
	Check IAT Decanter supports and guides that can be viewed above water line for damage and/or defects.
	Waste Activated Sludge (WAS) Pump Station
	Check pump/motor No.1 for vibration, noise and/or leaks
	Check pump/motor No.2 for vibration, noise and/or leaks
	Check fasteners are secure.
	Isolate No.1 pump
	Replace WAS Pump 1 oil, checking for contamination, Whitemor WOM 14.
	Remove WAS Pump No.1 coupling guard and inspect coupling alignment.
	Inspect coupling rubbers. Replace coupling guard.
	Remove No.1 non-return valve cover and inspect internal workings for damage and/or wear. Clear any blockages.
	Take note to whether the isolation valves have completely shut off flow.
	Return No.1 pump to service.
	Isolate No.2 pump
	Replace WAS Pump 2 oil, checking for contamination, Whitemor WOM 14.
	Remove WAS Pump No.2 coupling guard and inspect coupling alignment.
	Inspect coupling rubbers. Replace coupling guard.
	Remove No.2 non-return valve cover and inspect internal workings for damage and/or wear. Clear any blockages.
	Take note to whether the isolation valves have completely shut off flow.
	Return No.2 pump to service.
	Return Activated Sludge (RAS) Pump Station
	Check pump No.1 for vibration, noise and/or leaks
	Check pump No.2 for vibration, noise and/or leaks
	Check fasteners are secure.

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Isolate No.1 pump
Remove No.1 pump element from volute and inspect impeller and housings for wear.
Measure wear ring gap.
Replace RAS Pump 1 oil, checking for contamination, Whitemor WOM 14.
Remove No.1 non-return valve cover and inspect internal workings for damage and/or wear. Clear any blockages.
Take note to whether the isolation valves have completely shut off flow.
Return No.1 pump to service.
Isolate No.2 pump
Remove No.2 pump element from volute and inspect impeller and housings for wear.
Measure wear ring gap.
Replace RAS Pump 2 oil, checking for contamination, Whitemor WOM 14.
Remove No.2 non-return valve cover and inspect internal workings for damage and/or wear. Clear any blockages.
Take note to whether the isolation valves have completely shut off flow.
Return No.2 pump to service.
Submersible Pump Lagoon 2
Remove pump and access condition by external inspection.
Effluent Pump Station
Check pumps 1 & 2 for vibration, noise and/or leakage from footing sealing ring.
Check guide rails, support brackets, chains and shackles for corrosion, damage and/or defects.
Visual check on pipe work and valving for damage, leaks and/or defects.
Lift pumps and carry out oil change (Whitemor WOM 14) and access condition of impeller.
Chlorine Contact Tank
Lift CCT Mixing pump and access condition by external inspection.
Turbidity Analyser Skid
Check pump for noise, leaks and/or vibration and is operating as required.
Service Water Pumps (feeds plant)
Check pumps 1 & 2 for noise, leaks and/or vibration and is operating as required.
Recycled Water Pumps (golf course)
Check pumps 1 & 2 for noise, leaks and/or vibration and is operating as required.

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	Polymer Dosing Skid
	Poly dosing pump 1 for noise, vibration and/or leaks.
	Poly dosing pump 2 for noise, vibration and/or leaks.
	Calibration Cylinder for build-up of contaminants and clean.
	Gemu Flow Meter (rotameter) for build-up of contaminants and clean.
	Clean in line strainers.
	Replace oil in geared motor unit reduction boxes with SP220
	Polydos Batch
	Agitator No.1 for noise, vibration and/or leaks.
	Agitator No.2 for noise, vibration and/or leaks.
	Dry Material Feeder for noise, vibration and/or leaks.
	Jet Mixer for noise, vibration and/or leaks.
	Hopper Loader for noise, vibration and/or leaks.

3.1 **Motor Lubrication**

3.1.1 **Endura® Series Motors**

No motor relubrication is necessary for three (3) years. Motors are supplied with the grease ports plugged.

An Endura® Series motor is provided with a combination of proprietary design features and a lubricant specifically formulated for extra long life in harsh environments. If it should become necessary to relubricate the motor due to repair or rebuild, contact Aqua-Aerobic Systems.

After three (3) years, the motor may be relubricated by replacing the grease plug with a standard 1/8" NPT grease zerk. **Use only Chevron Black Pearl EP 2** or an approved equal lubricant. Before greasing the motor, be sure the grease vent (usually located on the opposite side of the motor) is open and clear. Follow lubricating instructions outlined below. Replace any open vent prior to operating unit.

3.1.2 **All Other Motors**

The different type and frame size motors used on AquaDDM® Mixers and Aqua-Jet® Aerators are not lubricated identically. This is due to the various casting and production techniques utilized by the different electric motor manufacturers. However, two (2) basic types of lubrication fittings and techniques are employed.

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Type A

Normal alemite fittings are provided for grease-through type lubrication. This fitting is found on the outer frame of the motor at both the top and bottom motor bearings. Just opposite, or 90° from the fitting, is the relief plug. This plug is a spring-loaded pressure relief type that does not require removal before greasing.

Type B

The second type of fitting used is called a keystone fitting. This is a fitting that relieves itself at the same location where it is greased. This fitting is found on the outer frame near the top and bottom bearings and is identified by its "hex" appearance. The outer perimeter of the hex has three (3) holes for relief, with the grease fitting inserted (threaded) into the center of the hex.

When lubricating either type fitting, snap the grease gun onto the zerk fitting and begin pumping the grease. After several strokes, grease should begin to appear at the relief points. Stop pumping in grease and wipe off the excess.

Frame Size	Amount	Average Number of Pumps from a Standard Hand Grease Gun
182 thru 215	12 ml	9 pumps
254 thru 286	25 ml	18 pumps
324 thru 365	33 ml	24 pumps
404 thru 449	50 ml	36 pumps