

1. Procedure summary

This procedure describes the process to change the oil in a paddlewheel gearbox.

Related Procedures

Lock Out Tag Out Policy

Procedure impacts and concerns

Safety	Required PPE: gloves, safety glasses, long sleeve shirt, steel toe shoes.
Quality	Clean up and dispose of used material in the proper container. Clean area where work was performed. All used material is being stored in the proper containers. All PPE is being cleaned and put away.
Delivery	
Environmental	Possible oil spill, but with proper containment the spill will be minimal if any.
Cost	
Compliance	Compliance with OSHA's Hazardous Waste Operations and Response, and Hazardous Communication Standard in addition to the Sapphire Energy, Inc. Chemical Hygiene Plan is required where applicable. See 29 CFR 1910.120 and 1200. An AUL list, MSDSs and label information will be available for easy reference in a binder in the administration building.

Responsibilities and owners

Document Owner	Manage content and distribution	Martin Pacheco
Process Owner	Responsible for content and process validation	Carlos Apodaca
Site Manager	Responsible for implementation and conformance	Rebecca White

2. Process**Process description and Notes**

This procedure describes the process to maintain paddlewheels that is to be completed quarterly. It includes the process by which to change the oil in the gearbox and add grease to the bearings.

Process diagram: Work Instruction**Process steps**

PRIOR TO STARTING PROCEDURE: Ensure the area where you will be working is clear of personnel and materials and identify all the hazards.

- 2.3.1. Turn OFF power to paddlewheel at the control panel and lock out at the appropriate disconnect for individual pond.
- 2.3.2. Set up extraction oil bucket to contain oil from gearbox.



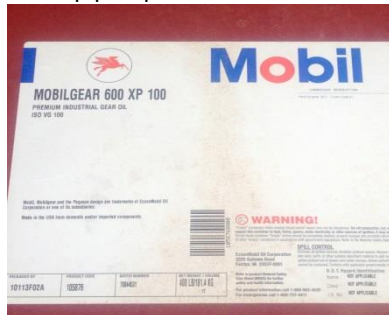
2.3.3. Open threaded metal plug located on top of gearbox using crescent wrench.



2.3.4. Insert pump hose into gearbox, and completely drain oil from gearbox into bucket using pump.

2.3.5. Move extraction oil bucket containing used oil away from the pond to avoid any spilling.

2.3.6. Set up pump over the new oil bucket.



2.3.7. Add new oil to gearbox to fill line using pump.

2.3.8. Re-install oil plug.



2.3.9. Clean and dispose of any oil that spilled.

2.3.10. Enter the pond and clean bearings of any grease that has been expelled during use.



2.3.11. Add new grease by placing grease gun fitting into nipple of bearings and squeeze trigger till grease is noticed.



2.3.12. Once grease is applied clean nipple with paper towel and replace the cap back on the nipple.



- 2.3.13. Clean the area of any used rags and trash that was a result of this task.
- 2.3.14. Exit the pond.
- 2.3.15. Remove Lock from disconnect.
- 2.3.16. Confirm that the area is clear of all personnel and materials.
- 2.3.17. Turn power ON at the control panel and start paddlewheel.
- 2.3.18. Run paddlewheel for a minimum of 1 hour to confirm proper execution of task.

3. Required documents

Input documents

Lock Out Tag Out Log

Output documents

Lock Out Tag Out Log

4. Document control

Revision history

R0 – Initial Release – Martin Pacheco	11-09-2012
R1 – Carlos Apodaca	10/4/2013

Document approval

<Name>

<Approval date>

Document reviewers

<Name>

<Last reviewed date>

<Name>

<Last reviewed date>

5. Risk analysis

<Risk name>

<Mitigation plan>

<Owner>

<RPN>