

# IAS Uses High Velocity Oil Flushing Service to Clean Lube Oil and Hydraulic Systems Prior to Commissioning of New Gas Turbine

## The Situation

During the commissioning of a new gas turbine, field fabrication of related equipment and systems usually results in the introduction of metal debris, airborne dirt and dust into the tubing and piping.

All manufacturing contaminants, airborne dirt, dust, metallic solids and field fabricated lines are known to cause premature wear and in some cases premature component failure.

## The Solution

Based on previous experience with like systems under similar conditions, IAS will perform a High Velocity Oil Flush to remove all solid contamination from the lube and hydraulic oil supply and return lines of the gas turbine.

## Project Objectives

- To complete a 100% safe project
- To decontaminate all lube oil systems using IAS process equipment for High Velocity Oil Flushing
- To manually decontaminate oil reservoirs and non-flushable components of the lube oil and hydraulic system
- To achieve clean 100 mesh screens and customer's oil cleanliness targets on the final fill turbine oil

## Project Scope

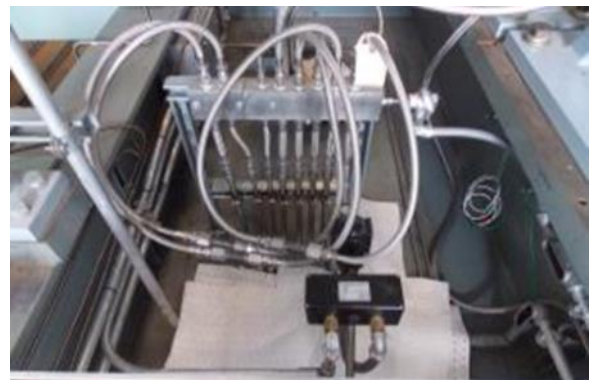
- Flow Circuitry Engineering
- Flow Circuitry Bypass Lines Provisioning (SS Jumpers)
- Flow Circuitry Installation (Pipefitting)
- Complete System Integrity Verification
- High-Velocity Oil Flush
- Manual Reservoir Decontamination
- Manual Decontamination of Non-flushable Components
- Flow Circuitry Re-Installation
- System Fluid Purification & Initial Fill



Process Equipment Set Up

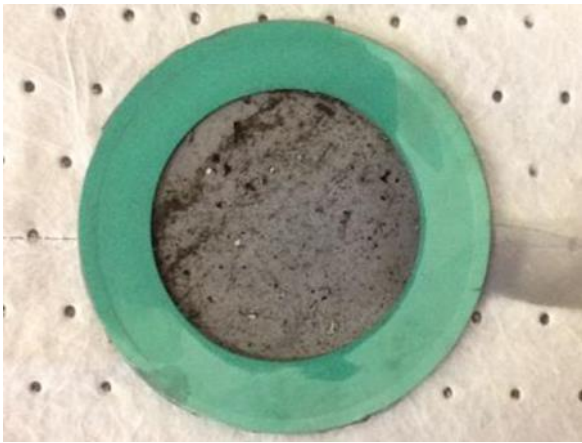


Jumper Location

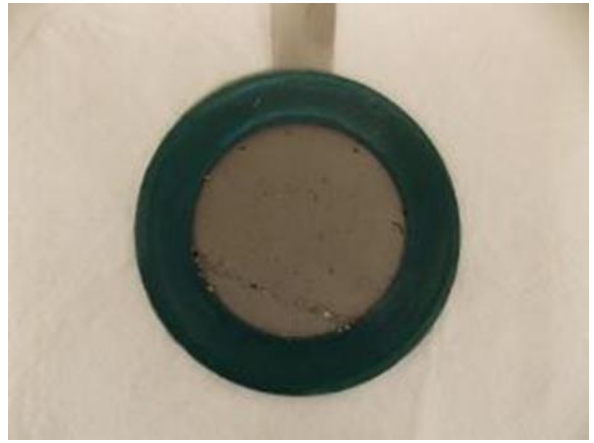


Jumper Location

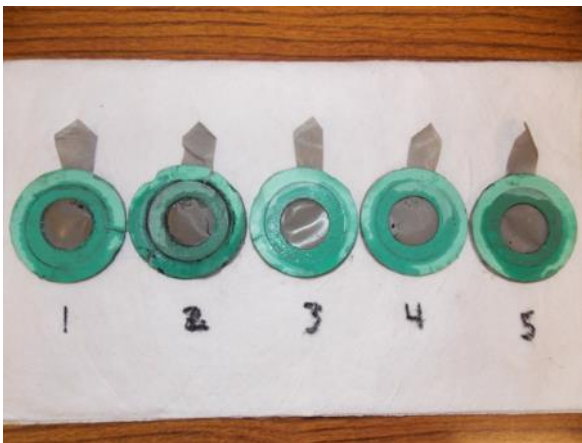
# Screens



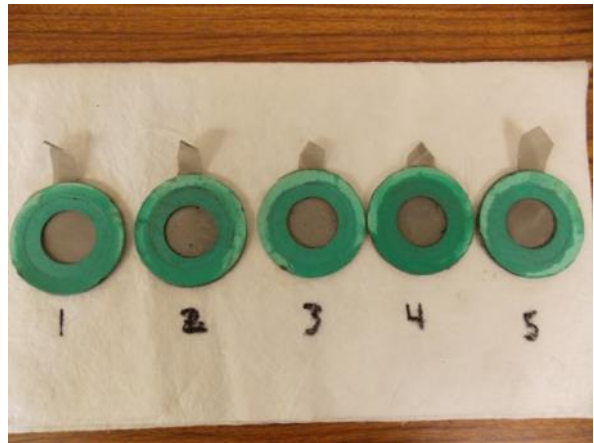
Initial Return Line Screen, April 7



Second Return Line Screen, April 8



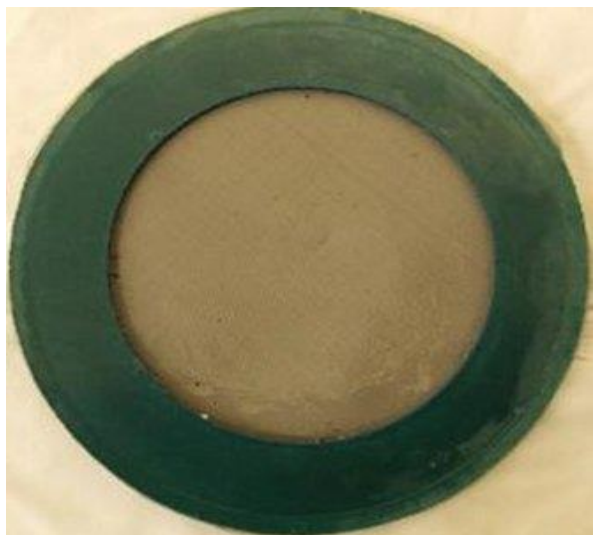
Manifold Screens, April 9



Manifold Screens, April 10



Third Return Line Screen, April 10



Final Return Line Screen, April 11

# Reservoir Decontamination

Before



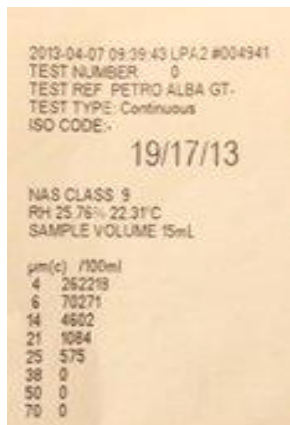
After



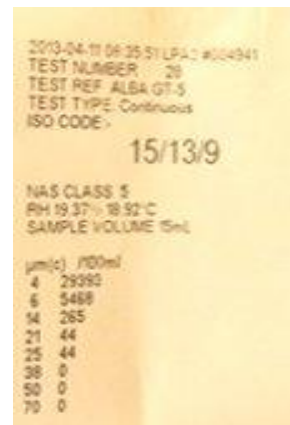
Except for oil and numerous amounts of small hard and soft contaminants remaining in the reservoir from the manufacturer, the reservoir was cleaned and accepted by the customer for final fill of Shell AeroShell Turbine Oil 500.

## Fluid Purification

The customer requested an ISO Cleanliness Code of 16/14/10 for the Final Fill Purification of Shell AeroShell Turbine Oil 500. IAS exceeded the requirements.



Initial Particle Count, April 7  
19/17/13



Final Particle Count, April 11  
15/13/9

### Benefits

- ✓ Zero safety and environmental incidents
- ✓ Extend component life of gas turbine with a clean lube oil and hydraulic system
- ✓ Ensure fluid and system cleanliness
- ✓ Minimize future maintenance and repair costs

### IAS WORKS SAFELY

IAS worked 354.5 man-hours without any safety incidents, near misses or accidents. IAS continues to be the leader in safety training and project safety awareness.



### Conclusion

The final screen and target ISO Cleanliness Code was approved on April 11, 2013. At that time the customer was satisfied with the results and called the flush completed. IAS began reinstating the system supply and return lines and began demobilization.