

# IAS Uses Multiple Services to Convert Hydraulic System from Mineral Oil to Poly Alkylene Glycol Hydraulic Fluid

## The Situation

IAS received a request to convert a hydraulic system in a large air compressor that had serious issues with varnish, valve stiction and unplanned downtime.

## The Solution

IAS will use a range of customized services to accomplish the successful conversion including:

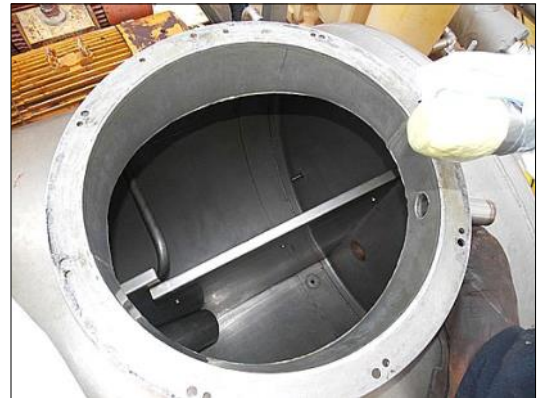
- High Velocity Chemical Cleaning
- High Velocity Oil Flush
- Reservoir Decontamination
- Final Fill Purification

## Project Objectives

- To provide a 100% turnkey service
- Decontaminate the hydraulic fluid system and all fluid lines utilizing IAS purpose built process equipment.
- Achieve “clean 100 mesh screens”
- Achieve customer’s oil cleanliness targets on final fill fluid
- Complete a 100% environmental safe and accident free project



Reservoir Before Cleaning



Reservoir After Cleaning

## Benefits

- ⇒ 100% Safe Project Execution and Completion
- ⇒ Extend hydraulic component life through contaminate free oil systems
- ⇒ Ensure Fluid And System Cleanliness Targets Are Achieved
- ⇒ Minimize Future Maintenance and Repair Costs
- ⇒ Achieved 100% Customer Satisfaction

### IAS WORKS SAFELY

IAS worked 639 man-hours without any safety incidents, near misses or accidents. IAS continues to be the leader in safety training and project safety awareness.



## Project Scope

- Flow Circuitry Engineering
- Safety Training, Permits and Project Set up
- Pump out existing charge of mineral oil and low points in system
- Install Flow Circuitry Bypass Lines (SS Jumpers)
- Perform Initial Reservoir Decontamination
- High Velocity Chemical Cleaning
- Rinse all lines to remove IAS cleaner
- Reservoir Decontamination
- Fill System With Flush Fluid
- High-Velocity Oil Flush Including Screen Evaluation
- Manual Decontamination Of Non-Flushable Components
- Pump Out Flush Fluid
- Perform Final Reservoir Decontamination
- Flow Circuitry Re-Installation
- Change System Filters
- Replace Heat Exchanger
- System Fluid Purification & Initial Fill



Process Equipment Setup

### SCREEN RESULTS HIGH VELOCITY CHEMICAL



Initial Screen



Final Approved Screen

### SCREEN RESULTS HIGH VELOCITY OIL FLUSH



Initial Screen



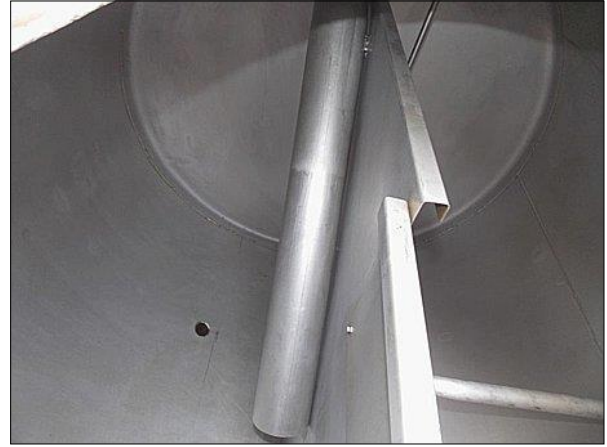
Final Approved Screen

## Reservoir Decontamination

Before



After



**VARNISH WAS THE DOMINANT CONTAMINANT INSIDE THE RESERVOIR  
EASILY REMOVED DURING HIGH VELOCITY CHEMICAL CLEANING PHASE**

## Fluid Purification

The customer requested an ISO Cleanliness Code of 16/14/11 for the Final Fill Purification of ACT EcoSafe 32. IAS exceeded the cleanliness target in all micron ranges. (>4, >6 and >14 micron particles)

TEST NUMBER	10
TEST REF	
TEST TYPE:	Continuous
ISO CODE:-	
	15/14/10
NAS CLASS	6
SAMPLE VOLUME	15mL
$\mu\text{m(c)}$	/100ml
4	20917
6	9296
14	508
21	88
25	0
38	0
50	0
70	0

### Recommendations

- Monitor hydraulic fluid and hydraulic components with regularly scheduled oil analysis
- Change filters according to OEM schedule
- Prevent moisture and contamination from entering the fluid system
- Keep oil clean and dry

### Conclusion

All screens and ISO Cleanliness Code results were approved by the customer. All oil lines were reinstated by IAS to hydraulic pumps and heat exchanger, system filters were changed. IAS implemented tear down procedures and staged equipment for demobilization.