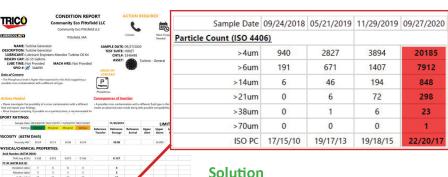






Area of Concern/Issue

Turbosteam Generator has oil that does not comply with desired cleanliness level as indicated by routine oil analysis results





Use of Harvard Portable Filter Cart dramatically reduces particle count as evidenced

by oil analysis results.

	46	194	940								6 5	MANCATRIA			L	ubri	cant	Ana	lysis	Rep	ort					-
	6 72 298							Xamine" Oil Analysis						North America: +1-800-537-7683						0 2 3 4						
	1	6	23								amine"	Oil Ana	dysis												based on comm	
10	19/17/13	19/18/15	22/29/17								Accoun	et Inform	nation		-		Comp	nnent ir	formati	an.	_			mple Info		nena.
10	19/11/13	19/16/15	22/2011	1						count Nur	nber: 5	93000-	0157-00	200	$\overline{}$	Compo		TURBO		GEN-CO	ми	Te			0064V3595I	
									Ce	ompany N	lame: L	UBRICA	TION LOGIES			Secon	ndary ID	ECO						umber: I-		
											stact:					mpone	nt Type	STEAM						cation: In malyst: C	idianapolis YW	
										Address: 120 BOSWORTH STREET WEST SPRINGFIELD, MA						Manufacturer: Information Requested Model: Information Requested						Sampled: 27-Oct-2020				
			4			-			١.	01089 US Phone Number: 413-788-5823						Application: POWER GENERATION					′ I	Submitted: 28-Oct-2020 Received: 02-Nov-2020				
								Phone Number: 413-789-5823					1	Sump Capacity: 55 gal						Completed: 03-Nov-2020						
			-			CORP.			Filter Information						Miscellaneous Information						Product Information					
						ACCOUNT OF			1.	Filter Type: FULLFLOW												Product Manufacturer: LUBRICATION ENGINEERS				
			- 4						1.	Micron Rating: 10												Product Name: 6461 MONOLEC TURBINE OIL			.ec	
									-											- 6	Viscosity Grade: ISO 32					
										Comments Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Flagged additive levels are higher than expected for the identified ubscircant. This way have been tooged off with a different lubricant, the fluid may be misidentified, or a different lubricant or formulation may have to											y have					
			- 1			88					in use	e prior t	p a rece	ent chan	ge, Plea	se pro	the fluid vide COI	may be RPONES	miside IT MANI	ntified, o	ar a cliffe	MODE	ubricant o	or formuli pare data	ation may he to the corr	ave bei
								standards for this component.					e.													
				0.00					Wear Metals (ppm)				Contaminar Metals (ppn			pen)	Multi-Source			e Metals (ppm)		Additive Metals (m)				
			- 1			4														F						
			- 1			652				1 1	,	8			8		٤	1	§	r 2	3	3		1 5		5
			- 1			1885 T			l of	c 3	1 2	1 6	å .	2 - 2	di i	ž	usu usu	in the	9889	nug Ş	1 8	8	1 8	8	1 10	£ ,
						1000			3	2 6		2	8 .	9 5	0.03	8	0 0	3.	2	0 0	- E	2	5 8	12/	3 B	£ ;
				0	Name and Address				1	1010	10		e inform		10	0	0 0	1	Cortan		11	-	0 0		Properties	39 1
-			P		DES-CASE				П		$\overline{}$	Sarry	2	-	\neg	\top	_		Curran	navarios .	_	-		Fig. 1	rugierties	
9				Exping contam	ination under centr	od*				3		š	l ě	3,	8 .	2 8	;	8					£ \$	(v)	20 1	g 5
ä	6				and Resignate Workers	-				ame ame		Recei	3	菱	Cube Day	Added	1 3	S.	1 1	š l	8	_	200	Acid Mum	Base No D4739	8 8
	2	-							i i	8		8			8	1 3								mg	mg	abs
	200	70							3	27-Oct-200	15 (02 M	S	h o	h	3 e			Vel	76	vel	-7	_	10.4	0.03	y KOH y abs	Now an
٦	1									11 001111				e Count						_	-			sal Testine		
		40	. •						П				T							Last :	J					
	_		76. I						ш											8:1						
			4						I.I											Water	é					
		-4	- 60			MEN E	100			ISO Code		>6		> 14		> 38		> 100	Test	3.5	ė					
		•				18	4		3	Based On 4%/34	> 4 µm	μm	μm	2 14	hw.	μm	µm	> 100	Metho							
						- Comment			1	16/14/11	621	154	36	15	4	0	0	0	ASTM D7647	37	_					
						-						-,	limits t	the evaluat	ion. No we	manty is	egrened	or implie	i. Messure	ment unce	etalety au	to the it eliable u	berns tested. pon request.	Missing flui	d or component	informat
_																										

# el	ISO Code		
Sample	Based On 4/6/14	> 4 µm	
1	16/14/11	621	



In case you are not familiar, the 3 digit code represents the number of particles greater than 4/6/14 micron in every 100 ml of oil.

The cleanliness code went from 22/20/17 to 16/14/11. Every single digit reduction results in the number of particles being halved. You can see the actual reduction of the 4, 6 and 14 micron particles to the right of the code.

RESULTS:

Cleaner oil results in longer component as well as lubricant life. Filtering the oil is a very critical, proactive maintenance step. Installation of our LE Xport™ desiccant filter on the fill as well as QD couplers on both fill and drain ports, insure oil will maintain cleanliness.

Which would you prefer, assuming or knowing that the oil is truly clean? The oil filtration process positively impacts equipment performance.

With the expenses, complexities and increasing demands on equipment today, one must capitalize on every performance advantage possible.

120 Bosworth Street, West Springfield MA 01089 413-788-LUBE (5823)



Portable Filtration Systems FIELD PERFORMANCE REPORT



CONSTANT CONTAMINATION CONTROL

The Filter Makes the Difference:

The Harvard filter is designed as a multiple element filter. The Harvard™ patented nonchanneling seal forms a positive barrier to channeling. The flow of oil carries the contaminants into the depths of the filter media with no flow restrictions from surface loading. Each element will remove water from wet oils.

The hydraulic pressure of the oil compresses the layers of filter media against the pat-ented non-channeling seal and toward the center of the element creating a constant pressure to avoid channeling. This compression along with the pressure against the filtering surface of the element causes the elements to become more compact, trapping contaminants as small as one-micron. Oil flow travels through the layers of the elements and into the oil return tube of the filter housing.

Features

- Removes Contaminants as Low as 1-Micron
- Removes Water from Petroleum Base Fluids
- Moves Easily Site-to-Site
- Filters Most Synthetic and Oil Base Fluids
- Operation/Service Manual Included
- Contact Distributor for Additional Information

Increases

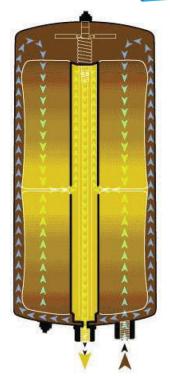
- Fluid Life
- Machine Life
- Equipment Life

Decreases

- Downtime
- Hazardous Waste Generated
- Replacement Fluid Costs
- Waste Disposal Costs

Typical Applications:

- Manufacturing
- Machine Shops
- Injection Molding
- OIL EDM Machines
- Gear Oils
- Diesel Fuel
- Hydraulic Oils
- Quench Oils
- Glycerols
- Heat Transfer Fluids
- Turbine Oil
- Compressors



demonstrated

the

How THE SYSTEM WORKS

Contaminants from 1 to 40 microns in size are common even in full-flow, filtered lubricants and coolants. Larger contaminants nest into areas around bearings, rings, pumps, etc. and damage component surfaces. Smaller contaminants that cannot be removed by full-flow filters wear the apparatus by a process called silting.

For many years, partial-flow filtration has been used to supplement full-flow filters to remove larger contaminants and control silting. Harvard Corporation did not invent partial-flow filtration, but we significantly improved it. Our patented, nonchanneling seals improve partial-flow filtration by forcing oil through a wound, fiber-filter media so fluids cannot bypass the partial-flow filter.

Independent studies conducted by the Center for Hazardous Materials Research at the University of Pittsburgh effectiveness of Harvard Corporation non-channeling, partial-flow filter. The filter removes virtually all remaining

1 to 40 micron contaminants while also removing the vast majority of silting particles. In addition, the filter absorbs water, antifreeze and other extraneous particles.







