

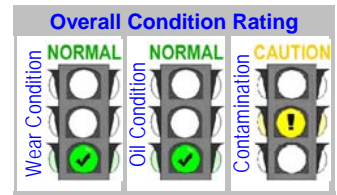
Customer Code : **88888**
 Customer Name : **ABC Manufacturing Co.,Ltd**
 Address : 123 Sukhumvit Road , Map Ta Phut Rayong 21150

Unit ID Number : **6 Gas Turbine 1 A**

Unit Type : Engine Turbine Gas
 Unit Make : General Electric
 Unit Model : PG 6561 B
 Oil type / Viscosity : SHELL TURBO CC 32
 Site Name :
 Location :

Test code : 894 913

Lube System Capacity : 6435 Liters



Recommendations and Notes

Varnish Potential Index (VPI) is in the moderate range and indicate the presence of sludge, varnish and other insoluble matter in the oil system. All other wear tests and oil condition tests appear satisfactory, and the oil was still serviceable at the time of sampling. Continue routine sampling interval.

AS / Andy Sitton

Condition History			Current Sample			Previous Sample			Alarm Limit Range							
			Wear	Oil	Cont.	Wear	Oil	Cont.	Wear	Oil	Cont.	Limit Name (Equipment / Oil) : Engine Turbine Gas GE Turbo CC32 (NK)				
FocusLab ID			N	N	C	C	N	C	N	N	A					
Date sampled			66107	64802	63215											
Hours on Oil			07-Nov-06	10-Oct-06	06-Sep-06											
Hours on Unit			12840	12168	11352											
Bottle ID			Not Given	Not Given	Not Available											
			856029	856049	856041											
Wear Condition			RDE fine		RFS coarse		RDE fine		RFS coarse		RDE fine		RFS coarse			
Wear Element	Method	Unit														
Iron	D-6595	PPM	1.0	3.5	1.0	6.5	A	0.5	3.8	0	>3	>4	>4	>6		
Chromium	D-6595	PPM	0.1	0.0	0.2	0.0		0.0	0.1	0	>1	>2	>1	>2		
Lead	D-6595	PPM	0.5	0.9	1.6	C	0.6	0.0	0.9	0	>1	>2	>4	>6		
Copper	D-6595	PPM	0.8	1.8	0.5	1.8		0.5	1.2	0	>9	>16	>7	>12		
Tin	D-6595	PPM	0.3	2.4	0.8	2.3		0.0	1.5	0	>3	>5	>3	>5		
Aluminum	D-6595	PPM	0.3	0.0	0.5	0.0		0.0	0.0	0	>1	>2	>2	>4		
Nickel	D-6595	PPM	0.0	0.1	0.0	0.0		0.3	0.4	0	>1	>2	>1	>2		
Silver	D-6595	PPM	0.0	0.0	0.0	0.0		0.1	3.4	0						
Molybdenum	D-6595	PPM	0.0	0.0	0.6	0.0		0.0	0.0	0						
Titanium	D-6595	PPM	0.0	0.0	0.0	0.0		0.1	0.0	0						
Oil Condition			New Oil		L-Action		L-Caution		U-Caution		U-Action					
Viscosity @40 °C	D-445	cSt	33.2	33.8	33.6	32.2	<29	<30.6	>33.8	>35.4						
Viscosity @100 °C	D-445	cSt														
Oxidation	FTIR	Abs	3.6	5.1	5.1	4.0		>6	>8							
Nitration	FTIR	Abs	3.0	3.6	3.8	2.0		>5	>7							
TAN	D-974	mg KOH/g.	0.09	0.10	0.08	0.13		>0.21	>0.23							
TBN	D-4739	mg KOH/g.														
Contamination			New Oil		RDE fine		RFS coarse									
Water	T-H2O Ch e d%	%(WT.)	0.008	0.009	0.007	0										
Sodium	D-6595	PPM	0	0	0	0										
Silicon	D-6595	PPM	1.0	1.4	2.0	0.6	0.0	1.1								
							>3	>5	>3	>5						
Additive Element			New Oil													
Boron	D-6595	PPM	0	0	0	0										
Magnesium	D-6595	PPM	0	0	0	0										
Calcium	D-6595	PPM	0	0	0	1										
Barium	D-6595	PPM	0	0	0	0										
Phosphorus	D-6595	PPM	34	50	54	0										
Zinc	D-6595	PPM	5	4	3	6	6	3	1							
Additional Test			New Oil		L-Action		L-Caution		U-Caution		U-Action					
Flash Point	Seta Flash	°C														
Viscosity Index	D-2270															
Other																

Note: Alarm Limits are variable and dependent upon dataset size and to be used as general guideline.
 No Sign or **N** : NORMAL , **C** or **▲** : CAUTION (first level warning limit) , **A** or **▲** : ACTION required (second level warning limit)
U-Caution : Upper CAUTION Level **L-Caution** : Lower CAUTION Level First level warning limit in Upper level and/or Lower level
U-Action : Upper ACTION required Level **L-Action** : Lower ACTION required Level Second level warning limit in Upper level and/or Lower level
 Accuracy of interpretation and recommendation are based on representatives sample and information supplied. No warranty is expressed or implied for this report.

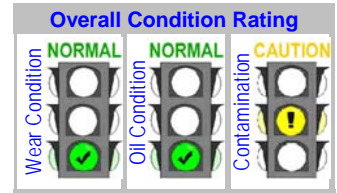
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Particle Count							Alarm Limit Range					
NAS 1638: Number of Particles Per 100 Milliliter (Counts/100ml)							New Oil	U-Caution		U-Action		
Size Range	No. of Particles	Class	No. of Particles	Class	No. of Particles	Class	Class	No. of Particles	Class	No. of Particles	Class	
5-15 microns	16,700	7	43,300	8	163,600	10						
15-25 microns	1,500	6	3,900	7 C	14,900	9 A	<6		<7		<8	
25-50 microns	400	6	1,100	8	4,200	10						
50-100 microns	<100	5	100	7	400	9						
>100 microns	<100	3	<100	5	<100	7						

Particle Count							Alarm Limit Range					
ISO 4406:1999: Number of Particles Per Milliliter (Counts/ml)							New Oil	U-Caution		U-Action		
Size Range	No. of Particles	Class	No. of Particles	Class	No. of Particles	Class	Class	No. of Particles	Class	No. of Particles	Class	
>4 microns	496	16	1,290	18	4,876	19						
>6 microns	140	14	363	16	1,373	18						
>14 microns	19	11	50	13	192	15						
ISO 4406 Result	16/14/11		18/16/13		19/18/15							

Recommendations and Notes

Particle count appears acceptable, however, we suspect significant contamination from sub-micron sized particles, that are not detectable by conventional particle counting methods (ISO & NAS).

Option Test: Varnish Potential Index™ (VPI™), Testing for Predicting Varnish and Varnish build up

VPI™ Value Condition	VPI™ Severity Limit Range Guideline		
	New Oil	U-Caution	U-Action
51 C Moderate	<2	<46	<54
33 Present			
43 Moderate			

Option Test: RUL (Remain Useful Life), Testing for monitoring Percent Remaining Anti-Oxidant (AO) by ASTM D-6971

% Remaining Antioxidant	RUL Severity Limit Range Guideline		
	New Oil	U-Caution	U-Action
	100	<50	<25

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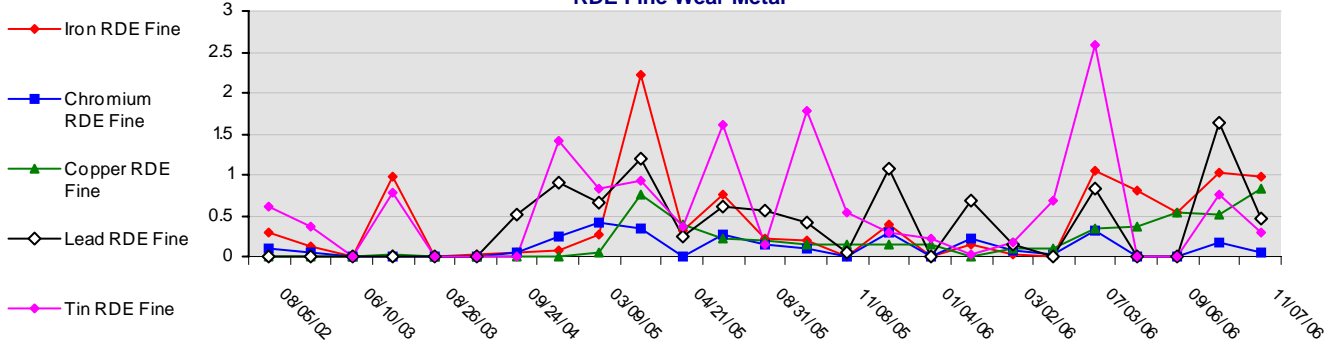
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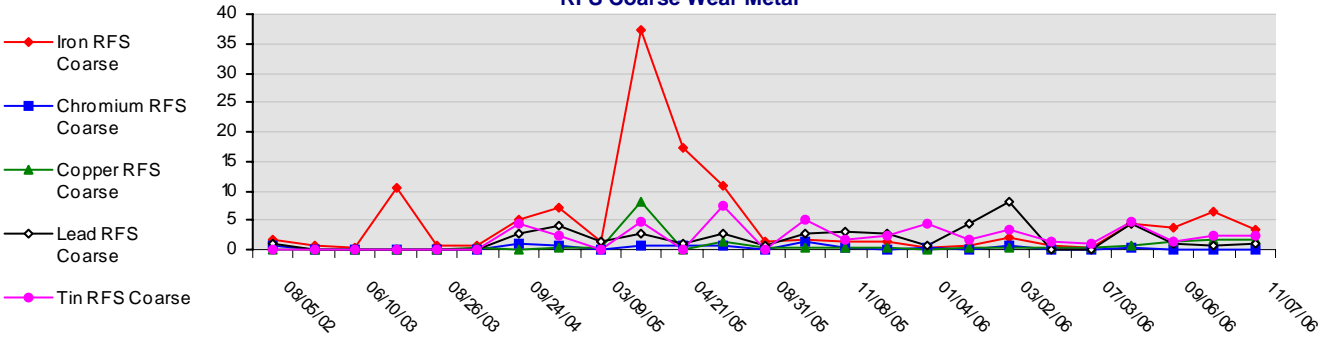
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Wear Condition

RDE Fine Wear Metal

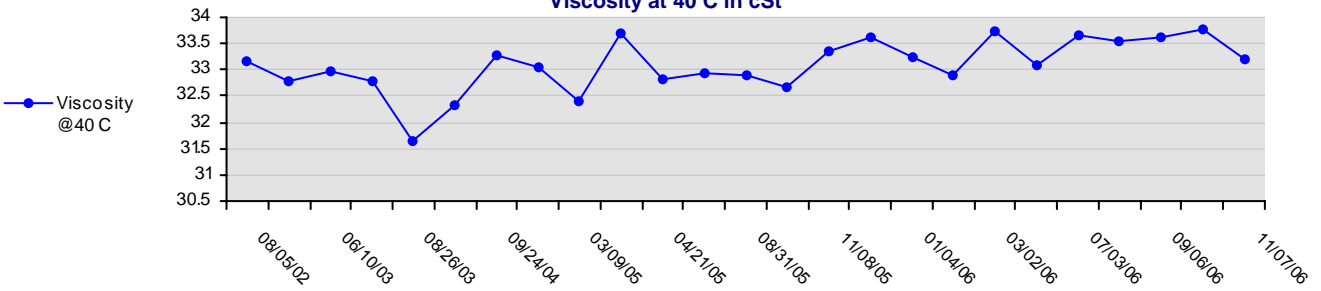


RFS Coarse Wear Metal

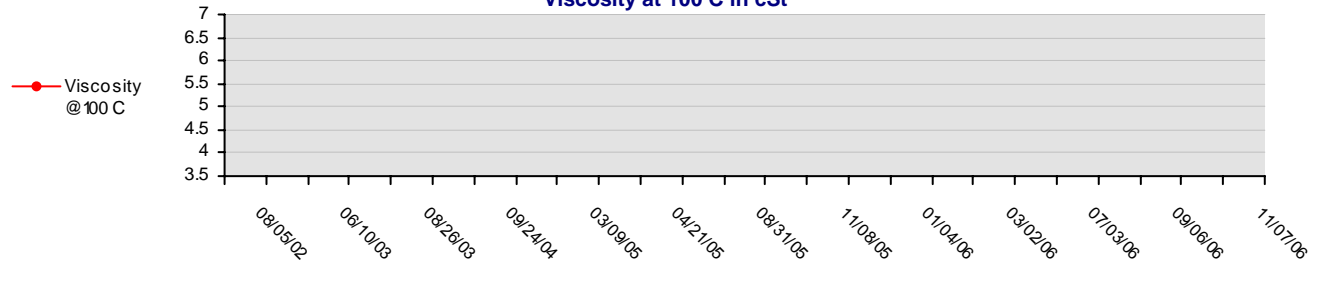


Oil Condition

Viscosity at 40 C in cSt



Viscosity at 100 C in cSt



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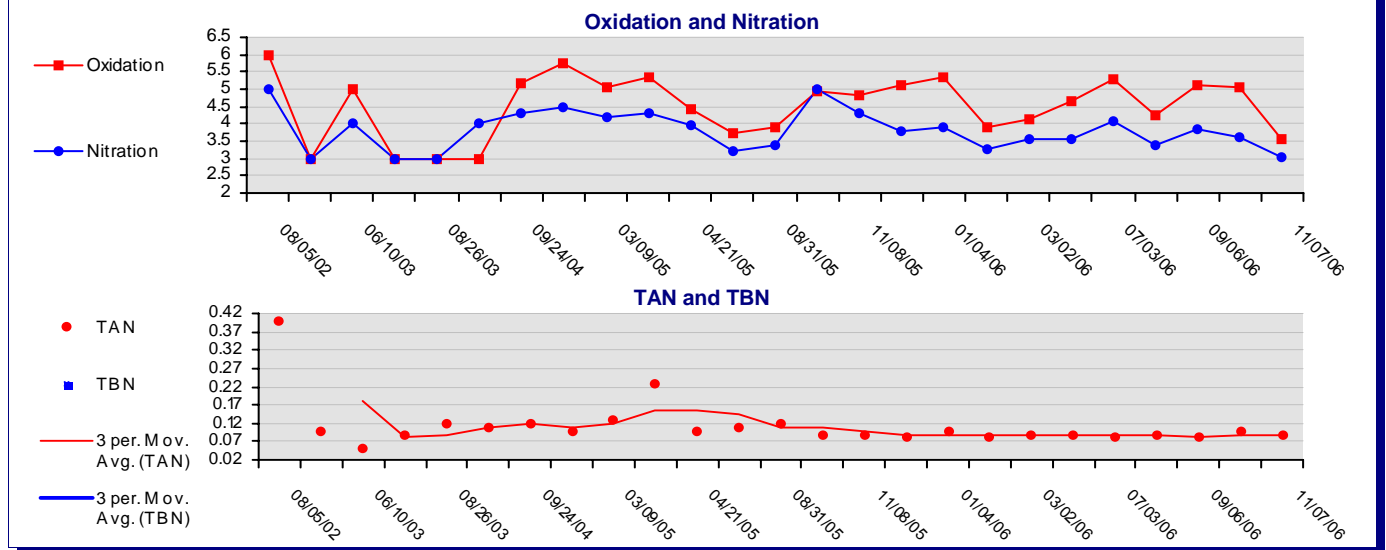
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Site Name :

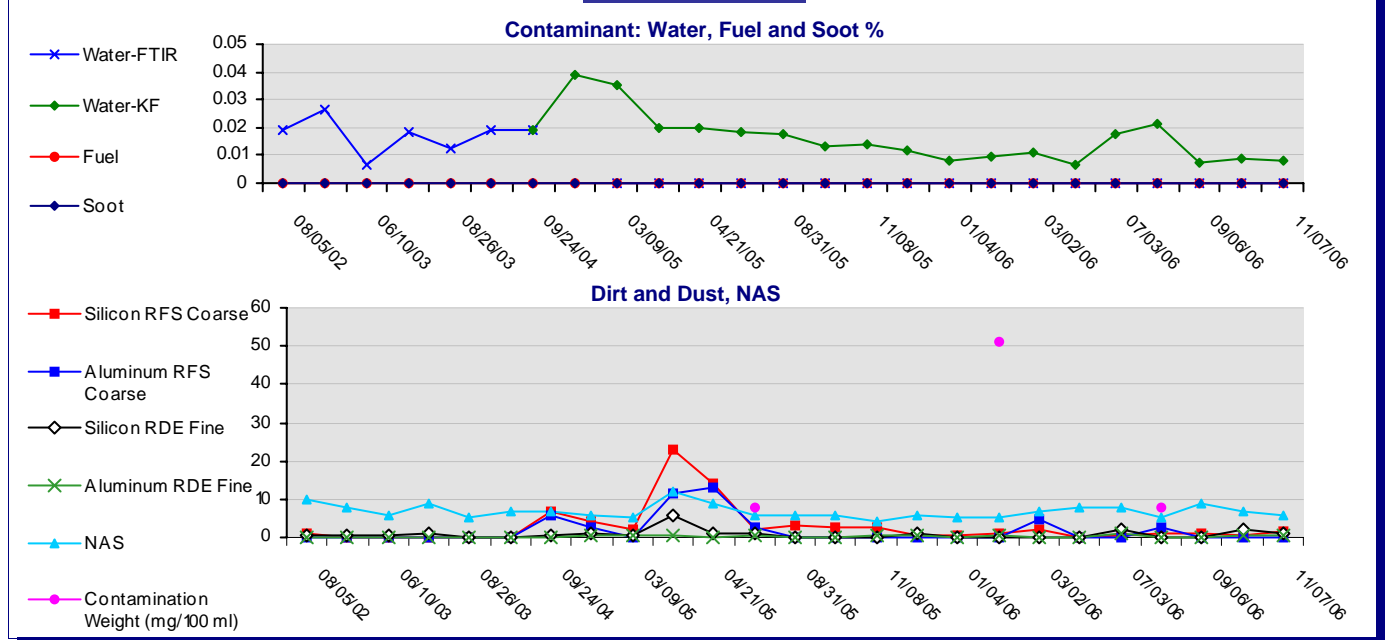
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Oil Condition



Contamination



Others

