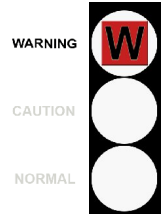


C Code : 25037
 U Name :
 T
 O Address : No.9, I-8 Rd.,
 M Map Ta Phut Industrial Estate,
 R Map Ta Phut, Muang, Rayong 21150
 Site :
 Location :
 Test code : 813

Unit ID : 01HFF01AJ103 Unit 1 PUL Hyd Tank C
 Unit Type : Hyd Syst Industrial
 Unit Make : MHI NAGASAKI
 Unit Model : MVM 25R
 Oil type/
 Viscosity : DIANA FIRGIST ES ISO 68
 Oil System Capacity : 500 Liters



Notes (Finding, Evaluation, Interpretation, Suggestion and Recommendation)

Note abnormal wear metals.
 Particle count indicates that oil cleanliness level is near to unacceptable range.
 Recommend Ferrographic Analysis (Test Code 609) on this sample, to further confirm the severity of the wear problem.
 Recommend check for other abnormal operating parameters to monitor and confirm the abnormalities closely.
 Recommend resample in 500 hours from the time this sample was taken, to monitor.

Wasan C.

			Current Sample			Previous Sample			Baseline and Alarm Limit										
Condition History			Wear	Oil	Cont.	Wear	Oil	Cont.	Wear	Oil	Cont.	Alarm Limit							
			W	N	C	C	N	C	C	N	N	Alarm Limit Matrix -Set Name (Equipment type / oil type)							
Lab ID Bottle ID Date Sampled Oil Hours (Kms) Unit Hours (Kms) Oil Added (Liters) Filters Hours (Kms)	Test Method	Result										Hyd Syst General Diana Firgist ES 56							
Wear Condition												The New Oil (TNO)	RDE fine		RFS coarse				
Wear Element	Method	Unit	RDE fine	RFS coarse		RDE fine	RFS coarse		RDE fine	RFS coarse		U-Caution	U-Warning	U-Caution	U-Warning				
Iron	D-6595	PPM	7.7	62.2 W		1.7	1.7		1.5	5.2		0	>10	>17	>10	>18			
Chromium	D-6595	PPM	6.2 W	72.8 W		3.0 W	4.5 W		1.9 C	7.0 W		0	>1	>2	>1	>2			
Lead	D-6595	PPM	2.3	2.8		0.3	0.0		0.0	0.0		0	>5	>9	>6	>10			
Copper	D-6595	PPM	6.8	81.0 W		4.2	4.6		2.2	6.7		0	>43	>75	>30	>55			
Tin	D-6595	PPM	1.4	5.7 C		3.4 C	0.0		1.8	0.0		1	>3	>4	>4	>7			
Aluminum	D-6595	PPM	0.0	2.3 C		1.3	0.0		1.0	1.0		0	>2	>3	>2	>4			
Nickel	D-6595	PPM	0.0	0.0		0.0	0.0		0.0	0.0		0	>1	>2	>2	>3			
Silver	D-6595	PPM	0.0	0.0		0.0	0.1		0.0	0.1		0							
Molybdenum	D-6595	PPM	0.0	0.0		0.0	0.0		0.0	0.0		0							
Titanium	D-6595	PPM	26.7	9.2		27.0	1.9		28.4	2.6		30							
Oil Condition												TNO	L-Warning	L-Caution	U-Caution	U-Warning			
Viscosity @ 40°C	D-445	cSt	65.5			66.0			65.7			67.4	<60.66	<64.03	>70.77	>74.1			
Viscosity @ 100°C	D-445	cSt										223.0							
Oxidation		Abs	184.4			186.6			186.7			13.0							
Nitration	FTIR	Abs	3.4			3.6			5.0			0.35			>0.45	>0.55			
TAN	D-974	mg KOH/g.	0.35			0.35			0.29										
TBN	D-4739	mg KOH/g.																	
Contamination												TNO	RDE fine		RFS coarse				
Water	T-H2O CheckTM	% (Wt.)	0.124			0.194 C			0.112			0.060			>0.15	>0.2			
Sodium	D-6595	PPM	1			0			0			0							
Silicon	D-6595	PPM	0.9	7.4		0.5	0.0		0.0	2.1		60	>75	>90	>75	>90			
Additive Element												TNO							
Boron	D-6595	PPM	0			0			0			0							
Magnesium	D-6595	PPM	0			0			0			0							
Calcium	D-6595	PPM	23			23			20			25							
Barium	D-6595	PPM	0			0			0			5							
Phosphorus	D-6595	PPM	0			0			26			10							
Zinc	D-6595	PPM	4	4		2	2		1	4		0							
Additional Test												TNO	L-Caution	L-Warning	U-Caution	U-Warning			
Flash Point	D-3828	°C																	
Viscosity Index	D-2270																		

Note: Alarm Limits are variable and dependent upon dataset size and to be used as general guideline.
 No Sign or **N** : NORMAL , **C** or **C** : CAUTION (first level warning limit) , **W** or **W** : Warning (second level warning limit)
U-Caution : Upper CAUTION Level **L-Caution** : Lower CAUTION Level **U-Caution** : Upper CAUTION Level
U-Warning : Upper WARNING Level **L-Warning** : Lower WARNING required Level **U-Warning** : Upper WARNING Level
 Baseline will be data of either "The new oil" or "Reference oil" or "Oil specification".
 Accuracy of interpretation and recommendation are based on representatives sample and information supplied.

C Code : 25037
 U Name :
 S
 T
 O
 M Address : No.9, I-8 Rd.,
 E Map Ta Phut Industrial Estate,
 R Map Ta Phut, Muang, Rayong 21150
 Site :
 Location :
 Test code : 813

Unit ID : 01HFF01AJ103 Unit 1 PUL Hyd Tank C
 Unit Type : Hyd Syst Industrial
 Unit Make : MHI NAGASAKI
 Unit Model : MVM 25R
 Oil type / Viscosity : DIANA FIRGIST ES ISO 68
 Oil System Capacity : 500 Liters

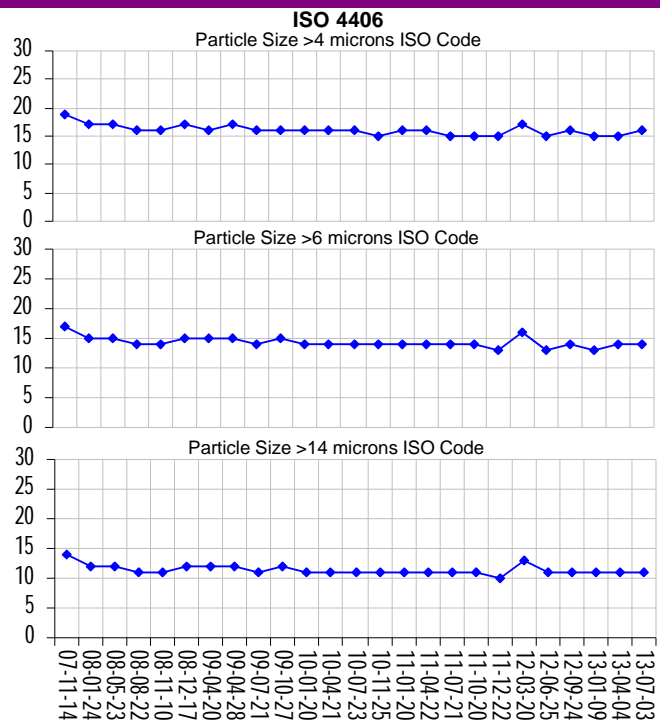
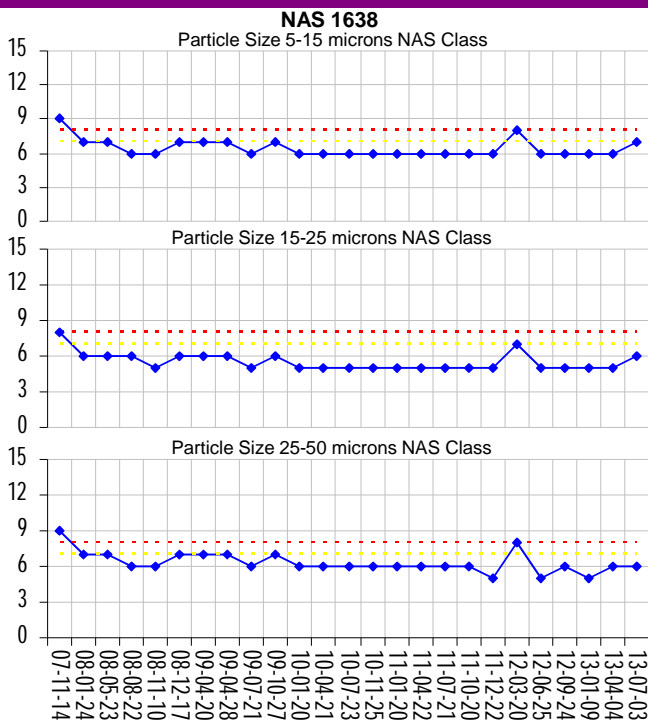
Notes (Finding, Evaluation, Interpretation, Suggestion and Recommendation)

Particle count indicates that oil cleanliness level is near to unacceptable range.

Lab ID Bottle ID Date Sampled Oil Hours (Kms) Unit Hours (Kms) Oil Added (Liters) Filters Hours (Kms)	Current Sample	Previous Sample		Particle Count
		221936	212969	204773
	2001441	2000688	116777	BASELINE
	03-Jul-13	04-Apr-13	09-Jan-13	Alarm Limit
	5016	2856	816	Hyd Syst General Diana Firgist ES
	56405	54245	52205	56

Contamination							U-Caution				U-Warning	
Particle Count NAS 1638 System Standard												
Particle Size Range	No. of Particles / 100ml.	Class	No. of Particles / 100ml.	Class	No. of Particles / 100ml.	Class	Class	No. of Particles / 100ml.	Class	No. of Particles / 100ml.	Class	
Particle Size 5-15 microns	16,700	7 C	10,000	6	9,300	6		>16000	7	>32000	8	
Particle Size 15-25 microns	1,500	6	900	5	900	5		>2850	7	>5700	8	
Particle Size 25-50 microns	400	6	200	6	200	5		>506	7	>1012	8	
Particle Size 50-100 microns	<100	5	<100	5	<100	5						
Particle Size >100 microns	<100	3	<100	2	<100	2						

Particle Count ISO 4406:1999 System Standard											
Particle Size Range	No. of Particles / ml.	Class	No. of Particles / ml.	Class	No. of Particles / ml.	Class	Class	No. of Particles / ml.	Class	No. of Particles / ml.	Class
Particle Size > 4 microns	499	16	297	15	278	15					
Particle Size > 6 microns	140	14	83	14	78	13					
Particle Size > 14 microns	19	11	11	11	11	11					
ISO 4406 Class Rating	16 / 14 / 11		15 / 14 / 11		15 / 13 / 11						


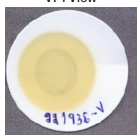
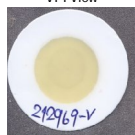
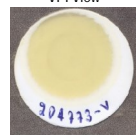





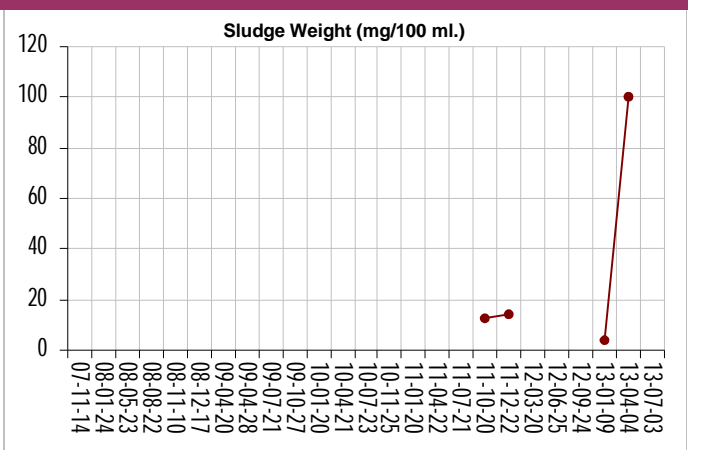
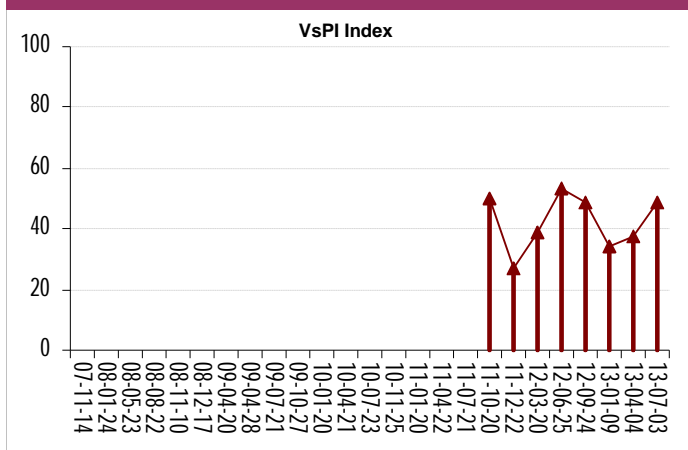
C Code : 25037
 U Name :
 S
 T
 O Address : No.9, I-8 Rd.,
 M Map Ta Phut Industrial Estate,
 E Map Ta Phut, Muang, Rayong 21150
 R
 Site :
 Location :
 Test code : 813

Unit ID : 01HFF01AJ103 Unit 1 PUL Hyd Tank C
 Unit Type : Hyd Syst Industrial
 Unit Make : MHI NAGASAKI
 Unit Model : MVM 25R
 Oil type / Viscosity : DIANA FIRGIST ES ISO68
 Oil System Capacity : 500 Liters

Notes (Finding, Evaluation, Interpretation, Suggestion and Recommendation)

X - Note the sludge weight blocks the filter.

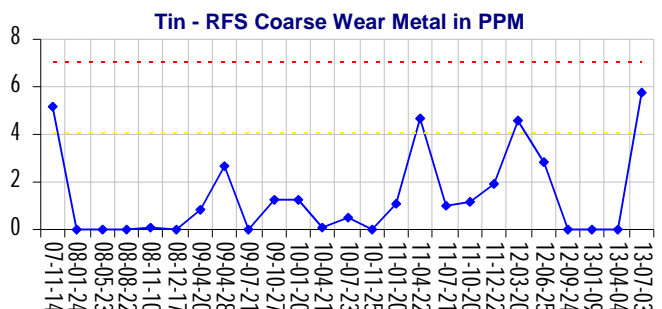
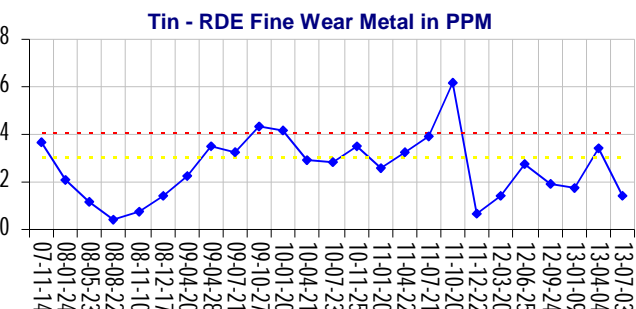
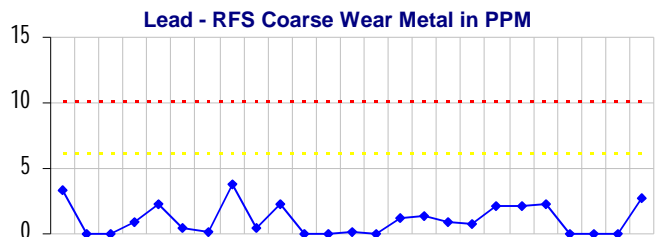
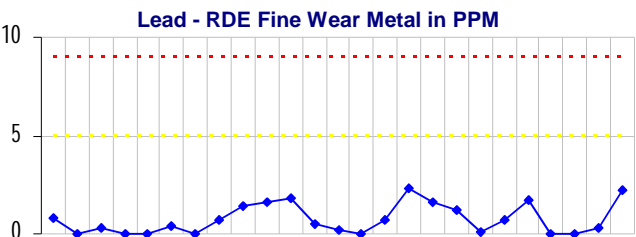
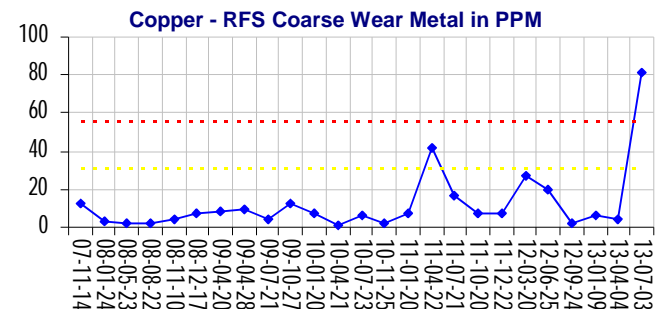
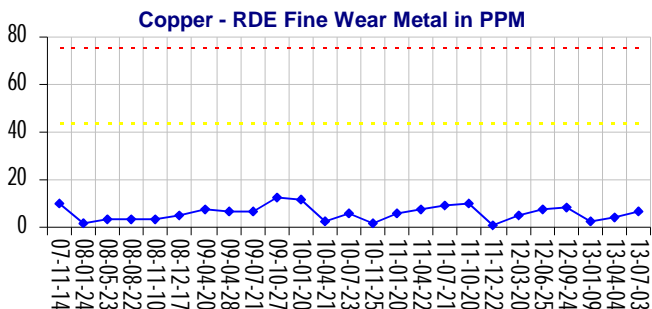
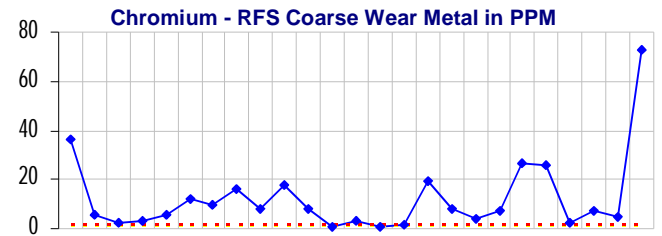
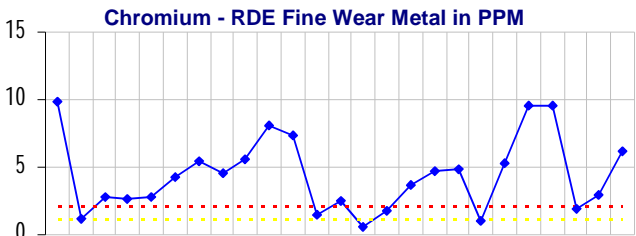
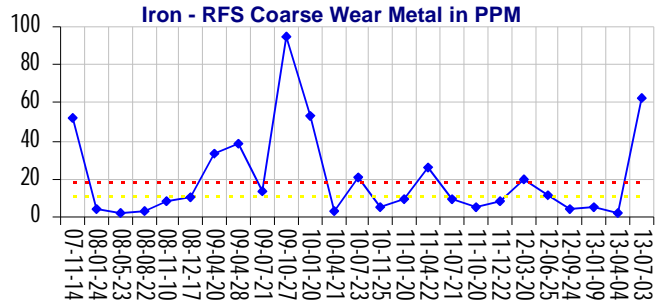
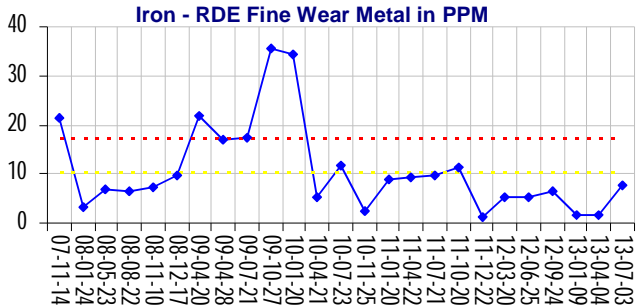
	Current Sample		Previous Sample		
Lab ID	221936	212969	204773		
Bottle ID	2001441	2000688	116777		
Date Sampled	03-Jul-13	04-Apr-13	09-Jan-13		
Oil Hours (Kms)	5016	2856	816		
Unit Hours (Kms)	56405	54245	52205		
Oil Added (Liters)					
Filters Hours (Kms)					
Contamination					
Varnish and Sludge Potential Index™ (VsPI™)					
VPI (Varnish Potential Index) : Soluble Varnish Type Contamination in Oil					
	VPI View	VPI View	VPI View		The New Oil (TNO) VPI View
VPI™ Varnish Potential Index Soluble Varnish Contaminant					
VPI Rating	37.1	31.0	34.8		
SPI (Sludge Potential Index) : or MPC test (Membrane Patch Colorimetry) ASTM D02.C0.01 WK 13070 : Insoluble Varnish Type Contamination in Oil					
	SPI View	SPI View	SPI View		The New Oil (TNO) SPI View
SPI™ Sludge Potential Index (MPC Membrane Patch Colorimetry) Insoluble Varnish Contaminant					
SPI Rating	60.2	44.3	34.0		
Sludge Weight	X mg/100 ml	100 mg/100 ml	4.2 mg/100 ml		
Alarm Limit Name Hyd Syst General Diana Firgist ES 56					
					TNO Caution Warning
VsPI™ VsPI = (VPI + SPI) / 2	48.6 W	37.7 C	34.4		0 >35 >45



C Code : 25037
 U Name :
 S Address : No.9, I-8 Rd.,
 T Map Ta Phut Industrial Estate,
 O Map Ta Phut, Muang, Rayong 21150
 M Site :
 E Location :
 R Test code : 813

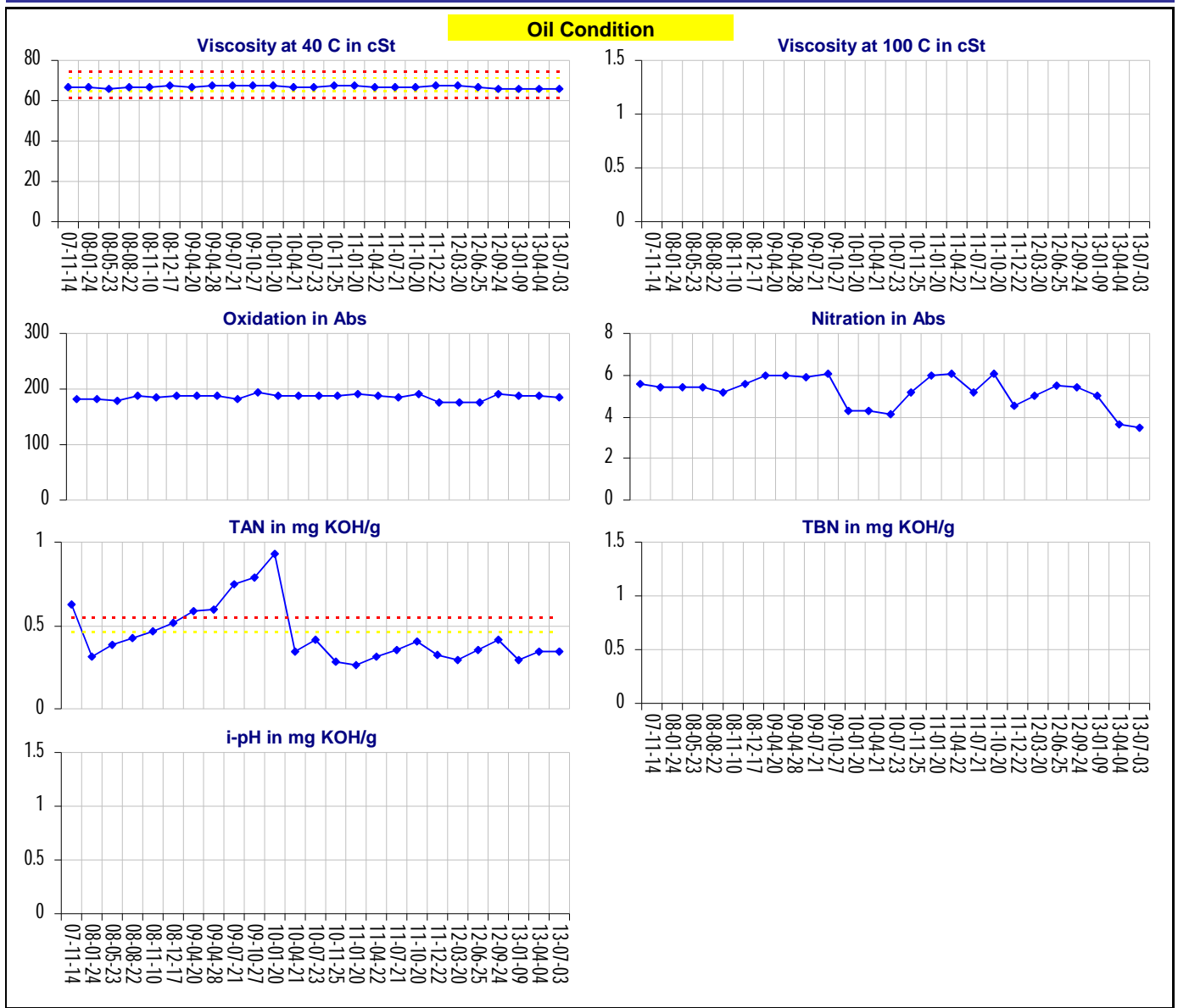
Unit ID : 01HFF01AJ103 Unit 1 PUL Hyd Tank C
 Unit Type : Hyd Syst Industrial
 Unit Make : MHI NAGASAKI
 Unit Model : MVM 25R
 Oil type / Viscosity : DIANA FIRGIST ES ISO 68
 Oil System Capacity : 500 Liters

Wear Condition



C Code : 25037
 U Name : .
 T Address : No.9, I-8 Rd.,
 O Map Ta Phut Industrial Estate,
 M Map Ta Phut, Muang, Rayong 21150
 E Site :
 R Location :
 Test code : 813

E Unit ID : 01HFF01AJ103 Unit 1 PUL Hyd Tank C
 O Unit Type : Hyd Syst Industrial
 U Unit Make : MHI NAGASAKI
 I Unit Model : MVM 25R
 P Oil type / Viscosity : DIANA FIRGIST ES ISO 68
 L Oil System Capacity : 500 Liters



C Code : 25037
 U Name :
 S Address : No.9, I-8 Rd.,
 T Map Ta Phut Industrial Estate,
 O Map Ta Phut, Muang, Rayong 21150
 M Site :
 E Location :
 R Test code : 813

Unit ID : 01HFF01AJ103 Unit 1 PUL Hyd Tank C
 Unit Type : Hyd Syst Industrial
 Unit Make : MHI NAGASAKI
 Unit Model : MVM 25R
 Oil type / Viscosity : DIANA FIRGIST ES ISO 68
 Oil System Capacity : 500 Liters

