

Site
 Attention To:
 Machine:
 Sample Location:
 Oil Type:

SV Beatrix
 JEFF STANDER
 8371 Marine Diesel Engine
 Perkins 4.154 old base- mid 300hr 400hr
 SAE 40 oil line sample chg



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WARNING

Sample Date	29-May-10	30-May-10	26-Aug-10	1-Dec-10	28-May-11
Analysis Report No.	-	557,397	557,398	575,935	603,524
Service Meter Reading	-	1241hrs	1250hrs	1345hrs	0hrs
Top Up	-	-	-	1595	2000
Oil Hrs	-	150	9	150	300
Oil Changed?	-	No	Yes	No	No

Wear Metals	Limit	ppm	ppm	ppm	ppm	ppm
lead	10	1	0	7	4	3
iron	80	47	5	33	62	49
aluminium	30	6	1	4	6	8
copper	35	6	1	5	8	7
chromium	10	2	0	2	2	2
tin	10	0	0	0	0	1
nickel	10	0	0	0	0	0
silver		0	0	0	0	0
titanium		0	0	0	0	0

Contaminants	Limit	ppm	ppm	ppm	ppm	ppm
silicon	15	5	7	8	9	5
sodium	25	5	1	5	14	77
vanadium		1	1	1	0	1

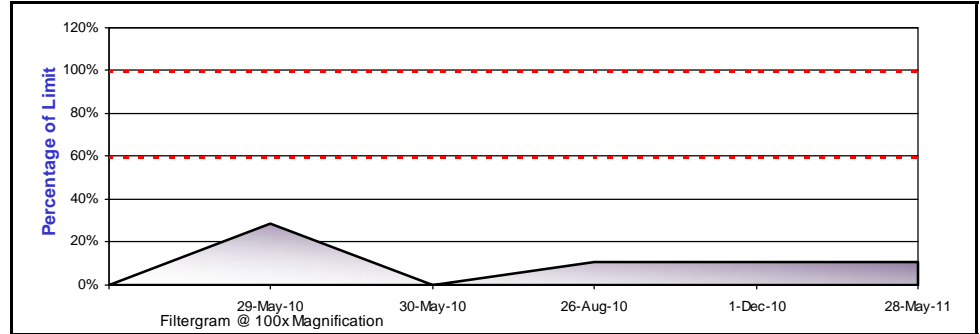
Oil Additives	Limit	ppm	ppm	ppm	ppm	ppm
magnesium		1038	1029	817	859	220
zinc		1207	1320	1123	1337	1107
molybdenum		30	25	21	0	29
calcium		437	337	502	917	1983
phosphorous		1563	1550	1467	1045	862
boron		68	78	54	44	14
barium		0	0	0	0	0

Physical Tests	Limit					
TBN		8.50	9.00	7.80	7.80	8.74
TAN	6.67	3.81	2.27	3.92	4.70	5.06
fuel dilution %	2	0	0	0	0	0
water %	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
viscosity index		104	105	93	100	108
visc @ 100oC - Cst	15	16.17	15.70	15.97	16.00	16.10
visc @ 40oC - Cst	150	162	153	175	165	155

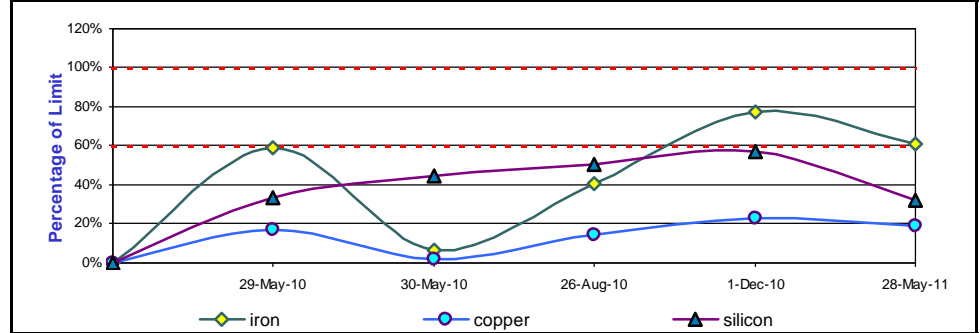
FTIR Analysis	Limit					
soot - abs	70	34	2	34	51	63
glycol%		0	0	0	0.52	0
water ppm		0	0	0	0	0
oxidation - abs	30	5.00	4.00	11.00	8.00	9.00
nitration - abs	30	3.00	0	3.00	5.00	10.00
sulphation - abs	30	7.00	3.00	0	7.00	6.00

Particle Analysis	Limit					
particle count in 1ml		0	0	0	0	0
ISO-4406 6um \ 14um	-/-	-/-	-/-	-/-	-/-	-/-
PQ90 Fe - mg \ ltr	38	11	0	4	4	4

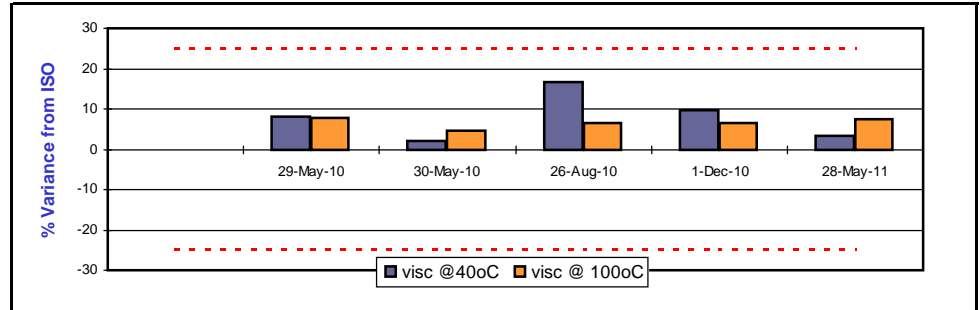
PQ - Ferrous Wear Debris (Fe mg \ ltr)



Major Small Particle Element Trends



Viscosity Condition From New Oil Specification



Comments & Recommendation

Sodium elevated, sodium can result from coolant leakage, check cooling system. Soot elevated - Soot may be caused by restricted air intake, ring wear, incorrect fuel mix, excess lugging or extended oil hours. Check air filter condition.

NOTE: This machine \ oil condition report should be used in conjunction with normal maintenance practises. All care will be taken in processing and analysing samples but no express or implied guarantee is offered in regard to the continuing operation or condit