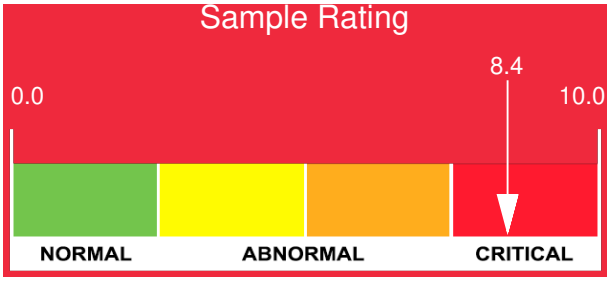
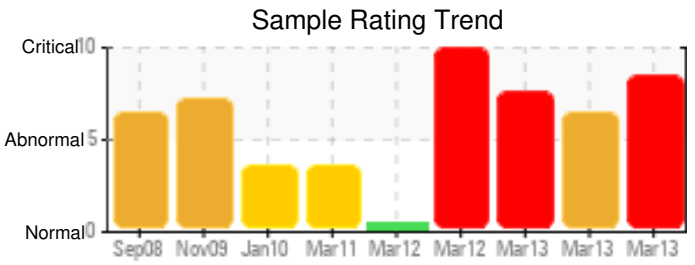




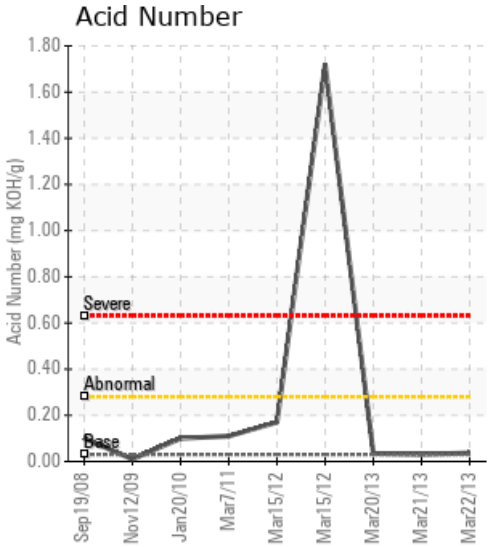
MAIN HEAT TRANSFER SYSTEM

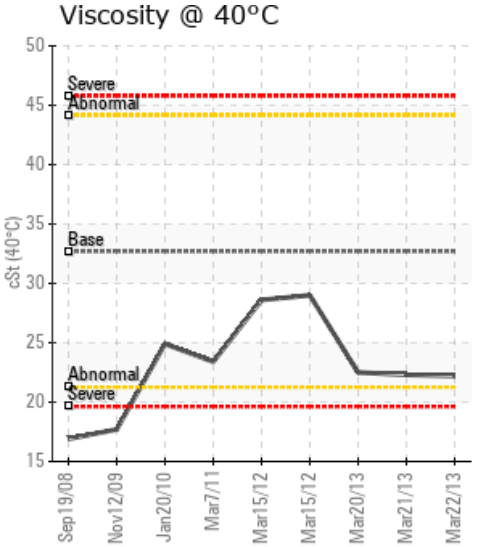
Customer: PTRHTF30004	System Information	Sample Information
AUTOLIV CANADA 20 AUTOLIV DRIVE P.O. BOX 1090 TILBURY, ON N0P 2L0 Canada Attn: TODD MARYSCHAK Tel: (519)380-6564 E-Mail: todd.maryschak@autoliv.com	System Volume: 4100 ltr Bulk Operating Temp: 271F / 133C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make:	Lab No: 01845481 Analyst: Michael Kaufman Sample Date: 03/22/13 Received Date: 06/20/13 Completed: 06/24/13 Michael Kaufman mkaufman@suncor.com

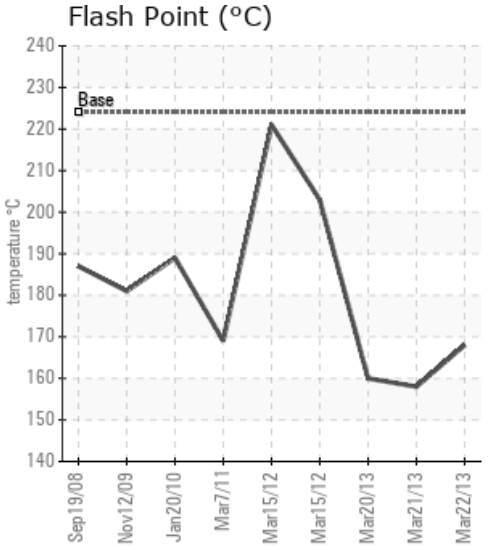
Recommendation: Similar to Boiler #1+2, the oil has been severely degraded. The flash point has dropped significantly and the GCD<335 has also risen. We recommend venting the system as soon as safely possible to remove the low boilers. Please contact your local Petro-Canada technical advisor for general guidelines on venting and removal of light hydrocarbons from your system.

Comments: (GCD) % < 335°C is severely high. (GCD) 10% Distillation Point is severely low. COC Flash Point is abnormally low. (GCD) 50% Distillation Point is marginally low. (GCD) 90% Distillation Point is marginally low.

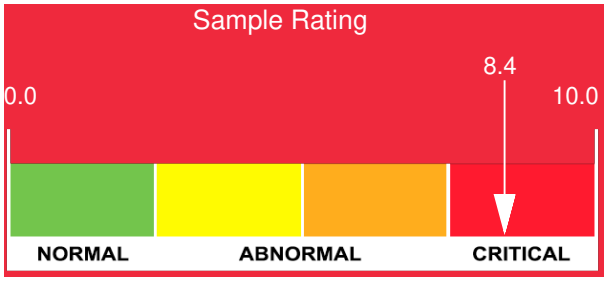
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/22/13	06/20/13	0.0y	BOILER #3	334 / 168	16.2	22.2	0.037	0.142	595 / 313	719 / 382	867 / 464	26.57
03/21/13	06/20/13	0.0y	BOILER #2	316 / 158	11.5	22.3	0.031	0.168	604 / 318	740 / 393	877 / 469	22.03
03/20/13	06/20/13	0.0y	BOILER #1	320 / 160	18.0	22.5	0.035	0.260	601 / 316	738 / 392	873 / 467	23.03
03/15/12	04/16/12	2.0y	BOILER #3	397 / 203	223	29	1.72	0.512	641 / 339	774 / 412	891 / 477	9.291
03/15/12	04/16/12		BOILER #1	430 / 221	10	28.6	0.17	0.017	663 / 350	783 / 417	894 / 479	6.562
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5

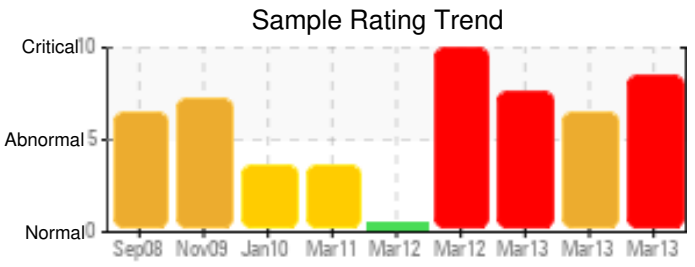






PETRO-CANADA LUBRICANTS

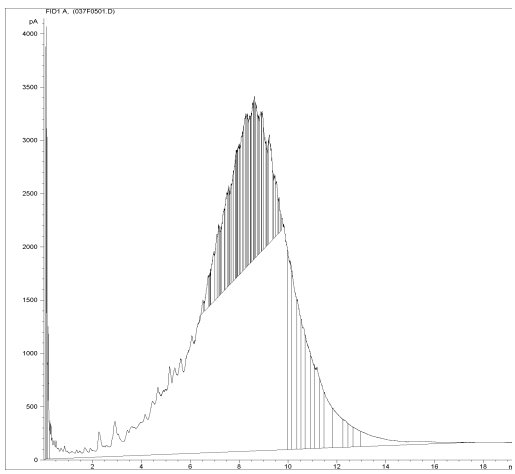


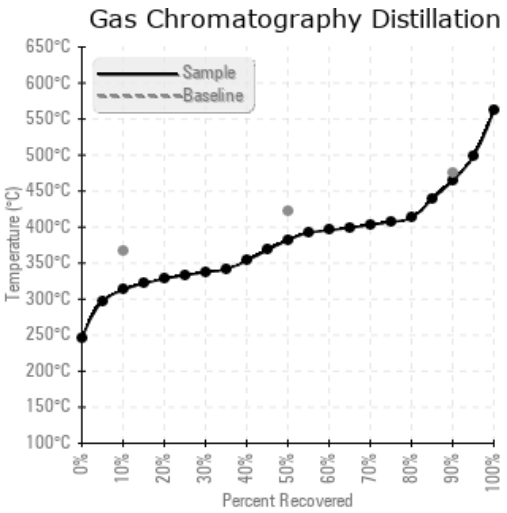


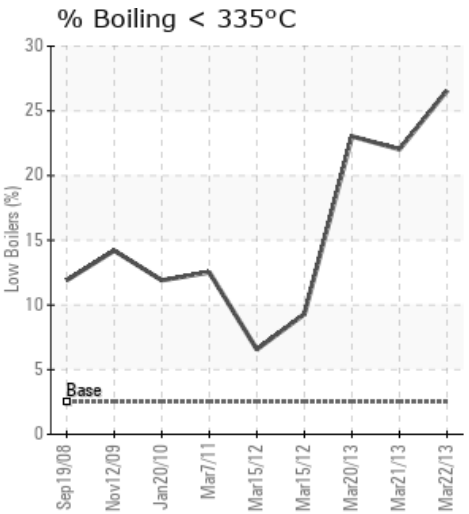
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
03/22/13	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	63	0
03/21/13	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	63	0
03/20/13	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	4	0	64	2
03/15/12	15	0	0	0	0	80	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	65	623
03/15/12	0	0	0	0	0	0	0	0	0	0	10	1	0	0	0	0	0	0	0	0	0	2	121	2
Baseline Data			0	0						0			0	0					0				270	

Elemental anaysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]

GCD Spectrum







Historical Comments

03/21/13	Similar to Boiler #1, the oils has been severely degraded. The flash point has dropped significantly and the GCD<335 has also risen. We recommend venting the system as soon as safely possible to remove the low boilers. Please contact your local Petro-Canada technical advisor for general guidelines on venting and removal of light hydrocarbons from your system. (GCD) % < 335°C is severely high. COC Flash Point is severely low. (GCD) 10% Distillation Point is abnormally low.
03/20/13	The sample appears to have thermally degraded since the last sample. The flash point has dropped significantly and the GCD<335 has also risen. This is an indication that the system is cracking the oil and forming low boiling hydrcarbons. Zinc and Iron levels have returned to normal indicating they were carryover from the sample valve. We recommend venting the system as soon as safely possible to remove the low boilers. Please contact your local Petro-Canada technical advisor for general guidelines on venting and removal of light hydrocarbons from your system. (GCD) % < 335°C is severely high. (GCD) 10% Distillation Point is severely low. COC Flash Point is severely low.
03/15/12	This sample looks very different than previous ones. This sample shows a lot of lead particles (?), a high moisture content, a very high TAN (as if it's highly oxidized), yet the viscosity is normal. We suspect the sampling valve piping was not flush thoroughly and therefore the contained left over and oxidized residues from the last sample trapped in the piping. Rule of thumb is the sampling device/piping must be flushed with 4 to 5x the amount of oil that it can hold. Please re-sample in about 6 months following this procedure to monitor oil condition.
03/15/12	The results from Boiler #1 look good, the oil properties look closer to Calflo AF than the previous results from Boiler #3. No concerns at all, just pointing out the difference. Please re-sample in 6 months to monitor oil condition.