

OIL ANALYSIS REPORT



ENCORE V (S/N 3940023261) - STARBOARD MAIN ENGINE

Sample No: VPA042623

Oil Type: SHELL ROTELLA T 15W40

SAMPLE INFORMATION

Sample Number	VPA042623	VPA042627	VPA039827	VPA035190
Sample Date	01 Nov 2023	20 Feb 2023	20 Jul 2022	16 Feb 2022
Machine Hours	5712	0	3916	3466
Oil Hours	200	200	200	200
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

BAY STATE CRUISE COMPANY
 200 SEAPORT BLVD, SUITE 50 LOWER LEVEL
 BOSTON, MA
 US 02210
 Contact: CHRISTINE HOOLEY
 christine@baystatecruisecompany.com
 T: (617)775-8418
 F:

OIL CONDITION

Visc @ 100°C	cSt	14.5	13.5	14.8	14.1
Base Number (BN)	mg KOH/g	9.3	9.2	10.4	9.1
Oxidation (PA)	%	55	49	58	65

CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.2	0.1	0.1	0.1
Nitration (PA)	%	45	43	49	48
Sulfation (PA)	%	50	47	52	57
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	4	4	3	3
Sodium	ppm	0	3	2	<1
Potassium	ppm	2	<1	2	8

WEAR METALS

Iron	ppm	2	4	4	2
Copper	ppm	2	2	2	<1
Lead	ppm	<1	<1	<1	0
Tin	ppm	<1	<1	<1	0
Aluminum	ppm	1	<1	2	<1
Chromium	ppm	1	<1	<1	0
Molybdenum	ppm	58	59	54	2
Nickel	ppm	2	2	2	0
Titanium	ppm	<1	0	0	0
Silver	ppm	<1	3	0	0
Manganese	ppm	<1	<1	<1	0
Vanadium	ppm	<1	<1	<1	0

ADDITIVES

Calcium	ppm	1058	1051	1016	2256
Magnesium	ppm	963	862	847	22
Zinc	ppm	1197	1137	1146	1261
Phosphorus	ppm	987	944	925	1022
Barium	ppm	0	0	0	0
Boron	ppm	<1	40	9	203

Diagnosis

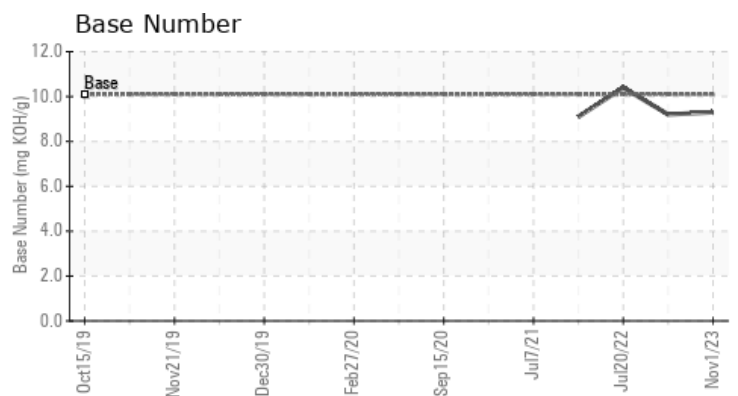
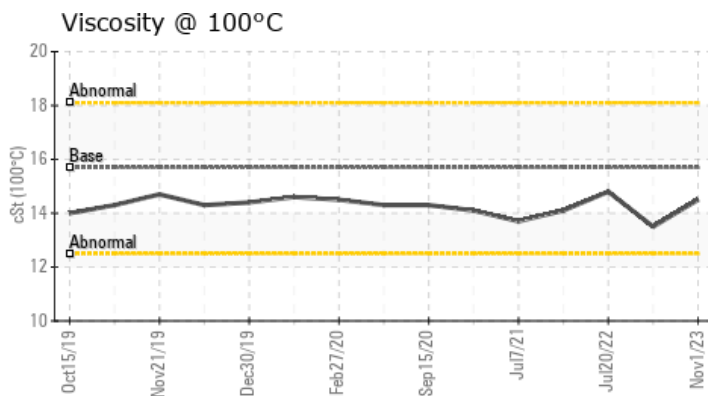
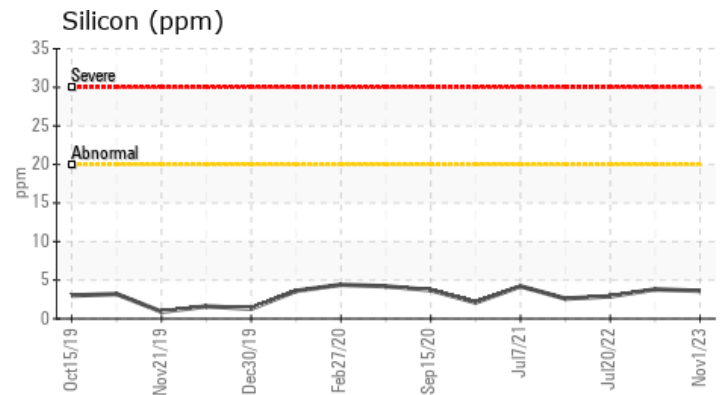
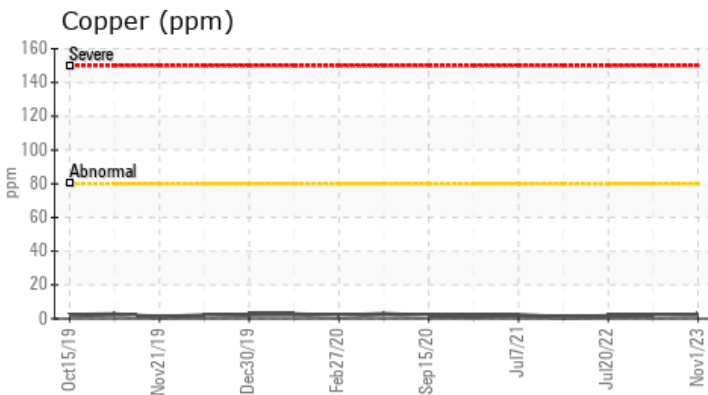
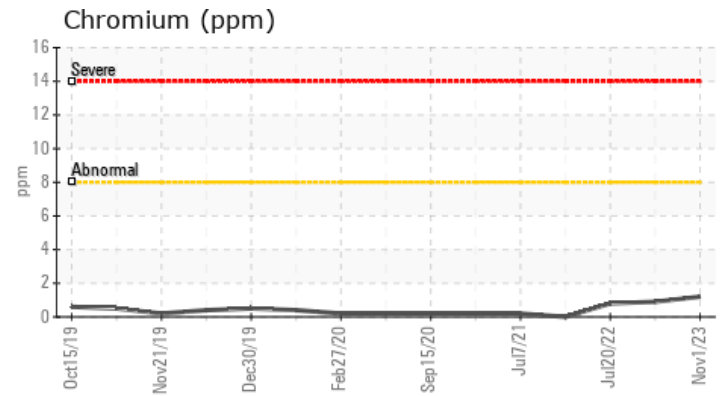
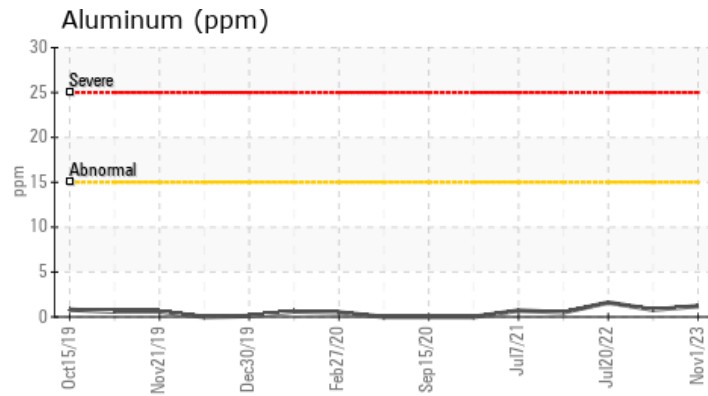
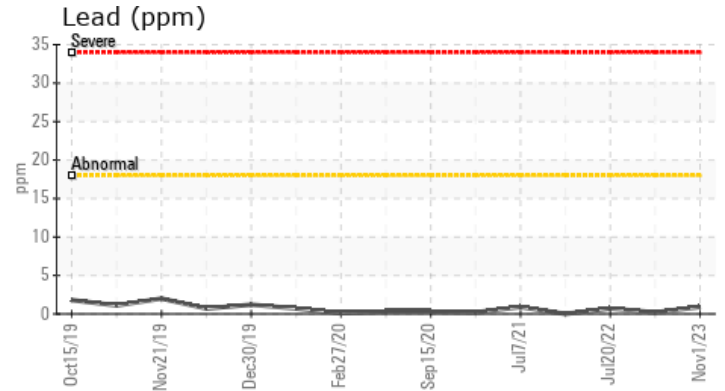
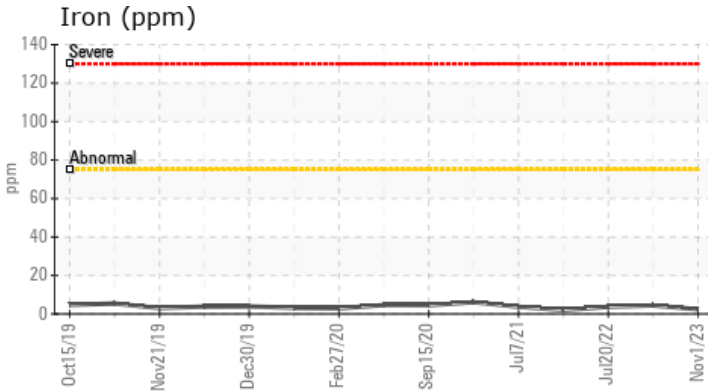
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: VPBAYBOS
Unique No: 10885081
Signed: Jonathan Hester
Report Date: 20 Feb 2024

OIL ANALYSIS REPORT

VOLVO PENTA

GRAPHS



OIL ANALYSIS REPORT



ENCORE V (S/N 3940023261) - PORT MAIN ENGINE

Sample No: VPA042622

Oil Type: SHELL ROTELLA T 15W40

SAMPLE INFORMATION

Sample Number	VPA042622	VPA039849	VPA035191	VPA035197
Sample Date	01 Nov 2023	20 Feb 2023	20 Jul 2022	16 Feb 2022
Machine Hours	5712	0	3916	3466
Oil Hours	200	200	200	200
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

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OIL CONDITION

Visc @ 100°C	cSt	14.4	14.6	15.1	14.4
Base Number (BN)	mg KOH/g	9.4	9.6	10.7	9.5
Oxidation (PA)	%	54	53	59	68

CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.1	0.1	0.1
Nitration (PA)	%	43	46	43	60
Sulfation (PA)	%	48	49	52	58
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	4	3	3	13
Sodium	ppm	0	3	2	<1
Potassium	ppm	2	<1	3	9

WEAR METALS

Iron	ppm	2	4	<1	3
Copper	ppm	3	2	1	2
Lead	ppm	1	<1	1	<1
Tin	ppm	<1	<1	<1	0
Aluminum	ppm	1	1	2	2
Chromium	ppm	1	<1	<1	<1
Molybdenum	ppm	58	58	52	2
Nickel	ppm	2	1	0	0
Titanium	ppm	<1	0	0	0
Silver	ppm	<1	0	0	0
Manganese	ppm	<1	<1	0	0
Vanadium	ppm	<1	<1	<1	0

ADDITIVES

Calcium	ppm	1060	1044	963	2426
Magnesium	ppm	944	929	859	22
Zinc	ppm	1205	1202	1094	1346
Phosphorus	ppm	970	1008	871	1114
Barium	ppm	0	0	0	0
Boron	ppm	<1	2	5	215

Diagnosis

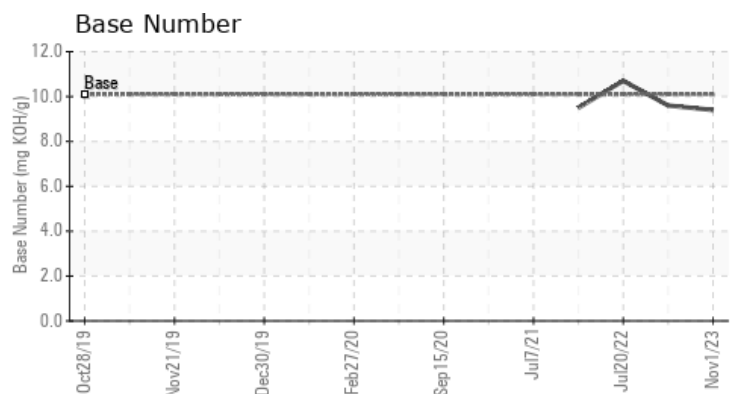
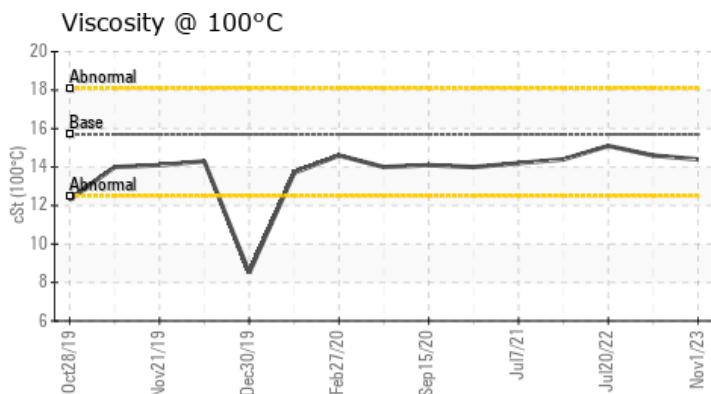
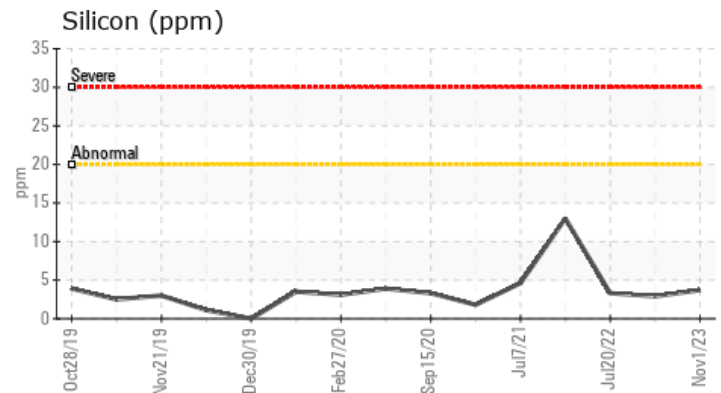
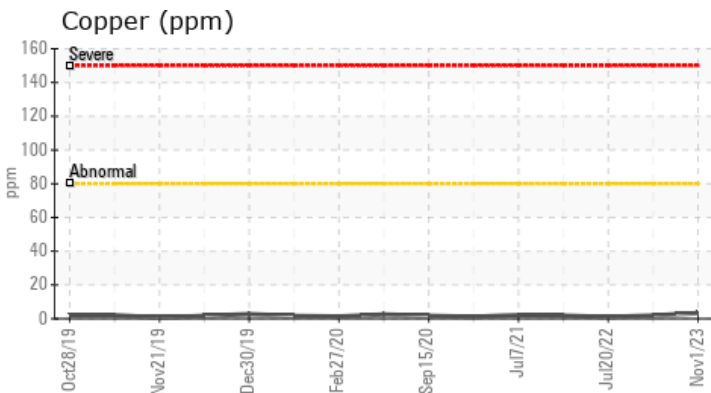
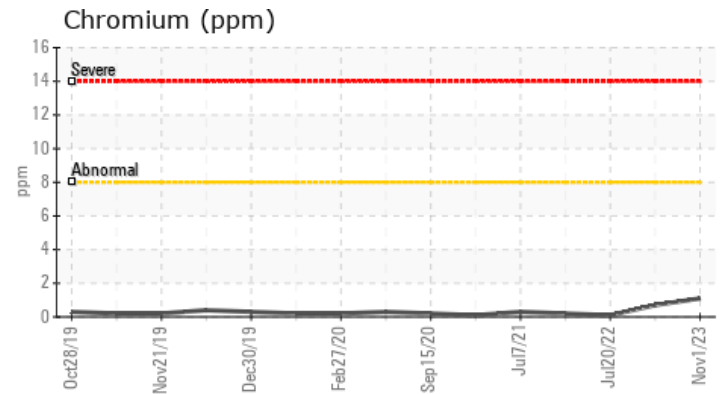
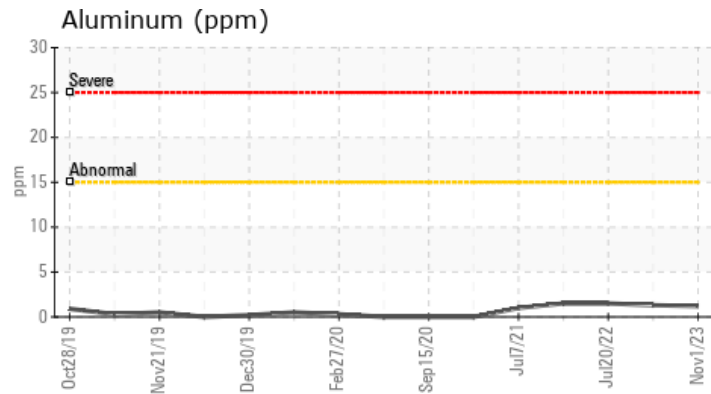
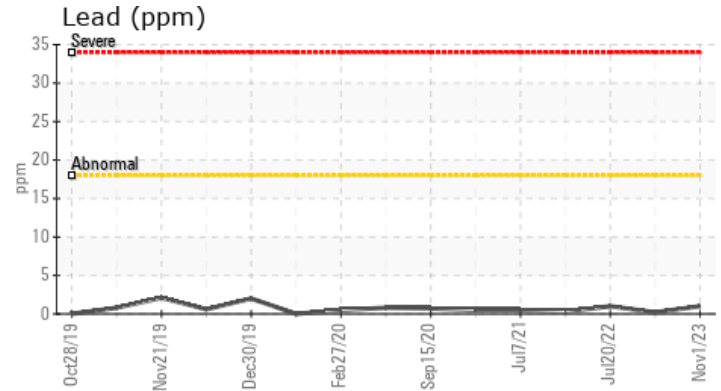
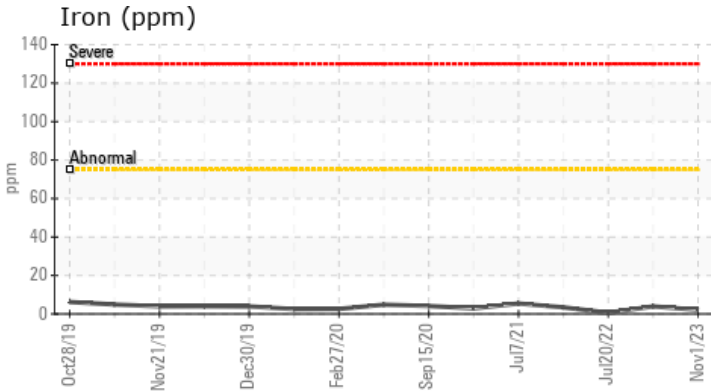
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: VPBAYBOS
Unique No: 10885082
Signed: Jonathan Hester
Report Date: 20 Feb 2024

OIL ANALYSIS REPORT

VOLVO PENTA

GRAPHS



OIL ANALYSIS REPORT

VOLVO PENTA

ENCORE V - STARBOARD IPS

Sample No: VPA048642

Oil Type: VOLVO API GL-5 SAE 75W90

SAMPLE INFORMATION

Sample Number	VPA048642	VPA048639	VPA042024	VPA040156
Sample Date	06 Feb 2024	05 Sep 2023	27 Mar 2023	24 Jun 2022
Machine Hours	5963	5516	1200	3827
Oil Hours	400	400	350	400
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

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Contact: CHRISTINE HOOLEY
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F:

OIL CONDITION

Visc @ 40°C	cSt	█ 105	█ 105	█ 104	103
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CONTAMINATION

Water	%	NEG	NEG	█ 0.158	NEG
Silicon	ppm	█ 14	19	11	17
Sodium	ppm	█ 13	█ 8	█ 9	█ 11
Potassium	ppm	█ 1	█ 2	█ <1	█ 2

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

WEAR METALS

PQ		█ 19	█ 16	█ 12	█ 18
Iron	ppm	█ 85	█ 115	█ 128	█ 186
Copper	ppm	█ 8	10	7	█ 11
Lead	ppm	█ 0	<1	0	<1
Tin	ppm	█ 0	<1	0	0
Aluminum	ppm	█ 4	2	2	4
Chromium	ppm	█ <1	█ 2	█ <1	█ 2
Molybdenum	ppm	█ 0	█ <1	█ 0	█ <1
Nickel	ppm	█ 1	█ 2	█ 1	█ 0
Titanium	ppm	█ <1	<1	0	<1
Silver	ppm	0	<1	0	0
Manganese	ppm	█ <1	█ 2	█ <1	█ 4
Vanadium	ppm	<1	<1	0	0

ADDITIVES

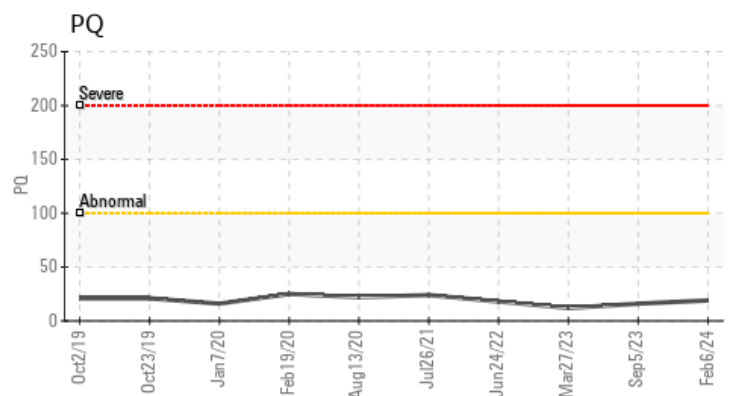
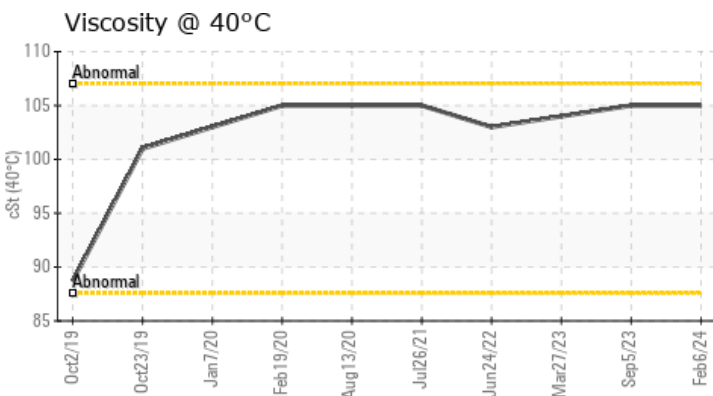
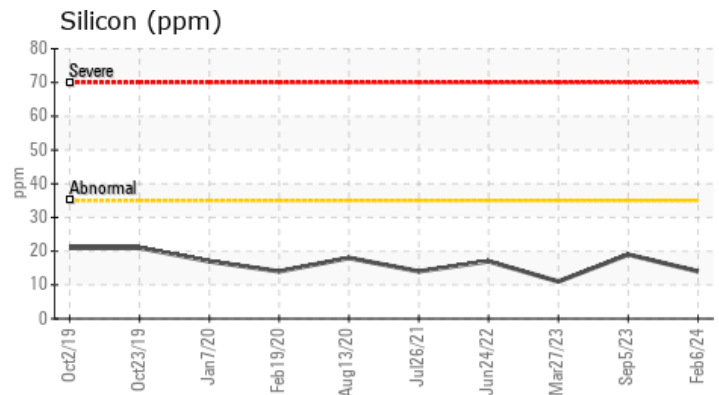
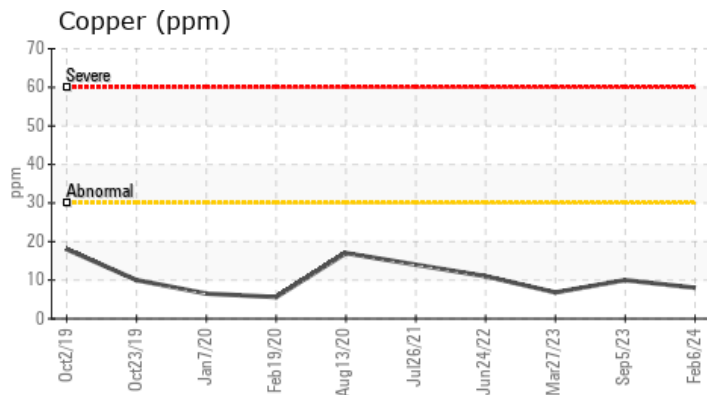
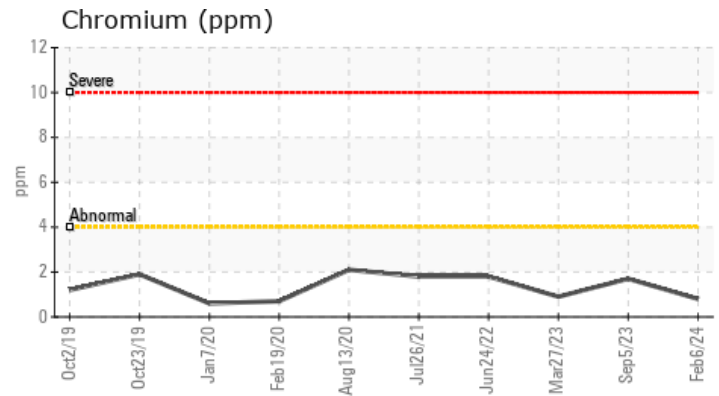
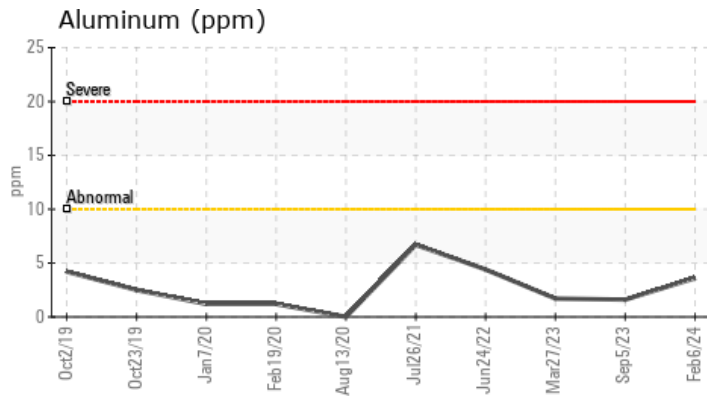
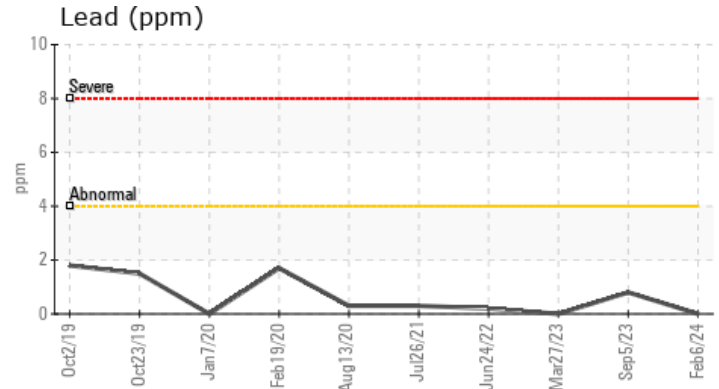
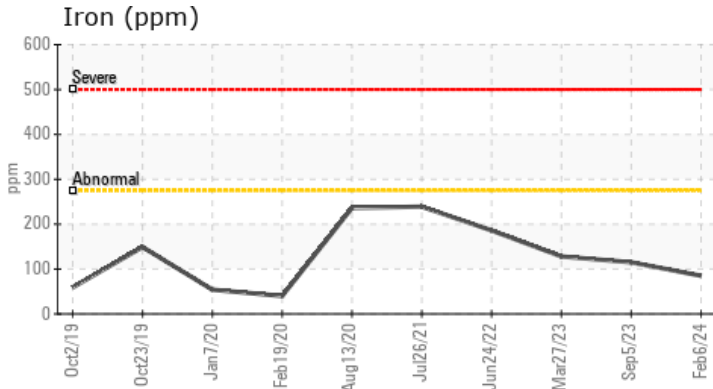
Calcium	ppm	█ 0	█ <1	█ 2	█ 8
Magnesium	ppm	█ 3	█ 2	█ 3	█ 4
Zinc	ppm	█ 53	█ 32	█ 23	█ 54
Phosphorus	ppm	█ 1344	█ 1202	█ 1403	█ 1360
Barium	ppm	█ 0	█ 0	█ 0	█ 2
Boron	ppm	█ 352	█ 295	█ 306	█ 349

Depot: VPBAYBOS
Unique No: 11073213
Signed: Doug Bogart
Report Date: 12 Jun 2024

OIL ANALYSIS REPORT

VOLVO PENTA

GRAPHS



OIL ANALYSIS REPORT



ENCORE V - PORT IPS

Sample No: VPA042624

Oil Type: VOLVO API GL-5 SAE 75W90

SAMPLE INFORMATION

Sample Number	VPA042624	VPA048641	VPA045983	VPA042039
Sample Date	05 Feb 2024	05 Sep 2023	30 Jun 2023	27 Mar 2023
Machine Hours	5963	5516	0	1200
Oil Hours	400	400	420	350
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	ABNORMAL	NORMAL	NORMAL

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 F:

OIL CONDITION

Visc @ 40°C	cSt	105	105	103	104
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CONTAMINATION

Water	%	NEG	NEG	0.169	NEG
Silicon	ppm	13	21	10	16
Sodium	ppm	14	16	4	29
Potassium	ppm	1	2	<1	2

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

WEAR METALS

PQ		22	15	18	17
Iron	ppm	121	238	42	99
Copper	ppm	9	12	7	8
Lead	ppm	0	<1	0	<1
Tin	ppm	0	<1	0	<1
Aluminum	ppm	5	6	2	6
Chromium	ppm	<1	2	<1	2
Molybdenum	ppm	<1	1	0	1
Nickel	ppm	2	4	<1	3
Titanium	ppm	<1	<1	0	<1
Silver	ppm	0	<1	0	<1
Manganese	ppm	1	3	0	3
Vanadium	ppm	<1	<1	0	<1

ADDITIVES

Calcium	ppm	0	1	1	2
Magnesium	ppm	2	3	1	5
Zinc	ppm	56	31	8	63
Phosphorus	ppm	1406	1161	1402	1244
Barium	ppm	0	0	0	0
Boron	ppm	358	284	307	309

Depot: VPBAYBOS
Unique No: 11073214
Signed: Doug Bogart
Report Date: 12 Jun 2024

OIL ANALYSIS REPORT

VOLVO PENTA

GRAPHS

