



CONSTRUCTION EQUIPMENT

VOLVO A45G 352787 - DIESEL ENGINE



Sample No: VCP450997
Oil Type: VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3
Job No:



SAMPLE INFORMATION

Sample Number	VCP450997	VCP412294	VCP374377	VCP344117
Sample Date	30 May 2024	21 Aug 2023	05 Jun 2022	28 Jan 2022
Machine Hours	5058	3708	0	0
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	ATTENTION	ATTENTION

ALTA EQUIPMENT COMPANY
 5151 DR MARTIN LUTHER KING BLVD
 FORT MYERS, FL
 US 33905
 Contact: TODD LARK
 tlark@altaequipfl.com
 T:
 F: (239)481-3302



OIL CONDITION

Visc @ 100°C	cSt	12.5	12.5	12.4	11.5
Base Number (BN)	mg KOH/g	8.7	8.6	11.1	10.8
Oxidation (PA)	%	77	76	85	88

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.



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.7	0.6	0.3	0.3
Nitration (PA)	%	68	68	65	69
Sulfation (PA)	%	60	61	64	68
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	5	6	6	5
Sodium	ppm	2	4	3	2
Potassium	ppm	1	0	0	0



WEAR METALS

Iron	ppm	14	14	11	8
Copper	ppm	7	60	9	19
Lead	ppm	1	1	1	0
Tin	ppm	1	1	<1	<1
Aluminum	ppm	3	3	4	1
Chromium	ppm	<1	0	<1	<1
Molybdenum	ppm	49	47	41	42
Nickel	ppm	2	2	1	<1
Titanium	ppm	<1	0	0	<1
Silver	ppm	0	0	<1	<1
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	<1	<1	0	0



ADDITIVES

Calcium	ppm	1645	1816	1660	1633
Magnesium	ppm	511	547	497	463
Zinc	ppm	1124	1121	1089	1021
Phosphorus	ppm	957	924	947	837
Barium	ppm	0	0	0	0
Boron	ppm	30	27	72	25

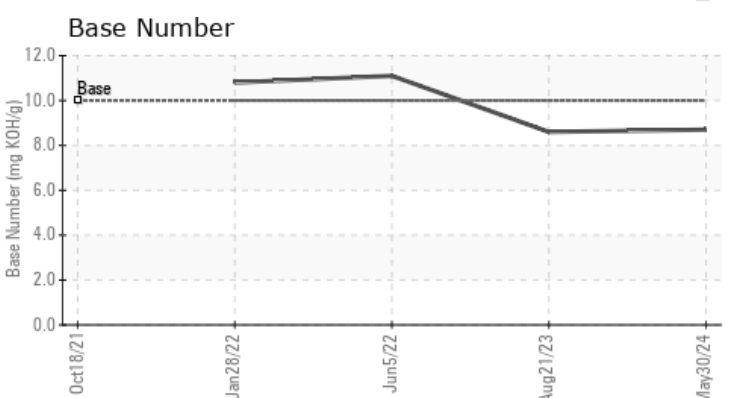
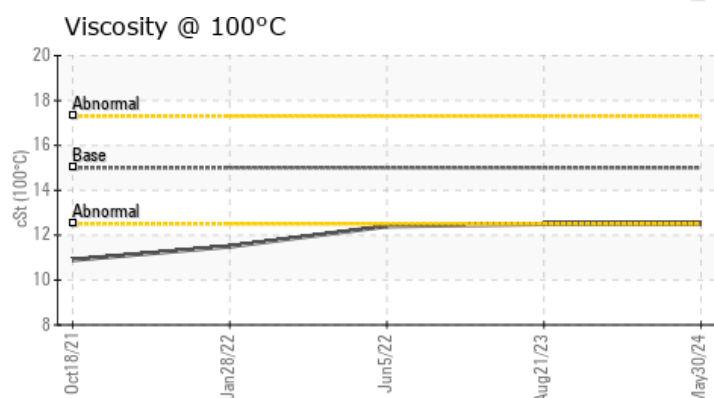
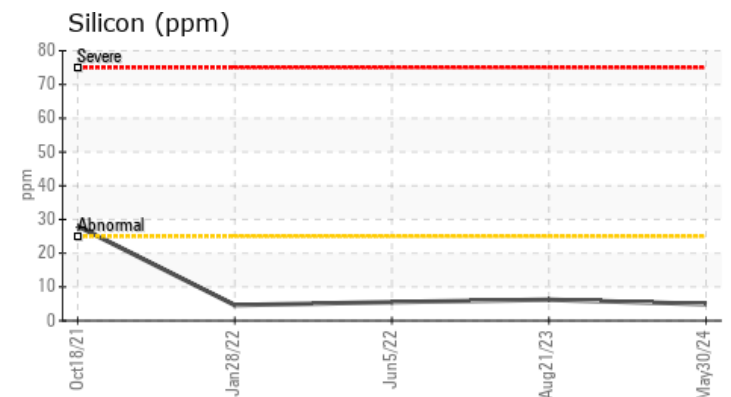
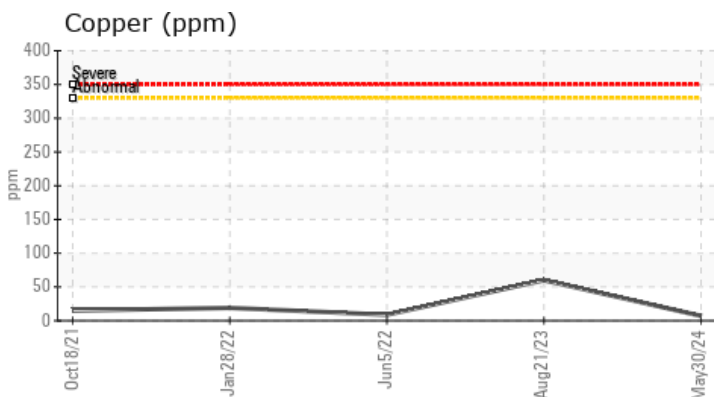
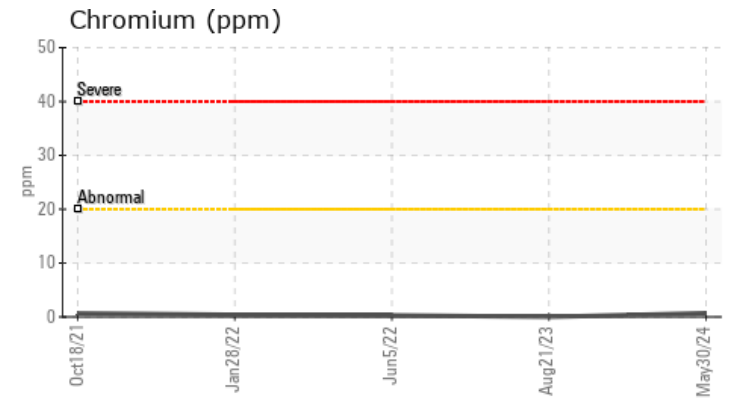
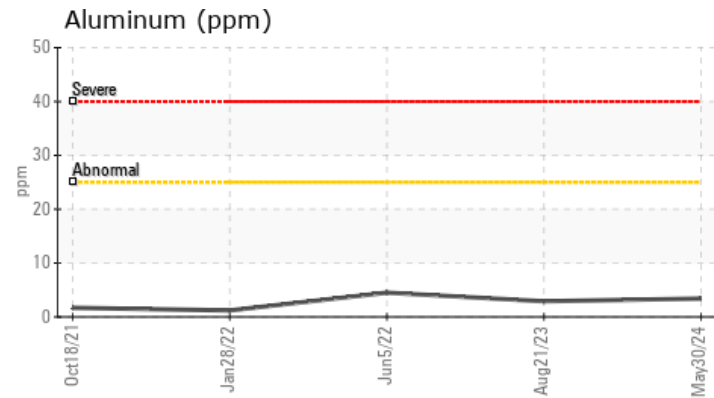
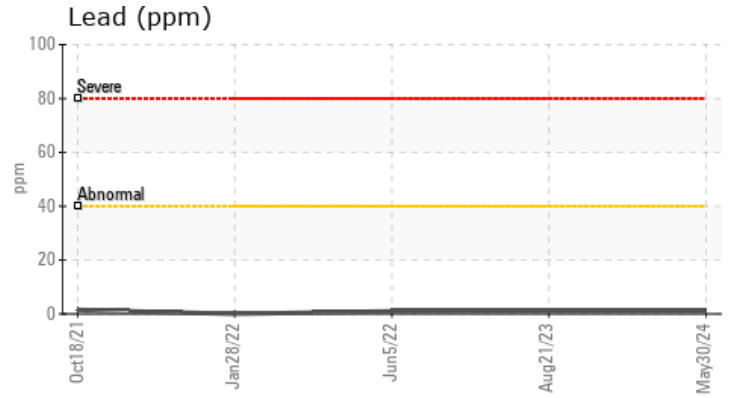
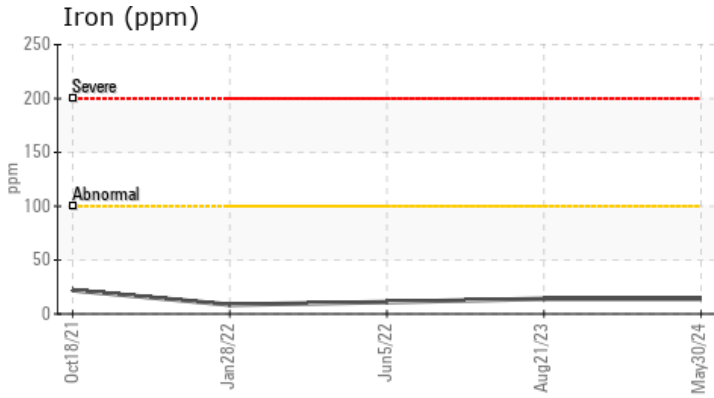
Depot: VOLVO0090
Unique No: 11059528
Signed: Wes Davis
Report Date: 04 Jun 2024



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

VOLVO A45G 352787 - TRANSMISSION (AUTO)



Sample No: VCP451414
Oil Type: VOLVO AUTOMATIC TRANSMISSION FLUID AT102
Job No:



SAMPLE INFORMATION

Sample Number	VCP451414	VCP412290	VCP344122	---
Sample Date	30 May 2024	21 Aug 2023	28 Jan 2022	---
Machine Hours	5058	3708	0	---
Oil Hours	0	0	0	---
Oil Changed	Changed	Not Chngd	Changed	---
Sample Status	NORMAL	ABNORMAL	ABNORMAL	---

ALTA EQUIPMENT COMPANY
 5151 DR MARTIN LUTHER KING BLVD
 FORT MYERS, FL
 US 33905
 Contact: TODD LARK
 tlark@altaequipfl.com
 T:
 F: (239)481-3302



OIL CONDITION

Visc @ 40°C	cSt	28.5	29.0	33.8	---
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CONTAMINATION

Water	%	NEG	NEG	NEG	---
Silicon	ppm	6	5	6	---
Sodium	ppm	3	3	0	---
Potassium	ppm	2	0	<1	---

Diagnosis

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



WEAR METALS

Iron	ppm	34	27	20	---
Copper	ppm	12	12	17	---
Lead	ppm	<1	0	<1	---
Tin	ppm	2	2	3	---
Aluminum	ppm	13	12	▲ 99	---
Chromium	ppm	0	0	<1	---
Molybdenum	ppm	0	<1	7	---
Nickel	ppm	<1	1	2	---
Titanium	ppm	0	0	0	---
Silver	ppm	0	0	<1	---
Manganese	ppm	1	<1	1	---
Vanadium	ppm	<1	<1	0	---



ADDITIVES

Calcium	ppm	85	86	221	---
Magnesium	ppm	3	2	108	---
Zinc	ppm	19	11	141	---
Phosphorus	ppm	213	209	327	---
Barium	ppm	0	0	<1	---
Boron	ppm	89	86	83	---

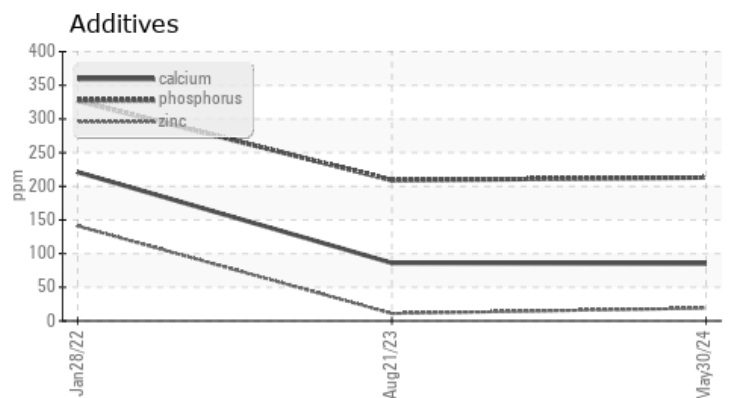
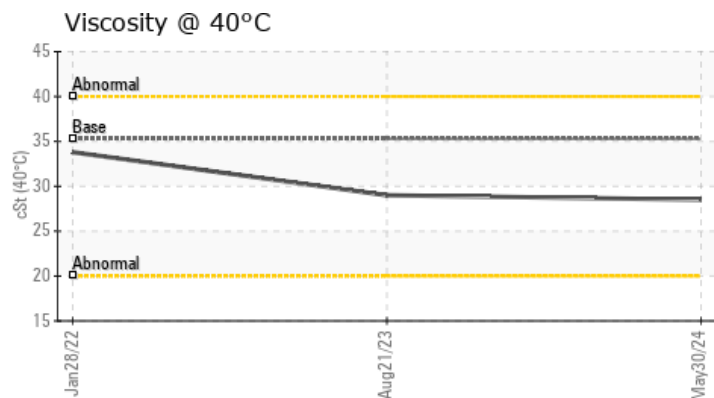
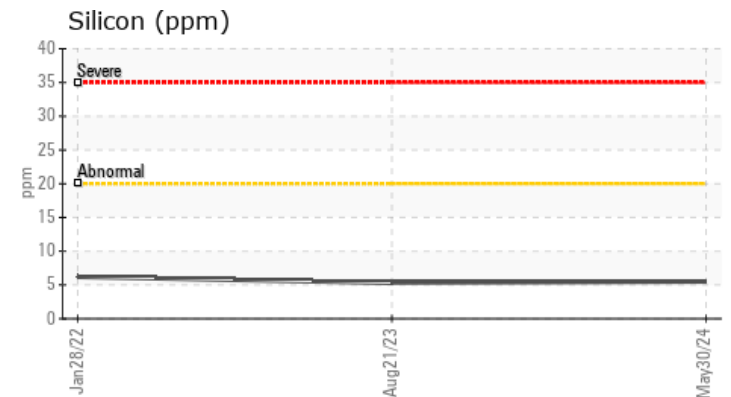
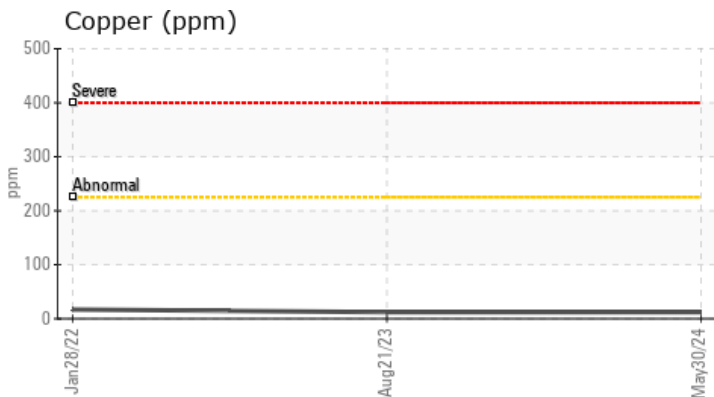
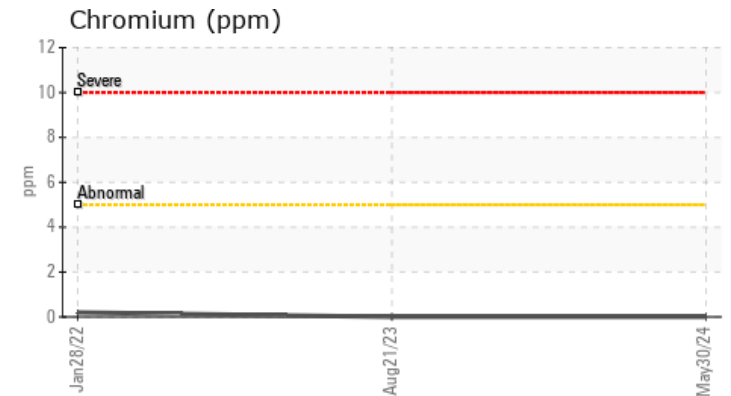
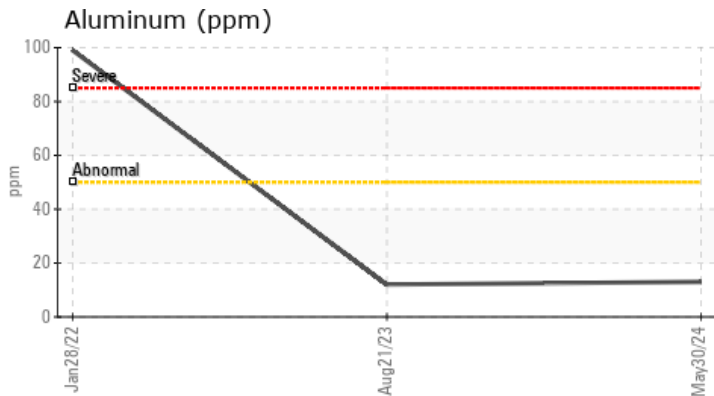
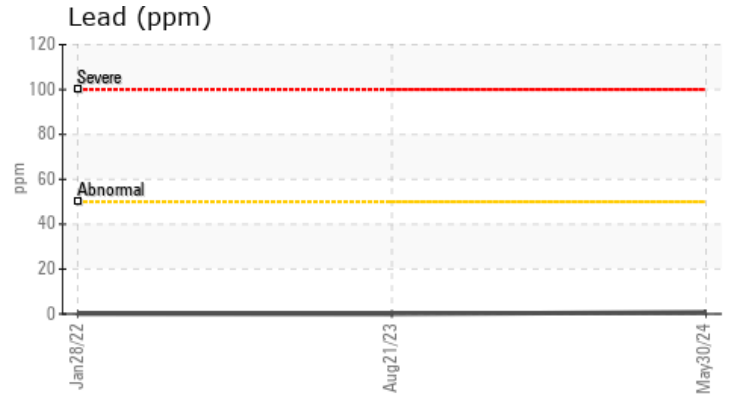
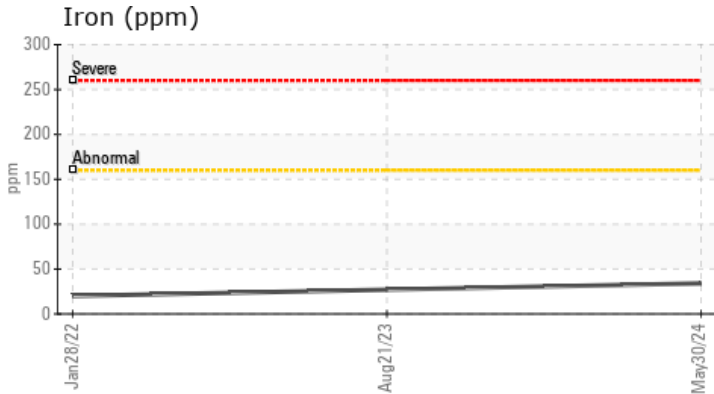
Depot: VOLVO0090
Unique No: 11060215
Signed: Wes Davis
Report Date: 04 Jun 2024



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

VOLVO A45G 352787 - WET DISC BRAKE



Sample No: VCP451416
Oil Type: VOLVO WET BRAKE TRANSAXLE OIL
Job No:



SAMPLE INFORMATION

Sample Number	VCP451416	---	---	---
Sample Date	30 May 2024	---	---	---
Machine Hours	5058	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Changed	---	---	---
Sample Status	ABNORMAL	---	---	---

ALTA EQUIPMENT COMPANY
 5151 DR MARTIN LUTHER KING BLVD
 FORT MYERS, FL
 US 33905
 Contact: TODD LARK
 tlark@altaequipfl.com
 T:
 F: (239)481-3302



OIL CONDITION

Visc @ 40°C	cSt	█ 40.6	---	---	---
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CONTAMINATION

Water	%	NEG	---	---	---
Silicon	ppm	█ 16	---	---	---
Sodium	ppm	█ 9	---	---	---
Potassium	ppm	█ 0	---	---	---



WEAR METALS

Iron	ppm	█ 32	---	---	---
Copper	ppm	▲ 211	---	---	---
Lead	ppm	█ <1	---	---	---
Tin	ppm	█ 0	---	---	---
Aluminum	ppm	█ <1	---	---	---
Chromium	ppm	█ <1	---	---	---
Molybdenum	ppm	█ 0	---	---	---
Nickel	ppm	█ 5	---	---	---
Titanium	ppm	0	---	---	---
Silver	ppm	0	---	---	---
Manganese	ppm	█ 2	---	---	---
Vanadium	ppm	0	---	---	---



ADDITIVES

Calcium	ppm	2755	---	---	---
Magnesium	ppm	█ 11	---	---	---
Zinc	ppm	█ 1250	---	---	---
Phosphorus	ppm	█ 1094	---	---	---
Barium	ppm	█ 0	---	---	---
Boron	ppm	█ 81	---	---	---

Diagnosis

The oil change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. All other 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.

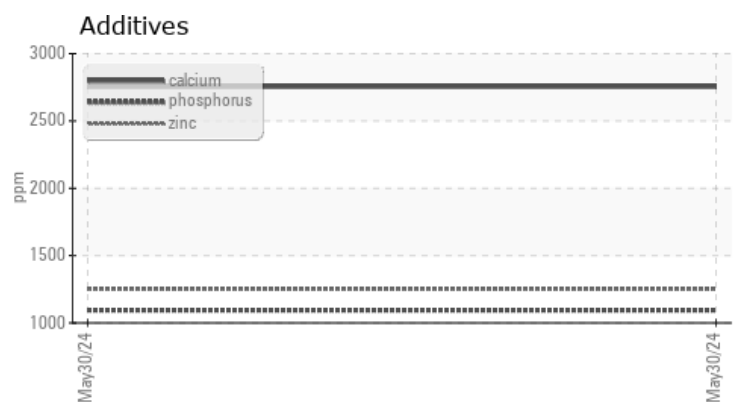
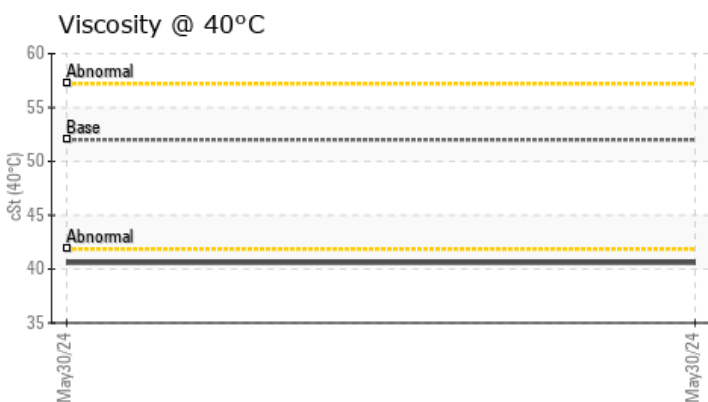
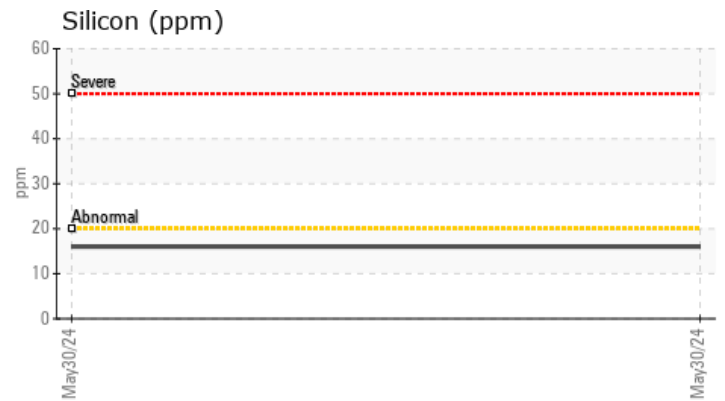
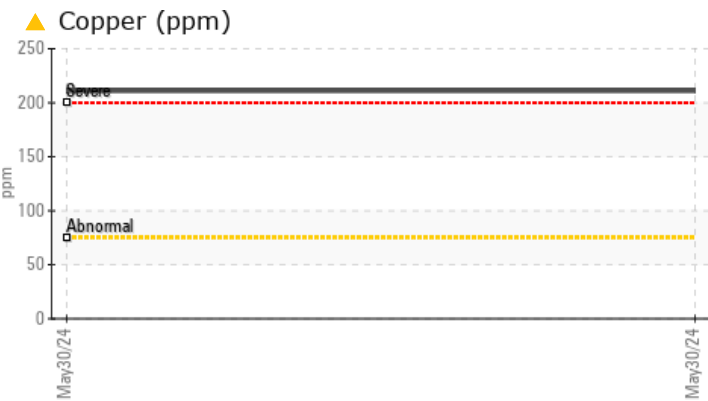
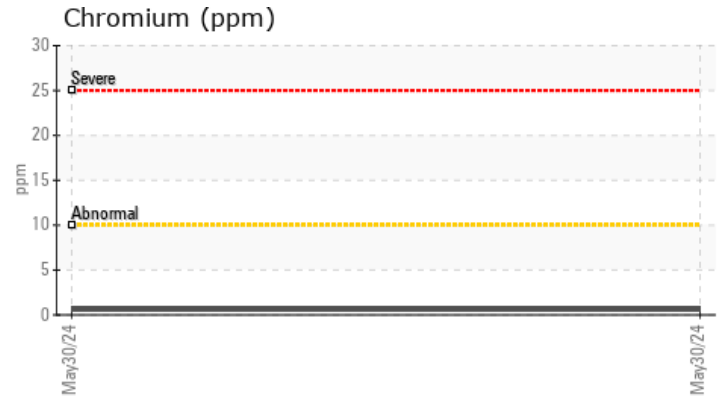
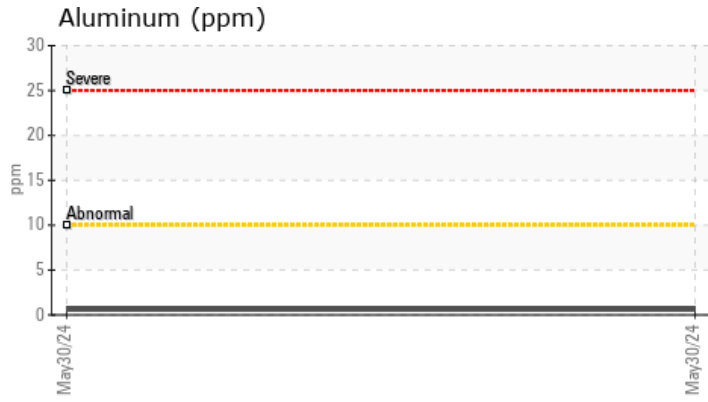
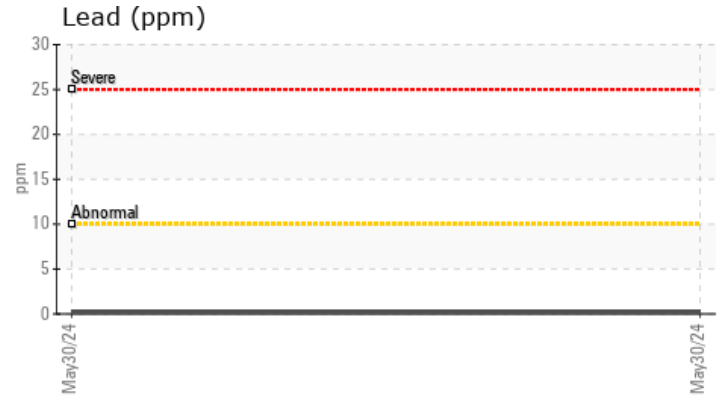
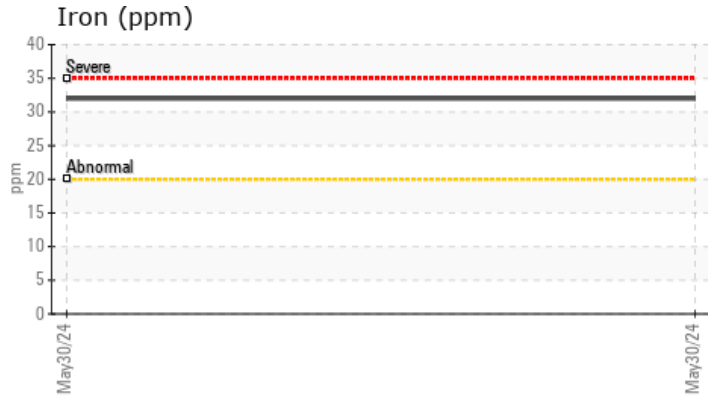
Depot: VOLVO0090
Unique No: 11060152
Signed: Don Baldrige
Report Date: 05 Jun 2024



CONSTRUCTION EQUIPMENT



VOLVO GRAPHS





CONSTRUCTION EQUIPMENT

VOLVO A45G 352787 - HYDRAULIC SYSTEM



Sample No: VCP441589
Oil Type: VOLVO SUPER HYDRAULIC OIL 46
Job No:



SAMPLE INFORMATION

Sample Number	VCP441589	---	---	---
Sample Date	30 May 2024	---	---	---
Machine Hours	5058	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Changed	---	---	---
Sample Status	ABNORMAL	---	---	---

ALTA EQUIPMENT COMPANY
 5151 DR MARTIN LUTHER KING BLVD
 FORT MYERS, FL
 US 33905
 Contact: TODD LARK
 tlark@altaequipfl.com
 T:
 F: (239)481-3302



OIL CONDITION

Visc @ 40°C	cSt	█ 49.5	---	---	---
Acid Number (AN)	mg KOH/g	█ 0.45	---	---	---



CONTAMINATION

Water	%	NEG	---	---	---
Particles >4µm		█ 30904	---	---	---
Particles >6µm		▲ 10749	---	---	---
Particles >14µm		▲ 745	---	---	---
ISO 4406:1999 (c)		22/21/17	---	---	---
Silicon	ppm	█ 9	---	---	---
Sodium	ppm	█ 2	---	---	---
Potassium	ppm	█ 0	---	---	---

Diagnosis

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a moderate amount of particulates (2 to 100 microns in size) present in the oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.



WEAR METALS

Iron	ppm	█ 2	---	---	---
Copper	ppm	█ 2	---	---	---
Lead	ppm	█ 0	---	---	---
Tin	ppm	█ 0	---	---	---
Aluminum	ppm	█ 5	---	---	---
Chromium	ppm	█ <1	---	---	---
Molybdenum	ppm	█ 0	---	---	---
Nickel	ppm	█ 0	---	---	---
Titanium	ppm	0	---	---	---
Silver	ppm	0	---	---	---
Manganese	ppm	█ 0	---	---	---
Vanadium	ppm	0	---	---	---



ADDITIVES

Calcium	ppm	443	---	---	---
Magnesium	ppm	█ 3	---	---	---
Zinc	ppm	█ 526	---	---	---
Phosphorus	ppm	█ 427	---	---	---
Barium	ppm	█ 0	---	---	---
Boron	ppm	█ 0	---	---	---

Depot: VOLVO0090
Unique No: 11059688
Signed: Wes Davis
Report Date: 04 Jun 2024

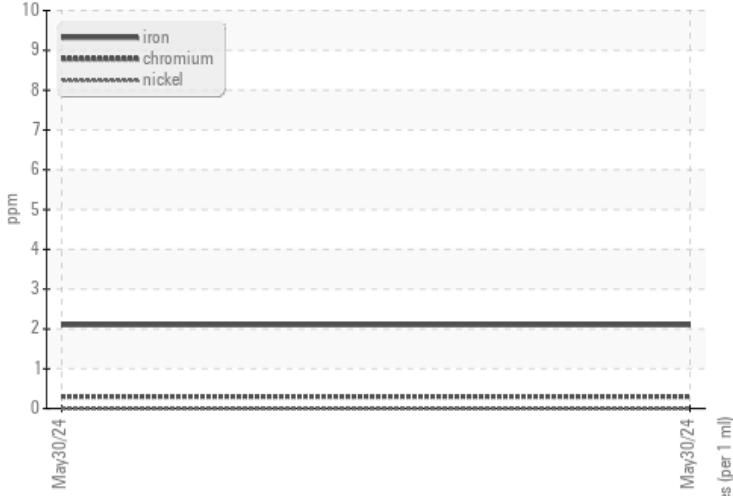


CONSTRUCTION EQUIPMENT

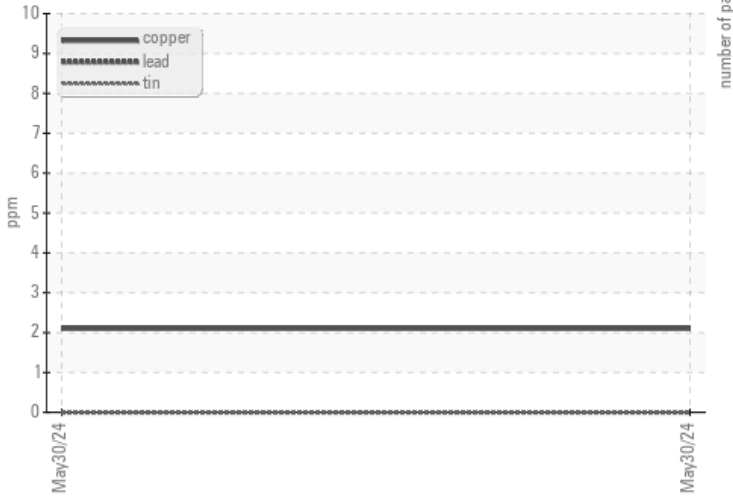


VOLVO GRAPHS

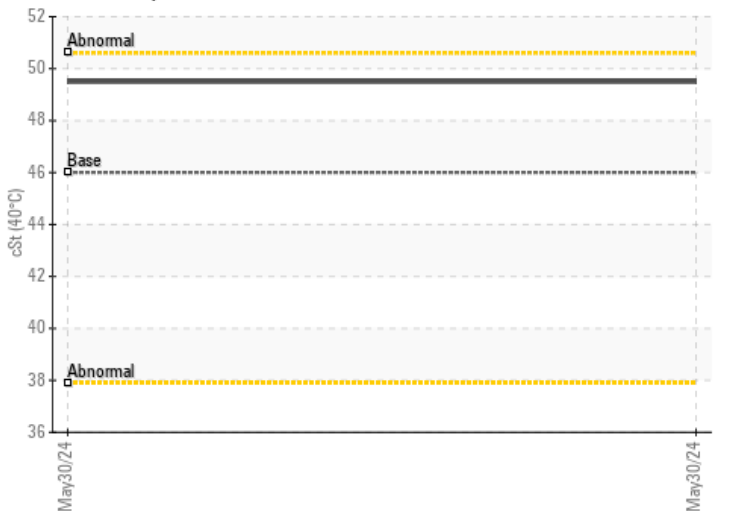
Ferrous Alloys



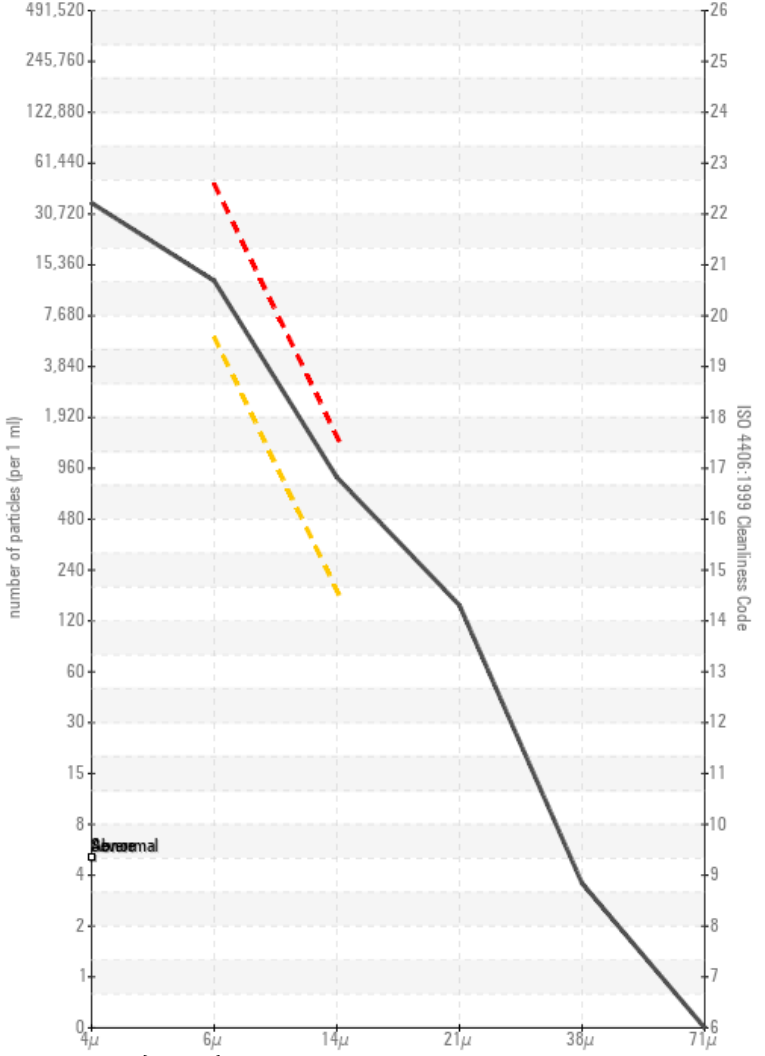
Non-ferrous Metals



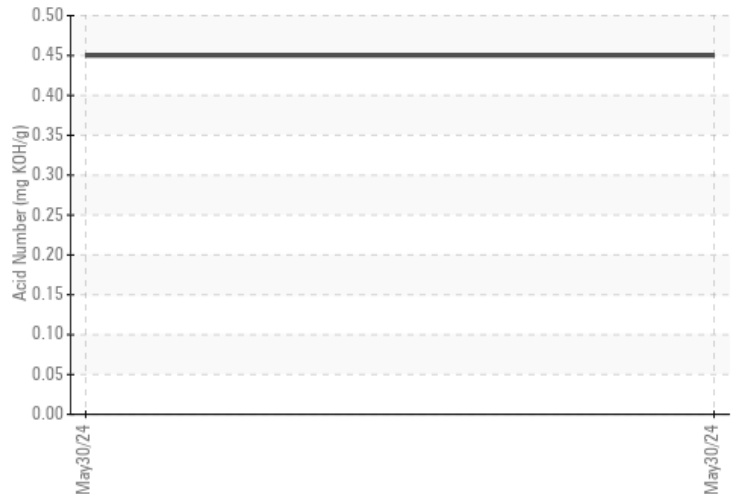
Viscosity @ 40°C



Particle Count



Acid Number





CONSTRUCTION EQUIPMENT

VOLVO A45G 352787 - FRONT AXLE



Sample No: VCP451423
Oil Type: VOLVO PREMIUM GEAR OIL 85W-140 GL-5
Job No:



SAMPLE INFORMATION

Sample Number	VCP451423	---	---	---
Sample Date	30 May 2024	---	---	---
Machine Hours	5058	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Changed	---	---	---
Sample Status	ATTENTION	---	---	---

ALTA EQUIPMENT COMPANY
 5151 DR MARTIN LUTHER KING BLVD
 FORT MYERS, FL
 US 33905
 Contact: TODD LARK
 tlark@altaequipfl.com
 T:
 F: (239)481-3302



OIL CONDITION

Visc @ 40°C	cSt	● 41.8	---	---	---
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CONTAMINATION

Water	%	NEG	---	---	---
Silicon	ppm	■ 15	---	---	---
Sodium	ppm	■ 10	---	---	---
Potassium	ppm	■ 3	---	---	---



WEAR METALS

Iron	ppm	■ 471	---	---	---
Copper	ppm	■ 4	---	---	---
Lead	ppm	■ 0	---	---	---
Tin	ppm	■ 0	---	---	---
Aluminum	ppm	■ 1	---	---	---
Chromium	ppm	■ 4	---	---	---
Molybdenum	ppm	■ 14	---	---	---
Nickel	ppm	■ <1	---	---	---
Titanium	ppm	0	---	---	---
Silver	ppm	0	---	---	---
Manganese	ppm	■ 11	---	---	---
Vanadium	ppm	<1	---	---	---



ADDITIVES

Calcium	ppm	● 3885	---	---	---
Magnesium	ppm	■ 22	---	---	---
Zinc	ppm	● 1515	---	---	---
Phosphorus	ppm	● 1364	---	---	---
Barium	ppm	■ 0	---	---	---
Boron	ppm	■ 151	---	---	---

Diagnosis

The oil change at the time of sampling has been noted. 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 oil viscosity is lower than normal. This plus the additive levels indicates the addition of a different brand, or type of oil. Confirm oil type.

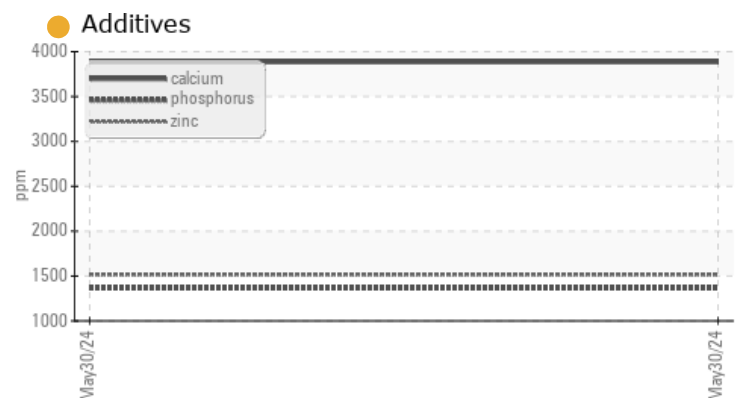
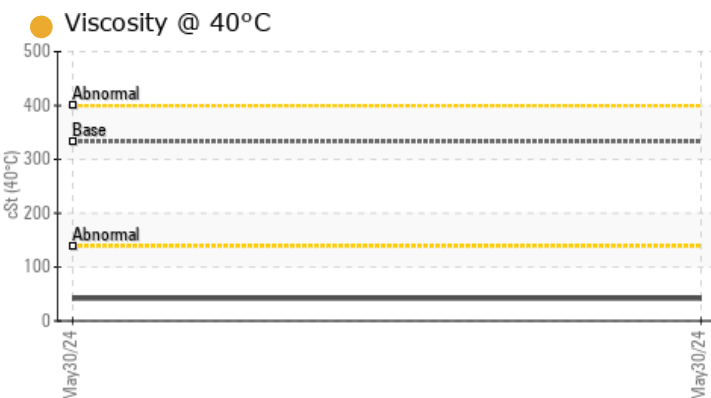
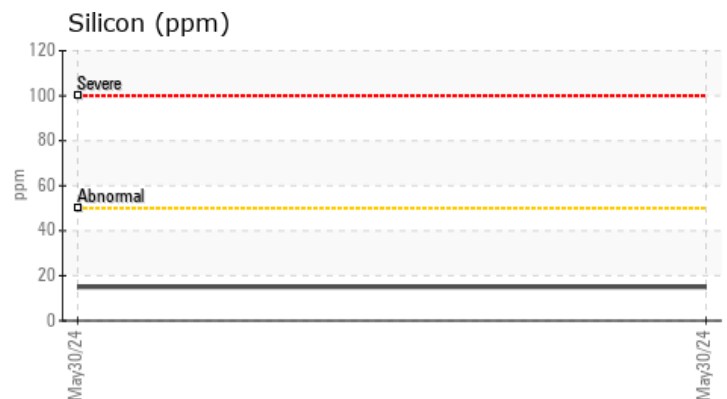
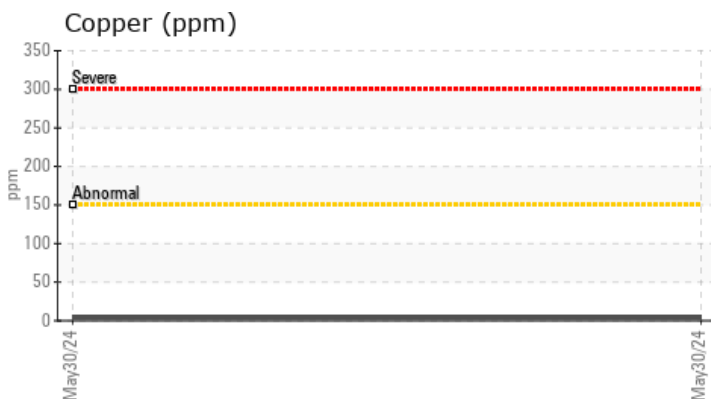
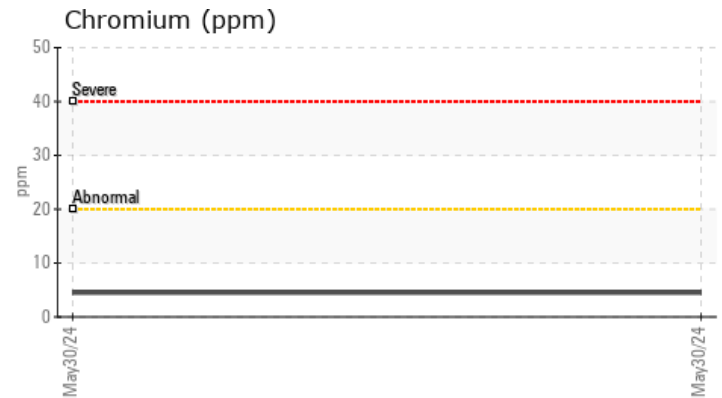
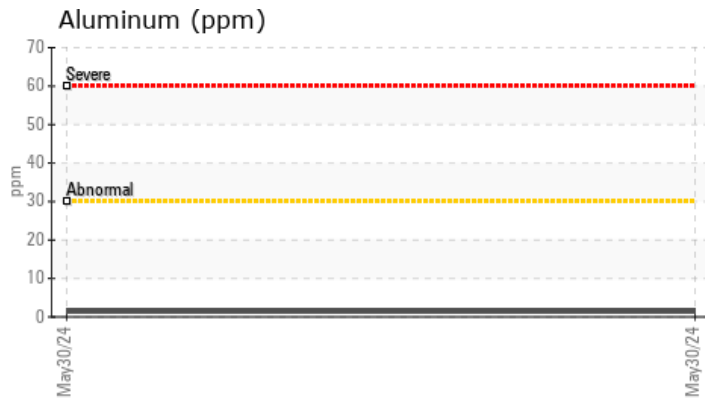
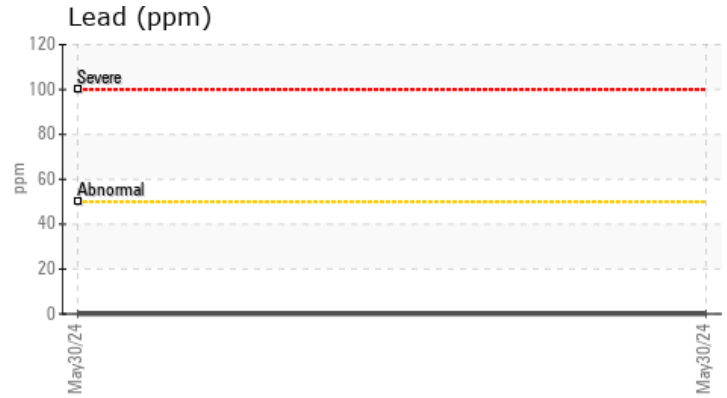
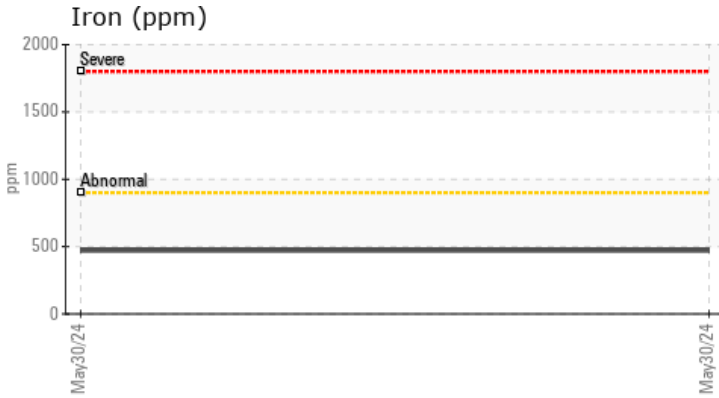
Depot: VOLVO0090
Unique No: 11060100
Signed: Don Baldrige
Report Date: 04 Jun 2024



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

VOLVO A45G 352787 - BOGIE/CENTER AXLE



Sample No: VCP451422
Oil Type: VOLVO PREMIUM GEAR OIL 85W-140 GL-5
Job No:



SAMPLE INFORMATION

Sample Number	VCP451422	---	---	---
Sample Date	30 May 2024	---	---	---
Machine Hours	5058	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Changed	---	---	---
Sample Status	ATTENTION	---	---	---

ALTA EQUIPMENT COMPANY
 5151 DR MARTIN LUTHER KING BLVD
 FORT MYERS, FL
 US 33905
 Contact: TODD LARK
 tlark@altaequipfl.com
 T:
 F: (239)481-3302



OIL CONDITION

Visc @ 40°C	cSt	● 41.5	---	---	---
-------------	-----	--------	-----	-----	-----



CONTAMINATION

Water	%	NEG	---	---	---
Silicon	ppm	■ 15	---	---	---
Sodium	ppm	■ 9	---	---	---
Potassium	ppm	■ 3	---	---	---



WEAR METALS

Iron	ppm	■ 491	---	---	---
Copper	ppm	■ 6	---	---	---
Lead	ppm	■ 0	---	---	---
Tin	ppm	■ 0	---	---	---
Aluminum	ppm	■ 1	---	---	---
Chromium	ppm	■ 5	---	---	---
Molybdenum	ppm	■ 14	---	---	---
Nickel	ppm	■ <1	---	---	---
Titanium	ppm	0	---	---	---
Silver	ppm	0	---	---	---
Manganese	ppm	■ 11	---	---	---
Vanadium	ppm	<1	---	---	---



ADDITIVES

Calcium	ppm	● 3860	---	---	---
Magnesium	ppm	■ 20	---	---	---
Zinc	ppm	● 1494	---	---	---
Phosphorus	ppm	● 1351	---	---	---
Barium	ppm	■ 0	---	---	---
Boron	ppm	■ 144	---	---	---

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 oil viscosity is lower than normal. This plus the additive levels indicates the addition of a different brand, or type of oil. Confirm oil type.

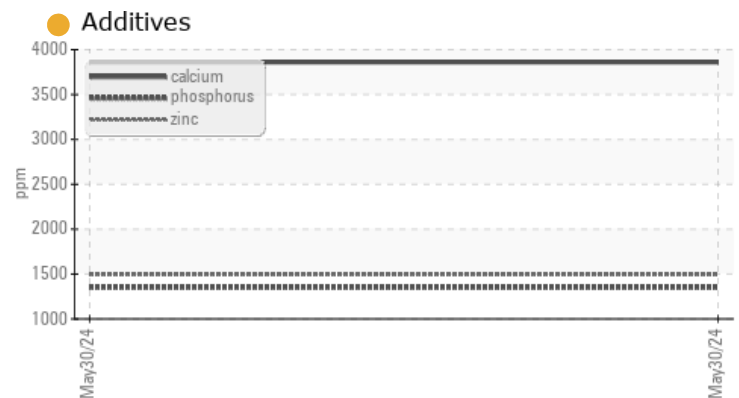
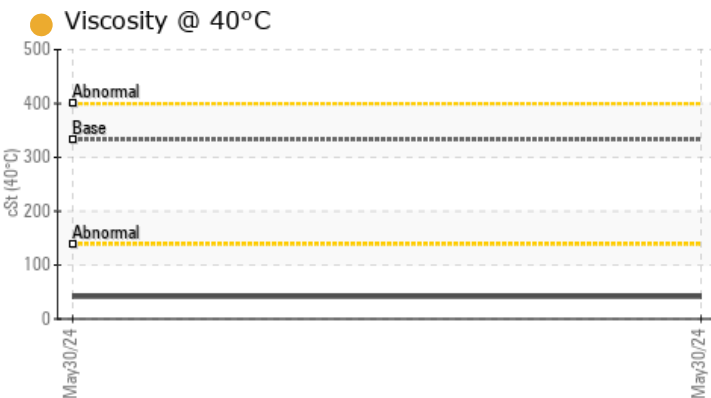
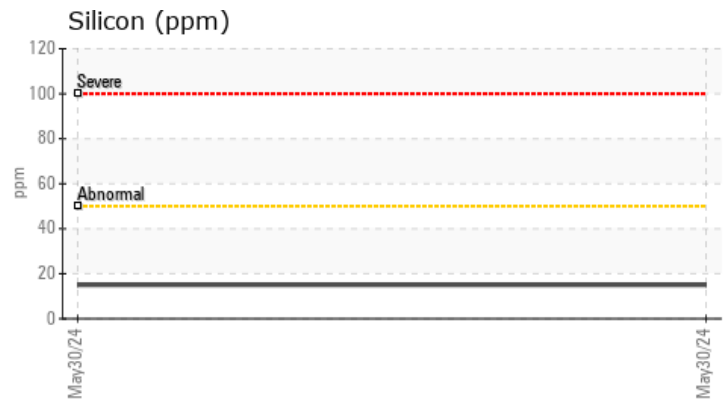
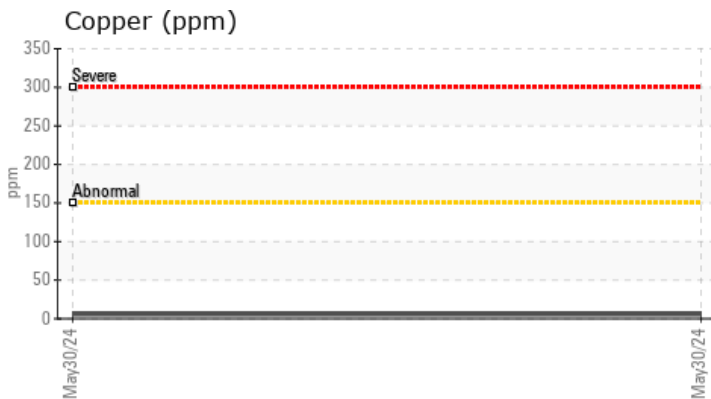
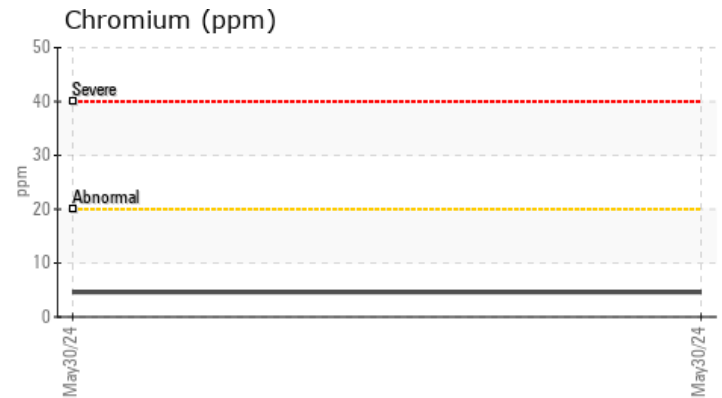
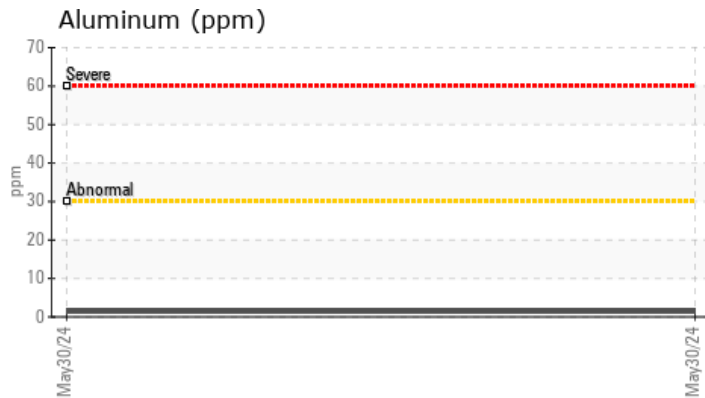
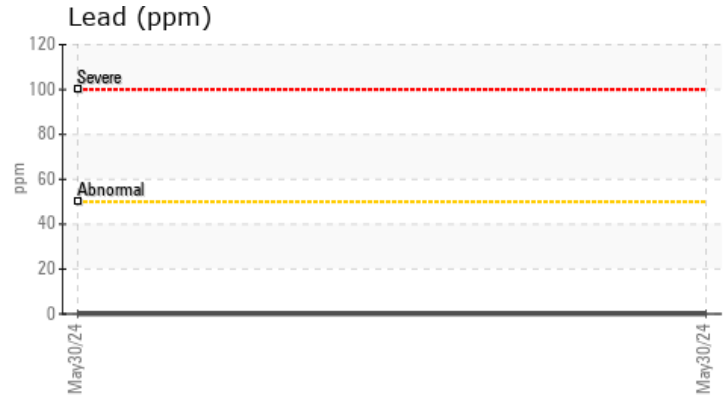
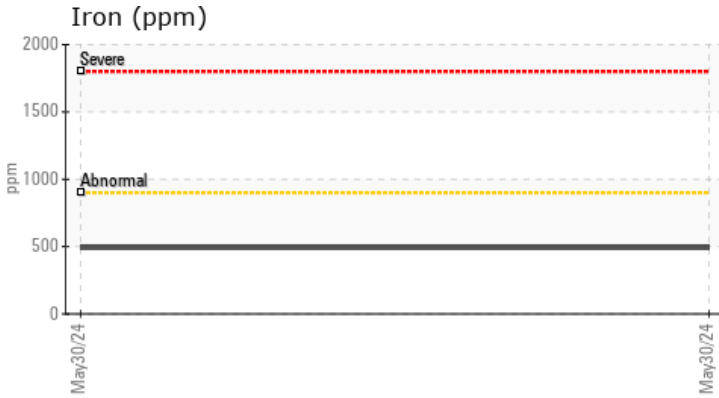
Depot: VOLVO0090
Unique No: 11060103
Signed: Don Baldrige
Report Date: 04 Jun 2024



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

VOLVO A45G 352787 - REAR AXLE



Sample No: VCP451415
Oil Type: VOLVO PREMIUM GEAR OIL 85W-140 GL-5
Job No:



SAMPLE INFORMATION

Sample Number	VCP451415	---	---	---
Sample Date	30 May 2024	---	---	---
Machine Hours	5058	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Changed	---	---	---
Sample Status	SEVERE	---	---	---

ALTA EQUIPMENT COMPANY
 5151 DR MARTIN LUTHER KING BLVD
 FORT MYERS, FL
 US 33905
 Contact: TODD LARK
 tlark@altaequipfl.com
 T:
 F: (239)481-3302



OIL CONDITION

Visc @ 40°C	cSt	● 49.5	---	---	---
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CONTAMINATION

Water	%	NEG	---	---	---
Silicon	ppm	▲ 185	---	---	---
Sodium	ppm	■ 4	---	---	---
Potassium	ppm	■ 10	---	---	---



WEAR METALS

Iron	ppm	▲ 1977	---	---	---
Copper	ppm	■ 46	---	---	---
Lead	ppm	■ 0	---	---	---
Tin	ppm	■ 0	---	---	---
Aluminum	ppm	● 58	---	---	---
Chromium	ppm	▲ 20	---	---	---
Molybdenum	ppm	■ 5	---	---	---
Nickel	ppm	▲ 11	---	---	---
Titanium	ppm	2	---	---	---
Silver	ppm	0	---	---	---
Manganese	ppm	■ 25	---	---	---
Vanadium	ppm	<1	---	---	---



ADDITIVES

Calcium	ppm	■ 366	---	---	---
Magnesium	ppm	■ 28	---	---	---
Zinc	ppm	■ 117	---	---	---
Phosphorus	ppm	■ 2318	---	---	---
Barium	ppm	■ 0	---	---	---
Boron	ppm	■ 154	---	---	---

Diagnosis

We advise that you check all areas where dirt can enter the system. The oil change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. The iron level is severe. Gear wear is indicated. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The oil viscosity is lower than normal. Confirm oil type. The oil is no longer serviceable due to the presence of contaminants.

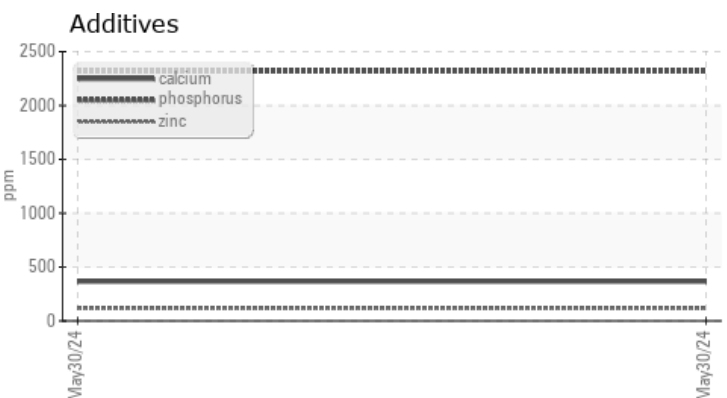
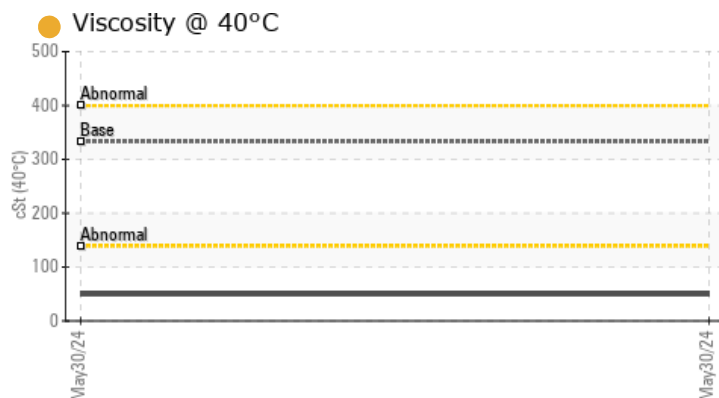
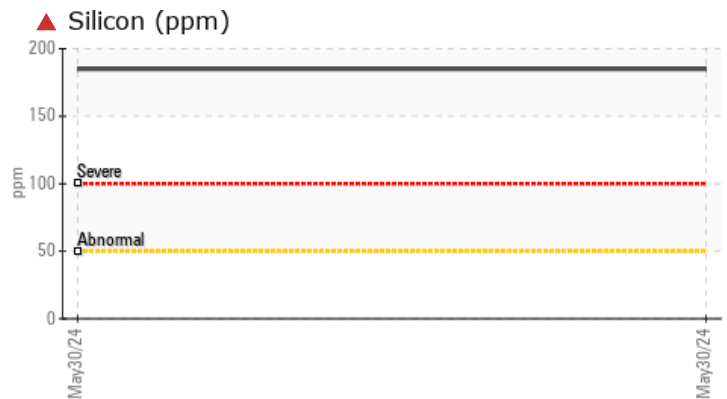
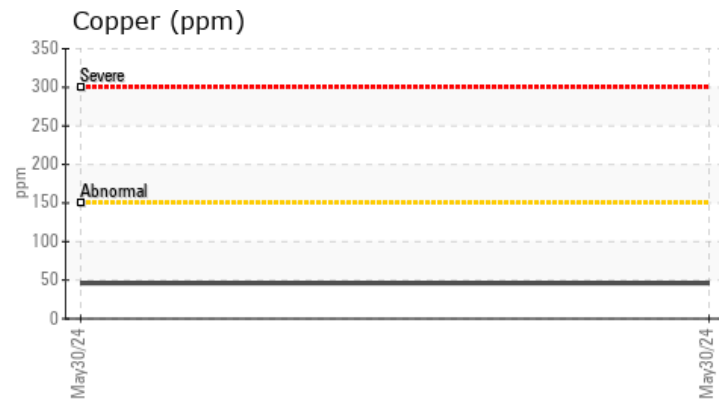
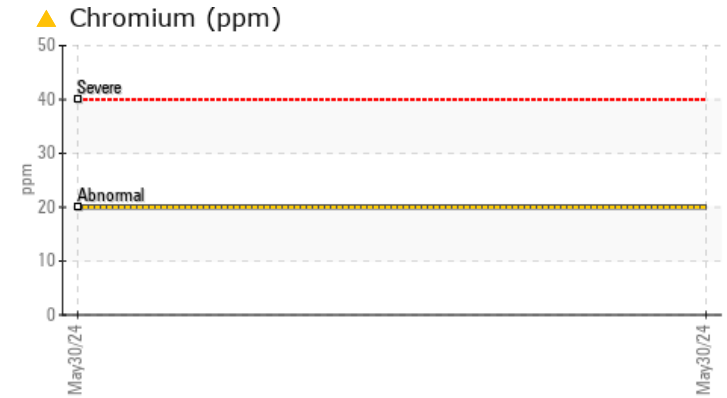
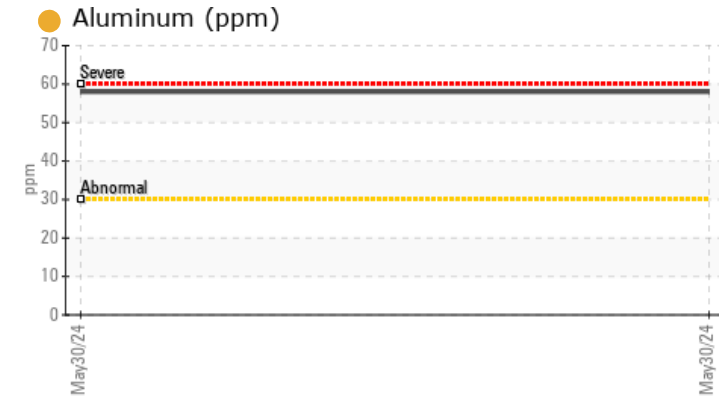
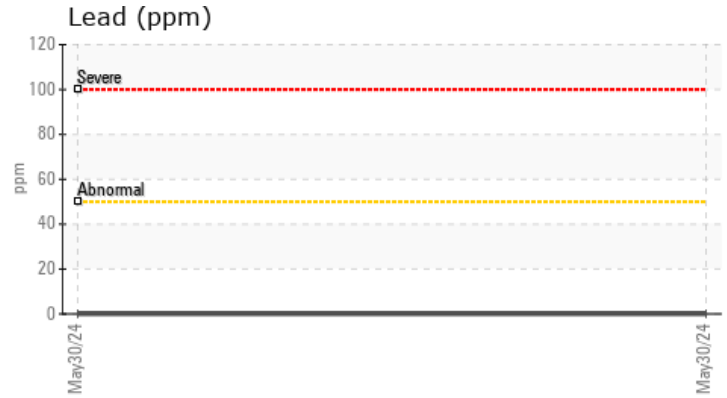
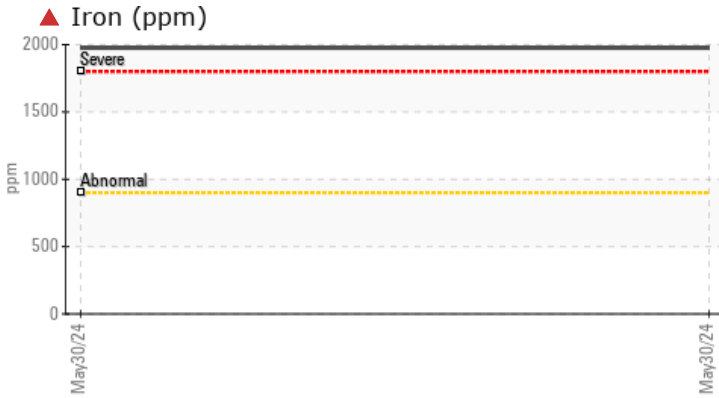
Depot: VOLVO0090
Unique No: 11060156
Signed: Don Baldrige
Report Date: 05 Jun 2024



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

VOLVO A45G 352787 - DROP BOX



Sample No: VCP451417
Oil Type: VOLVO PREMIUM GEAR OIL 85W-140 GL-5
Job No:



SAMPLE INFORMATION

Sample Number	VCP451417	---	---	---
Sample Date	30 May 2024	---	---	---
Machine Hours	5058	---	---	---
Oil Hours	0	---	---	---
Oil Changed	Changed	---	---	---
Sample Status	ABNORMAL	---	---	---

ALTA EQUIPMENT COMPANY
 5151 DR MARTIN LUTHER KING BLVD
 FORT MYERS, FL
 US 33905
 Contact: TODD LARK
 tlark@altaequipfl.com
 T:
 F: (239)481-3302



OIL CONDITION

Visc @ 40°C	cSt	● 47.9	---	---	---
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CONTAMINATION

Water	%	NEG	---	---	---
Silicon	ppm	▲ 54	---	---	---
Sodium	ppm	■ 6	---	---	---
Potassium	ppm	■ 4	---	---	---

Diagnosis
 No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. All other component wear rates are normal. Elemental level of silicon (Si) above normal. The oil viscosity is lower than normal. Confirm oil type.



WEAR METALS

Iron	ppm	■ 272	---	---	---
Copper	ppm	▲ 58	---	---	---
Lead	ppm	■ 0	---	---	---
Tin	ppm	■ 0	---	---	---
Aluminum	ppm	■ 0	---	---	---
Chromium	ppm	■ 3	---	---	---
Molybdenum	ppm	■ 20	---	---	---
Nickel	ppm	■ <1	---	---	---
Titanium	ppm	0	---	---	---
Silver	ppm	0	---	---	---
Manganese	ppm	■ 9	---	---	---
Vanadium	ppm	0	---	---	---



ADDITIVES

Calcium	ppm	■ 26	---	---	---
Magnesium	ppm	■ 3	---	---	---
Zinc	ppm	■ 204	---	---	---
Phosphorus	ppm	■ 2181	---	---	---
Barium	ppm	■ 0	---	---	---
Boron	ppm	■ 98	---	---	---

Depot: VOLVO0090
Unique No: 11060154
Signed: Don Baldrige
Report Date: 05 Jun 2024



CONSTRUCTION EQUIPMENT



GRAPHS

