



CONSTRUCTION EQUIPMENT

729269 MACK CONCRETE VOLVO L110H 631841 - DIESEL ENGINE



Sample No: VCP450715
Oil Type: VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3
Job No: 729269 MACK CONCRETE



SAMPLE INFORMATION

Sample Number	VCP450715	VCP405593	VCP381265	VCP364014
Sample Date	11 Jun 2024	28 Mar 2023	03 Nov 2022	25 Aug 2022
Machine Hours	13345	9800	8509	7894
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

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OIL CONDITION

Visc @ 100°C	cSt	13.9	13.5	13.5	13.3
Base Number (BN)	mg KOH/g	5.9	9.4	11.5	11.0
Oxidation (PA)	%	65	90	90	89

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 %	%	0.5	0.6	0.4	0.4
Nitration (PA)	%	76	79	70	73
Sulfation (PA)	%	61	64	67	66
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	8	8	3	5
Sodium	ppm	2	3	3	<1
Potassium	ppm	4	<1	1	0



WEAR METALS

Iron	ppm	31	16	9	11
Copper	ppm	7	2	1	1
Lead	ppm	2	1	<1	<1
Tin	ppm	1	<1	<1	<1
Aluminum	ppm	9	7	4	4
Chromium	ppm	1	1	<1	<1
Molybdenum	ppm	12	49	43	45
Nickel	ppm	<1	<1	0	<1
Titanium	ppm	<1	0	0	0
Silver	ppm	0	0	0	<1
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	2277	1793	1670	1681
Magnesium	ppm	106	544	486	504
Zinc	ppm	1100	1224	1111	1131
Phosphorus	ppm	926	1030	895	902
Barium	ppm	0	0	0	<1
Boron	ppm	2	27	28	31

Depot: VOLVO0093
Unique No: 11075828
Signed: Don Baldrige
Report Date: 14 Jun 2024

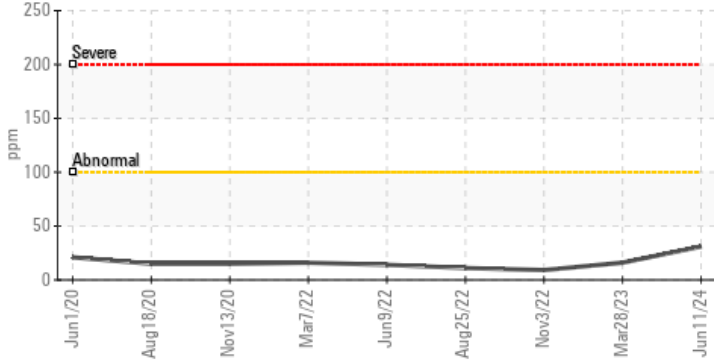


CONSTRUCTION EQUIPMENT

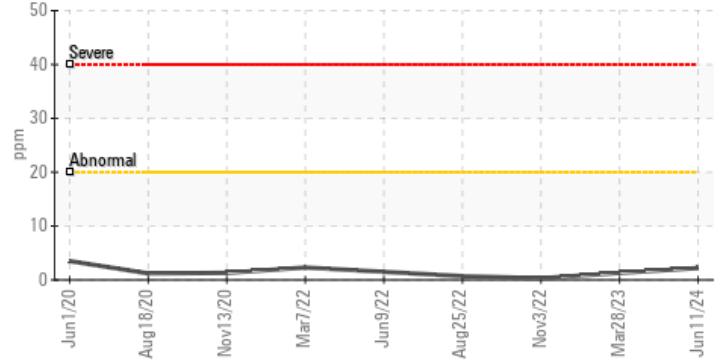


GRAPHS

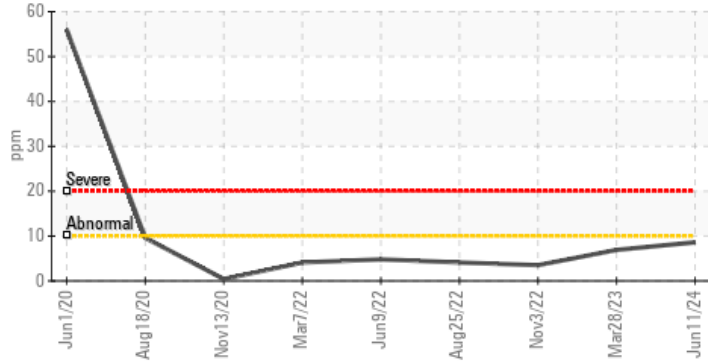
Iron (ppm)



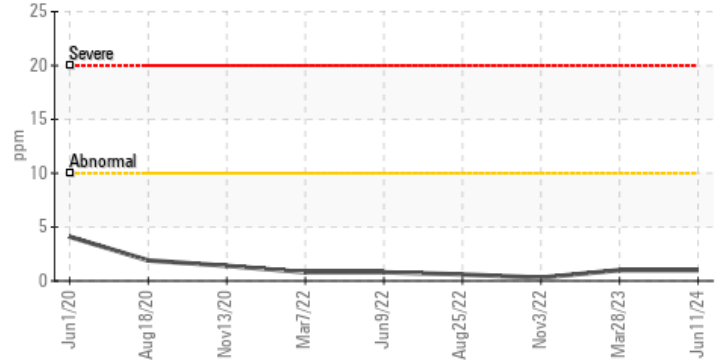
Lead (ppm)



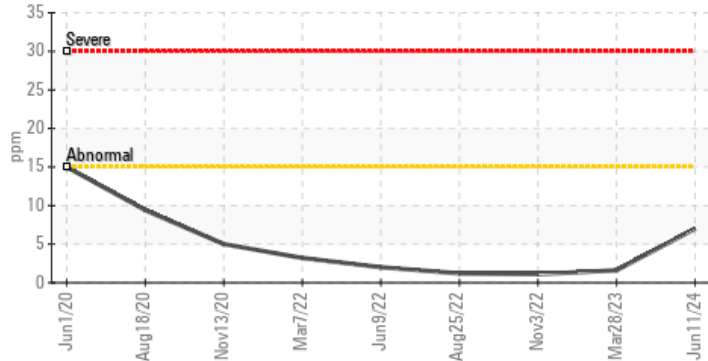
Aluminum (ppm)



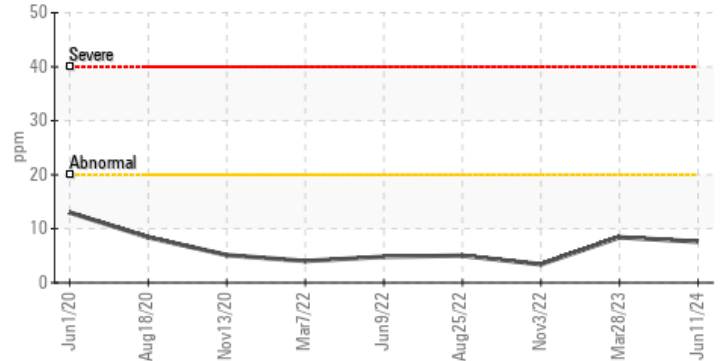
Chromium (ppm)



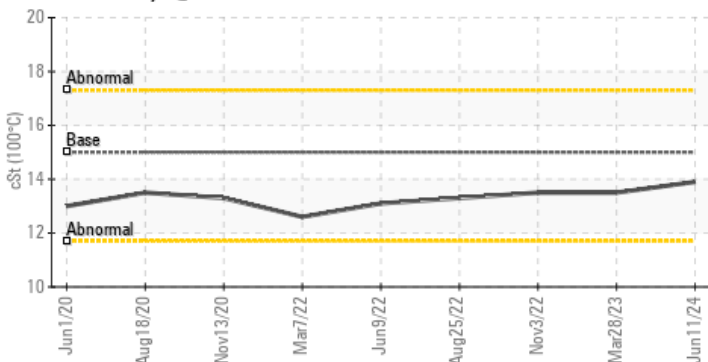
Copper (ppm)



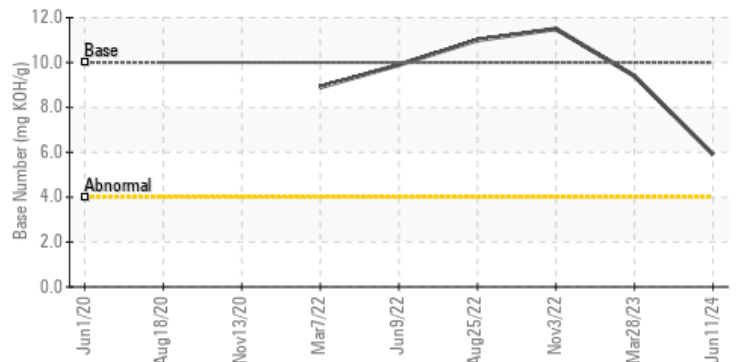
Silicon (ppm)



Viscosity @ 100°C



Base Number





CONSTRUCTION EQUIPMENT

729269 MACK CONCRETE VOLVO L110H 631841 - TRANSMISSION (AUTO)



Sample No: VCP449671
Oil Type: VOLVO AT 102
Job No: 729269 MACK CONCRETE



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SAMPLE INFORMATION

Sample Number	VCP449671	VCP405594	VCP381268	VCP364021
Sample Date	11 Jun 2024	28 Mar 2023	03 Nov 2022	25 Aug 2022
Machine Hours	13345	9800	8509	7894
Oil Hours	0	0	0	0
Oil Changed	Not Chngd	Not Chngd	Not Chngd	Not Chngd
Sample Status	ATTENTION	ABNORMAL	ABNORMAL	ABNORMAL



OIL CONDITION

Visc @ 40°C	cSt	36.0	26.1	25.9	25.8
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CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	5	16	11	13
Sodium	ppm	0	5	1	4
Potassium	ppm	<1	2	2	2



WEAR METALS

Iron	ppm	48	211	170	171
Copper	ppm	4	10	9	10
Lead	ppm	<1	<1	<1	<1
Tin	ppm	<1	0	0	0
Aluminum	ppm	4	14	10	10
Chromium	ppm	0	<1	<1	<1
Molybdenum	ppm	6	1	<1	<1
Nickel	ppm	0	<1	0	0
Titanium	ppm	0	0	0	0
Silver	ppm	0	0	0	<1
Manganese	ppm	2	8	8	8
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	2683	77	99	66
Magnesium	ppm	10	6	5	5
Zinc	ppm	1129	51	58	48
Phosphorus	ppm	990	176	151	145
Barium	ppm	0	0	0	4
Boron	ppm	19	37	38	49

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. Additive levels indicate the addition of a different brand, or type of fluid. Confirm oil type.

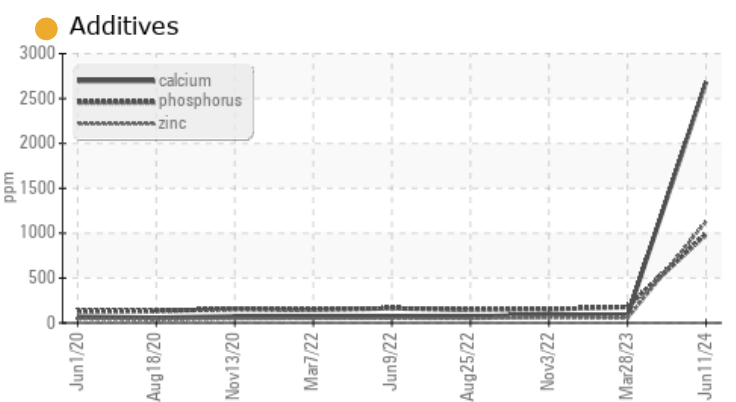
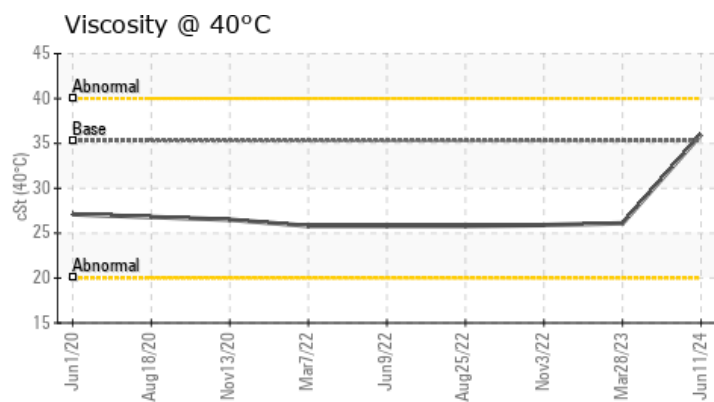
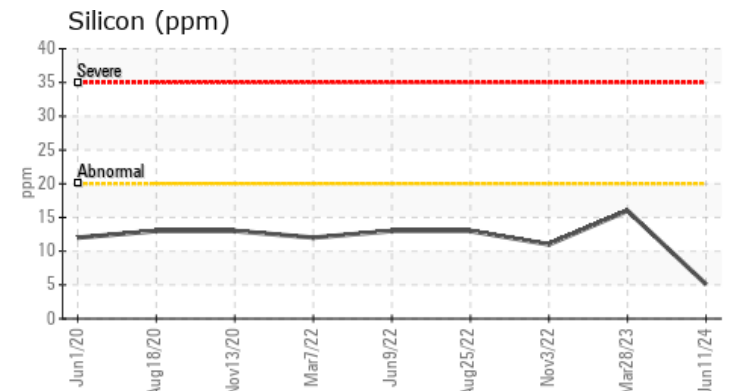
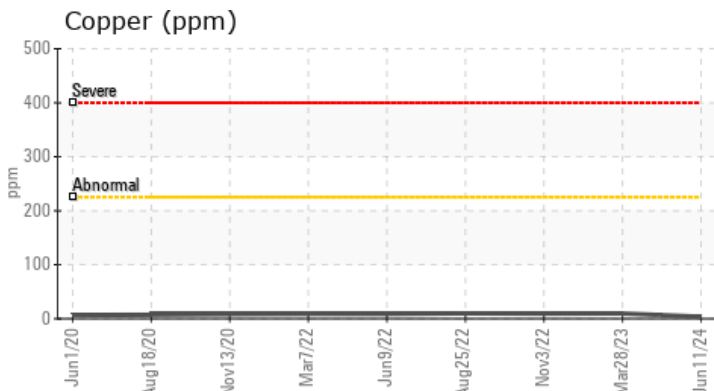
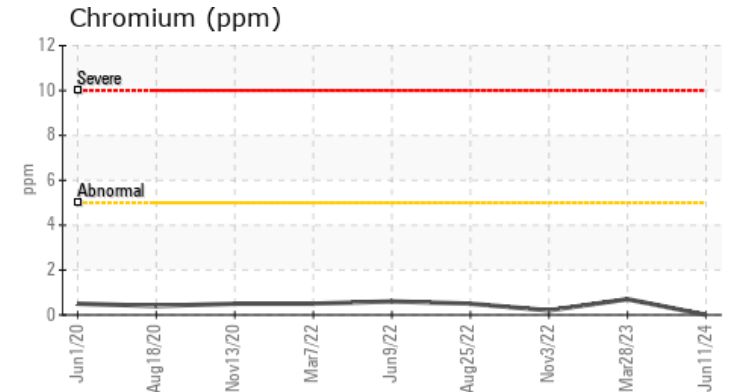
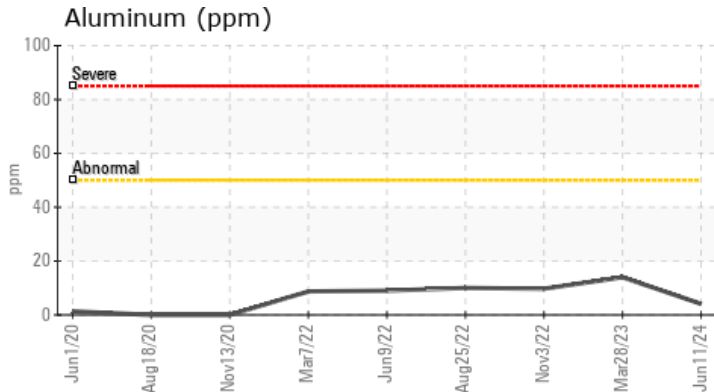
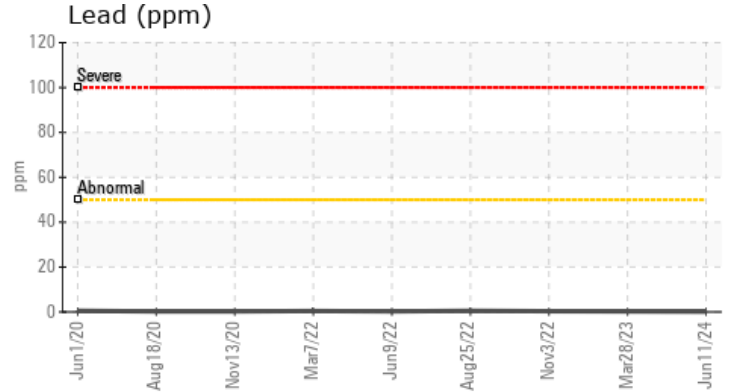
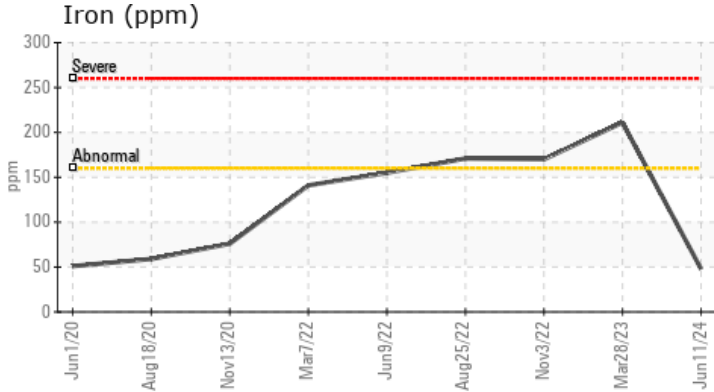
Depot: VOLVO0093
Unique No: 11076523
Signed: Sean Felton
Report Date: 17 Jun 2024



CONSTRUCTION EQUIPMENT



VOLVO GRAPHS





CONSTRUCTION EQUIPMENT

729269 MACK CONCRETE VOLVO L110H 631841 - HYDRAULIC SYSTEM



Sample No: VCP450709
Oil Type: VOLVO SUPER HYDRAULIC OIL 46
Job No: 729269 MACK CONCRETE



SAMPLE INFORMATION

Sample Number	VCP450709	VCP405595	VCP363644	VCP278752
Sample Date	11 Jun 2024	28 Mar 2023	25 Aug 2022	18 Aug 2020
Machine Hours	13345	9800	7894	990
Oil Hours	0	0	0	0
Oil Changed	Not Chngd	Not Chngd	Not Chngd	Not Chngd
Sample Status	ABNORMAL	ABNORMAL	NORMAL	NORMAL

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OIL CONDITION

Visc @ 40°C	cSt	44.2	45.1	45.2	49.1
Acid Number (AN)	mg KOH/g	0.55	0.51	0.56	0.923



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Particles >4µm		102190	35082	6128	5708
Particles >6µm		▲ 34908	4023	497	540
Particles >14µm		▲ 1572	52	28	22
ISO 4406:1999 (c)		24/22/18	22/19/13	20/16/12	20/16/12
Silicon	ppm	5	▲ 26	5	4
Sodium	ppm	5	4	5	5
Potassium	ppm	6	11	5	11

Diagnosis

No corrective action is recommended at this time. The filter 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 a high amount of particulates present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



WEAR METALS

Iron	ppm	7	43	6	3
Copper	ppm	3	3	3	1
Lead	ppm	5	6	4	2
Tin	ppm	0	<1	<1	0
Aluminum	ppm	<1	3	<1	0
Chromium	ppm	<1	2	<1	<1
Molybdenum	ppm	51	9	9	9
Nickel	ppm	0	<1	0	0
Titanium	ppm	<1	<1	0	<1
Silver	ppm	0	0	<1	<1
Manganese	ppm	0	<1	<1	<1
Vanadium	ppm	<1	0	0	0



ADDITIVES

Calcium	ppm	832	1107	1057	1021
Magnesium	ppm	26	46	46	43
Zinc	ppm	591	665	648	635
Phosphorus	ppm	528	586	558	541
Barium	ppm	0	0	1	0
Boron	ppm	14	21	13	34

Depot: VOLVO0093
Unique No: 11076121
Signed: Don Baldrige
Report Date: 15 Jun 2024

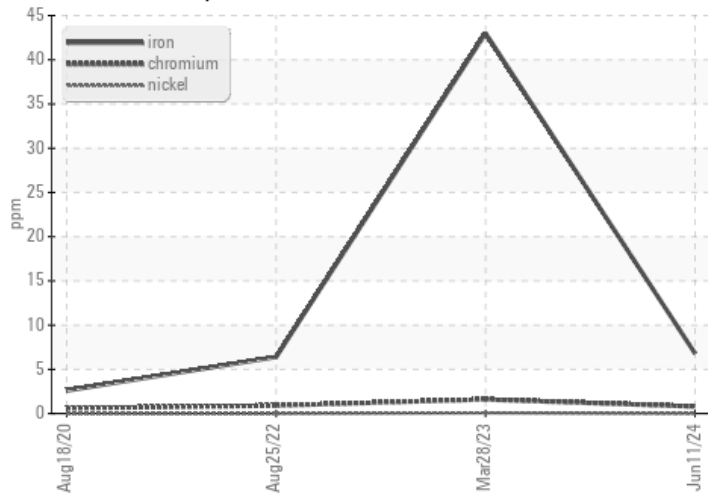


CONSTRUCTION EQUIPMENT

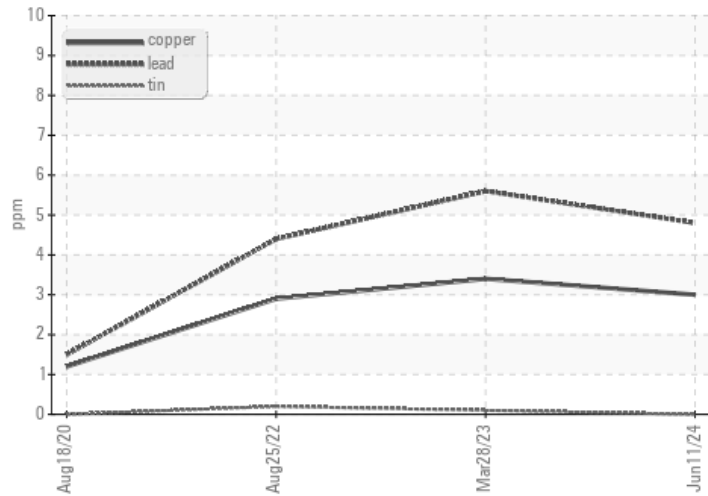


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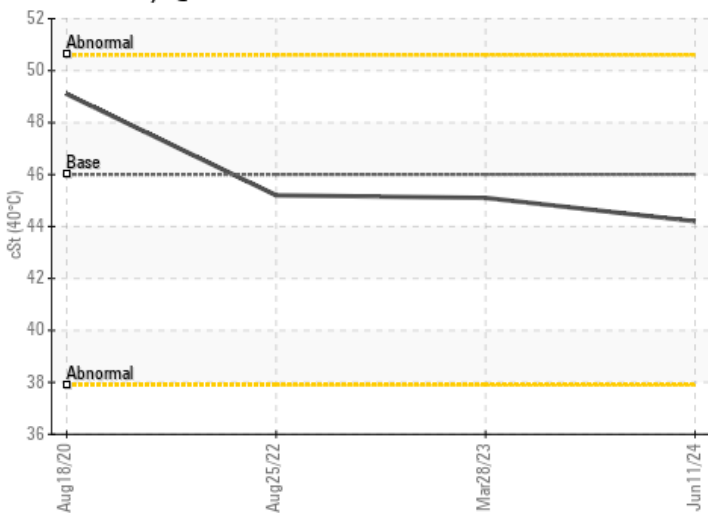
Ferrous Alloys



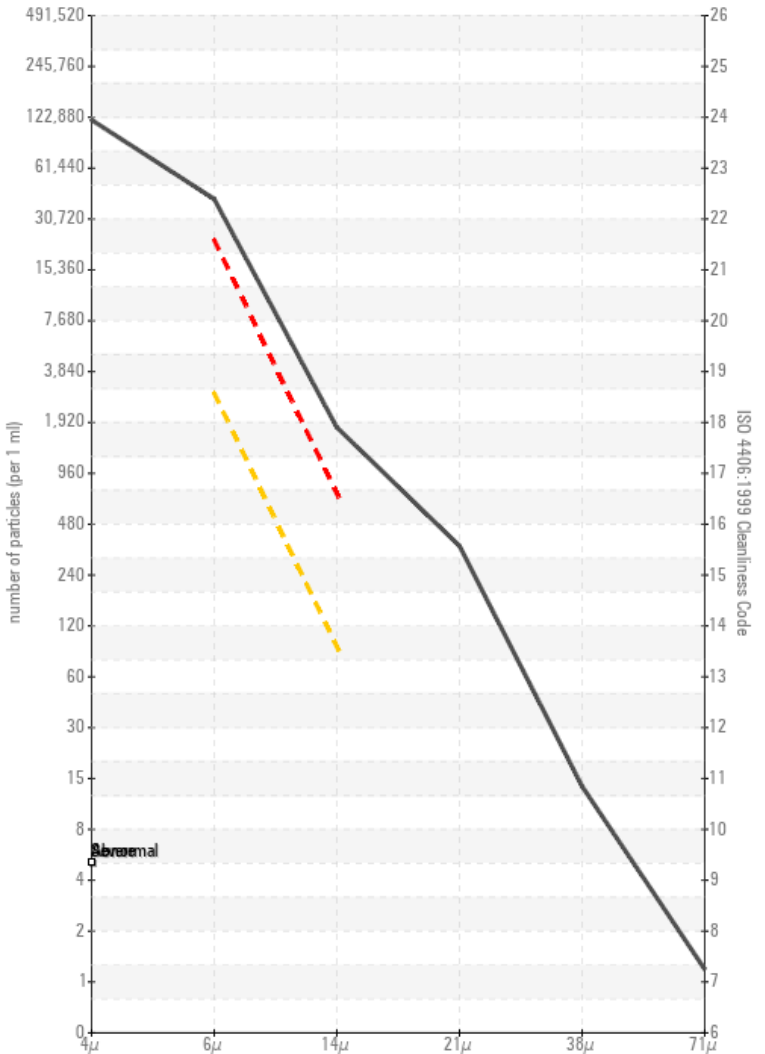
Non-ferrous Metals



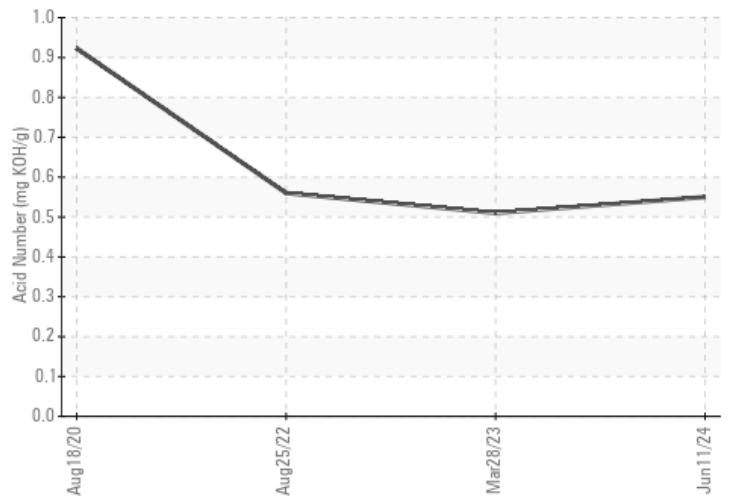
Viscosity @ 40°C



Particle Count



Acid Number





CONSTRUCTION EQUIPMENT

729269 MACK CONCRETE VOLVO L110H 631841 - FRONT AXLE



Sample No: VCP450712
Oil Type: VOLVO WB 102
Job No: 729269 MACK CONCRETE



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SAMPLE INFORMATION

Sample Number	VCP450712	VCP405604	VCP364018	VCP268278
Sample Date	11 Jun 2024	28 Mar 2023	25 Aug 2022	18 Aug 2020
Machine Hours	13345	9800	7894	990
Oil Hours	0	0	0	0
Oil Changed	Changed	Not Chngd	Not Chngd	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL



OIL CONDITION

Visc @ 40°C	cSt	42.7	43.8	42.8	40.1
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CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	14	17	14	15
Sodium	ppm	4	5	5	8
Potassium	ppm	0	<1	1	<1



WEAR METALS

Iron	ppm	112	103	80	227
Copper	ppm	2	3	3	1
Lead	ppm	0	0	0	0
Tin	ppm	<1	0	0	0
Aluminum	ppm	1	2	2	0
Chromium	ppm	1	2	1	6
Molybdenum	ppm	<1	2	2	11
Nickel	ppm	0	<1	0	1
Titanium	ppm	0	0	<1	<1
Silver	ppm	0	0	0	<1
Manganese	ppm	2	2	1	9
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	3768	3909	3744	3826
Magnesium	ppm	31	24	25	10
Zinc	ppm	1653	1666	1620	1508
Phosphorus	ppm	1290	1348	1280	1243
Barium	ppm	0	0	<1	0
Boron	ppm	145	135	141	243

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.

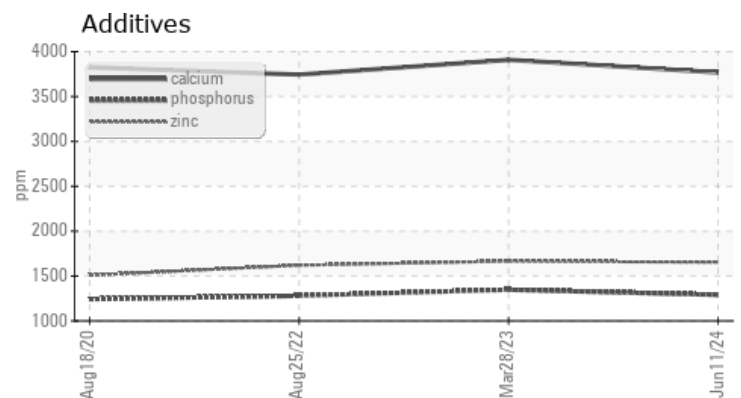
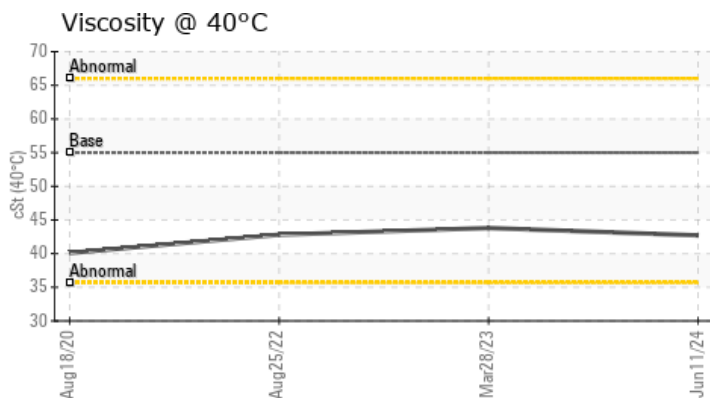
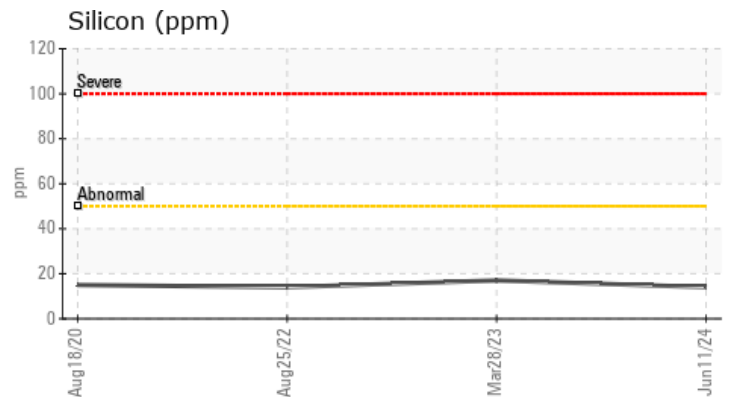
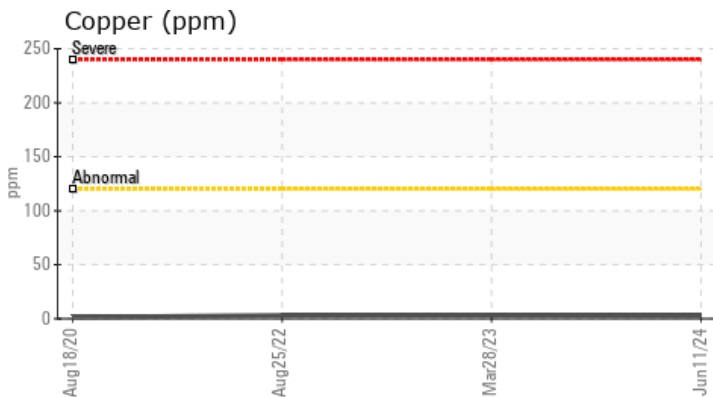
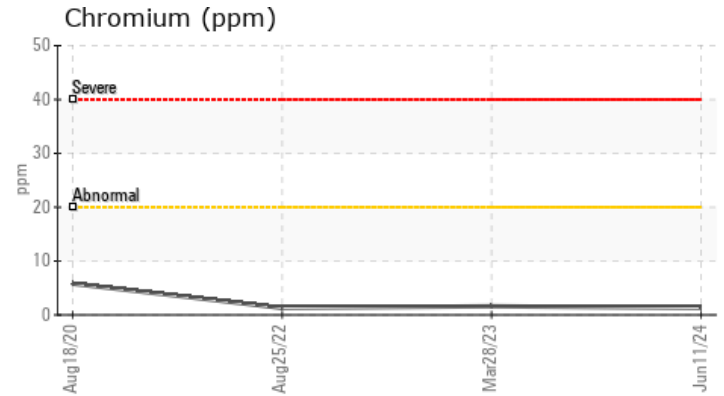
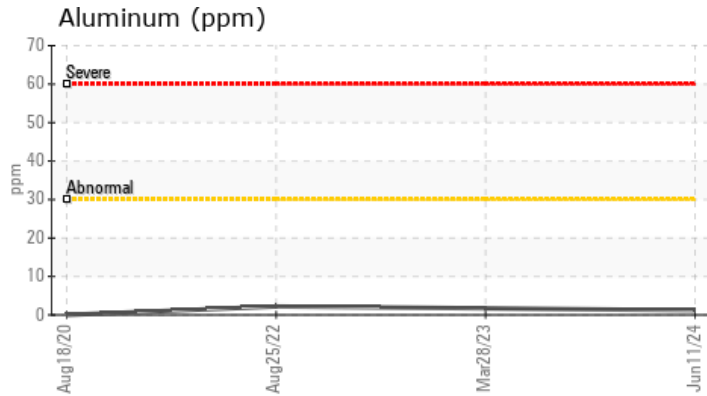
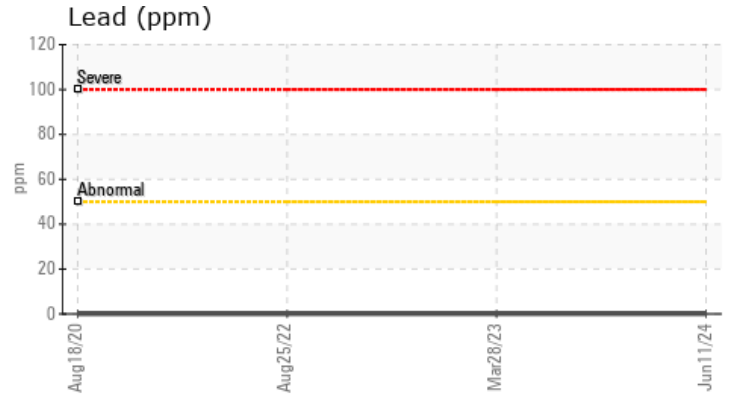
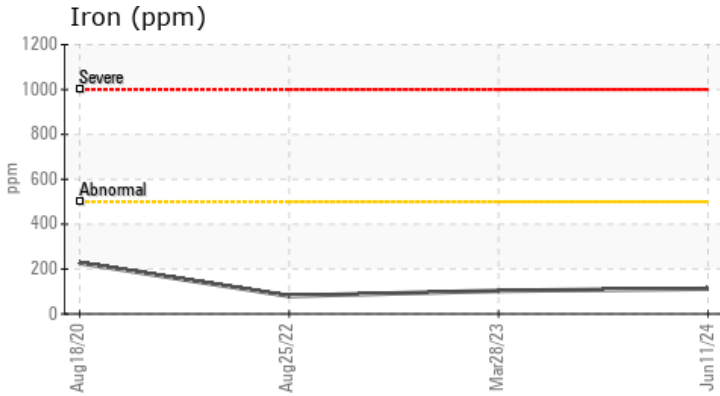
Depot: VOLVO0093
Unique No: 11076507
Signed: Wes Davis
Report Date: 14 Jun 2024



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

729269 MACK CONCRETE VOLVO L110H 631841 - REAR AXLE



Sample No: VCP450710
Oil Type: VOLVO WB 102
Job No: 729269 MACK CONCRETE



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SAMPLE INFORMATION

Sample Number	VCP450710	VCP405603	VCP363643	VCP278101
Sample Date	11 Jun 2024	28 Mar 2023	25 Aug 2022	18 Aug 2020
Machine Hours	13345	9800	7894	990
Oil Hours	0	0	0	0
Oil Changed	Changed	Not Changd	Not Changd	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL



OIL CONDITION

Visc @ 40°C	cSt	43.1	44.0	43.5	40.2
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CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	14	19	16	22
Sodium	ppm	6	6	6	9
Potassium	ppm	<1	2	2	1



WEAR METALS

Iron	ppm	99	84	59	131
Copper	ppm	0	<1	<1	1
Lead	ppm	0	0	0	0
Tin	ppm	<1	0	0	0
Aluminum	ppm	2	4	2	0
Chromium	ppm	1	1	1	4
Molybdenum	ppm	1	2	2	11
Nickel	ppm	0	<1	0	<1
Titanium	ppm	0	<1	<1	<1
Silver	ppm	0	0	0	<1
Manganese	ppm	2	2	1	7
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	4006	4071	3998	3719
Magnesium	ppm	38	31	31	10
Zinc	ppm	1680	1678	1662	1457
Phosphorus	ppm	1318	1369	1306	1215
Barium	ppm	0	0	<1	0
Boron	ppm	152	141	148	246

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.

Depot: VOLVO0093
Unique No: 11076506
Signed: Wes Davis
Report Date: 14 Jun 2024



CONSTRUCTION EQUIPMENT



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