



# CONSTRUCTION EQUIPMENT

714837 CENTRAL SITE VOLVO ECR235EL 3 10445 (S/N 3 104445) - DIESEL ENGINE



**Sample No:** VCP454982  
**Oil Type:** VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3  
**Job No:** 714837 CENTRAL SITE



## SAMPLE INFORMATION

Sample Number	<b>VCP454982</b>	VCP414738	VCP409525	VCP354427
Sample Date	<b>06 May 2024</b>	16 Sep 2023	01 Feb 2023	27 Jun 2022
Machine Hours	<b>6167</b>	1705	5149	4642
Oil Hours	<b>500</b>	0	500	1500
Oil Changed	<b>Changed</b>	Changed	Changed	Changed
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	NORMAL

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Contact: JOHN FARDELLA  
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T: (813)630-0077  
F: (813)630-2233



## OIL CONDITION

Visc @ 100°C	cSt	<b>13.3</b>	13.2	14.1	13.3
Base Number (BN)	mg KOH/g	<b>9.7</b>	9.7	9.6	10.7
Oxidation (PA)	%	<b>81</b>	90	93	92



## CONTAMINATION

Water	%	<b>NEG</b>	NEG	NEG	NEG
Soot %	%	<b>0.3</b>	0.4	0.3	0.3
Nitration (PA)	%	<b>74</b>	87	89	93
Sulfation (PA)	%	<b>58</b>	62	64	65
Glycol	%	<b>NEG</b>	NEG	NEG	NEG
Fuel	%	<b>&lt;1.0</b>	<1.0	<1.0	<1.0
Silicon	ppm	<b>7</b>	7	9	6
Sodium	ppm	<b>3</b>	4	4	2
Potassium	ppm	<b>2</b>	<1	<1	<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 oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



## WEAR METALS

Iron	ppm	<b>22</b>	54	35	21
Copper	ppm	<b>2</b>	3	2	2
Lead	ppm	<b>0</b>	0	2	<1
Tin	ppm	<b>&lt;1</b>	0	1	<1
Aluminum	ppm	<b>6</b>	6	8	4
Chromium	ppm	<b>&lt;1</b>	<1	2	<1
Molybdenum	ppm	<b>52</b>	50	48	53
Nickel	ppm	<b>0</b>	0	<1	0
Titanium	ppm	<b>0</b>	0	<1	0
Silver	ppm	<b>0</b>	0	0	<1
Manganese	ppm	<b>1</b>	<1	<1	<1
Vanadium	ppm	<b>0</b>	0	0	0



## ADDITIVES

Calcium	ppm	<b>1772</b>	1768	1879	1831
Magnesium	ppm	<b>473</b>	578	513	469
Zinc	ppm	<b>1174</b>	1258	1184	1215
Phosphorus	ppm	<b>1056</b>	1019	977	1000
Barium	ppm	<b>&lt;1</b>	0	0	0
Boron	ppm	<b>66</b>	17	24	32

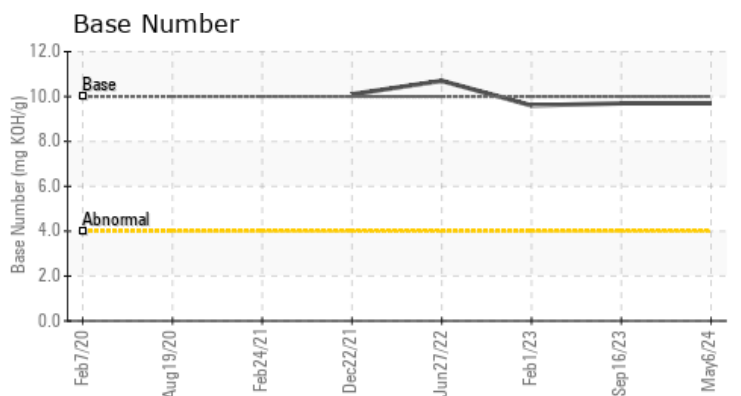
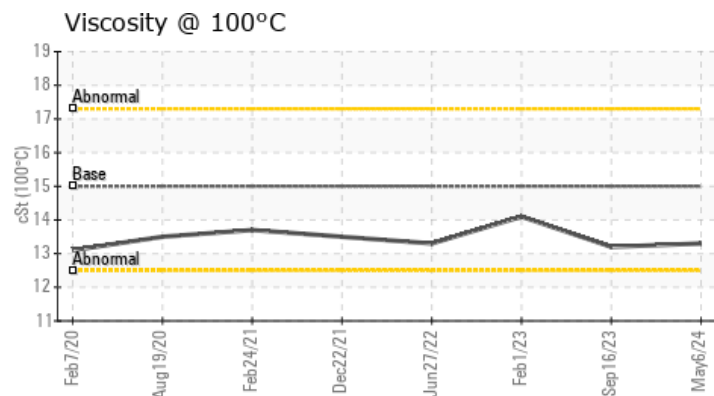
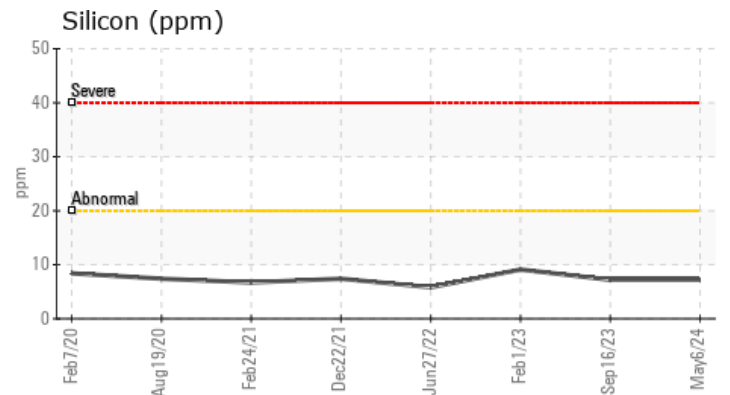
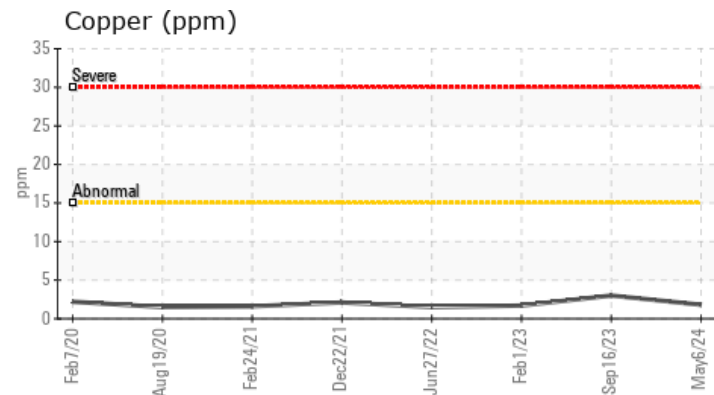
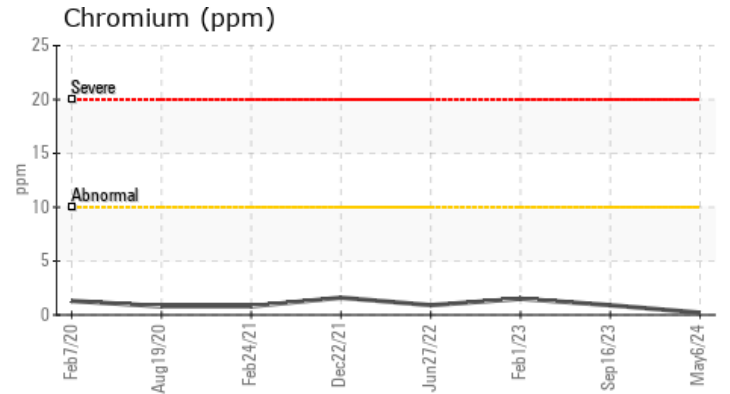
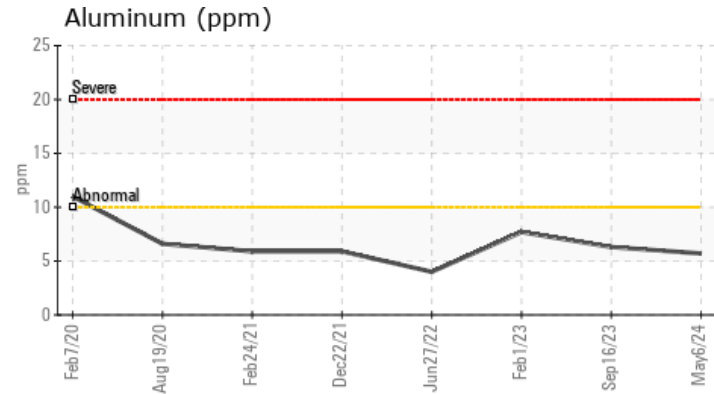
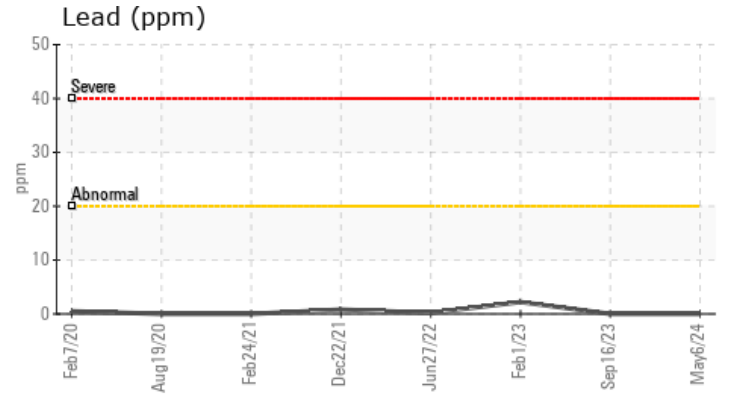
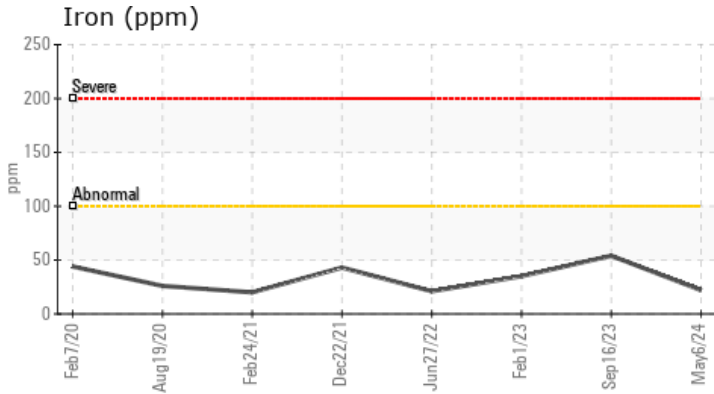
**Depot:** VOLVO0093  
**Unique No:** 11061890  
**Signed:** Wes Davis  
**Report Date:** 05 Jun 2024



# CONSTRUCTION EQUIPMENT



## VOLVO GRAPHS





# CONSTRUCTION EQUIPMENT

714837 CENTRAL SITE VOLVO ECR235EL 3 10445 (S/N 3 104445) - HYDRAULIC SYSTEM



**Sample No:** VCP454848  
**Oil Type:** VOLVO SUPER HYDRAULIC OIL 46  
**Job No:** 714837 CENTRAL SITE



## SAMPLE INFORMATION

Sample Number	<b>VCP454848</b>	VCP414741	VCP409312	VCP354568
Sample Date	<b>06 May 2024</b>	16 Sep 2023	01 Feb 2023	27 Jun 2022
Machine Hours	<b>6167</b>	5705	5149	4642
Oil Hours	<b>2000</b>	0	1000	1500
Oil Changed	<b>Changed</b>	Not Changd	Not Changd	Not Changd
Sample Status	<b>ABNORMAL</b>	NORMAL	NORMAL	NORMAL

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## OIL CONDITION

Visc @ 40°C	cSt	<b>41.4</b>	41.6	41.9	42.6
Acid Number (AN)	mg KOH/g	<b>0.43</b>	0.44	0.52	0.55



## CONTAMINATION

Water	%	<b>NEG</b>	NEG	NEG	NEG
Particles >4µm		<b>▲ 123891</b>	27511	25104	8881
Particles >6µm		<b>● 18581</b>	3432	8577	1286
Particles >14µm		<b>■ 59</b>	127	842	101
ISO 4406:1999 (c)		<b>24/21/13</b>	22/19/14	22/20/17	20/17/14
Silicon	ppm	<b>6</b>	5	4	3
Sodium	ppm	<b>3</b>	2	2	0
Potassium	ppm	<b>1</b>	1	0	1

## Diagnosis

The filter 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 silt (particulates < 14 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	<b>16</b>	13	9	6
Copper	ppm	<b>34</b>	30	27	25
Lead	ppm	<b>&lt;1</b>	<1	0	<1
Tin	ppm	<b>&lt;1</b>	0	0	0
Aluminum	ppm	<b>1</b>	4	1	<1
Chromium	ppm	<b>4</b>	4	3	2
Molybdenum	ppm	<b>1</b>	1	1	<1
Nickel	ppm	<b>0</b>	0	0	0
Titanium	ppm	<b>0</b>	0	0	0
Silver	ppm	<b>0</b>	0	0	0
Manganese	ppm	<b>&lt;1</b>	0	0	0
Vanadium	ppm	<b>0</b>	0	0	0



## ADDITIVES

Calcium	ppm	<b>299</b>	289	325	316
Magnesium	ppm	<b>15</b>	15	13	14
Zinc	ppm	<b>491</b>	505	494	502
Phosphorus	ppm	<b>455</b>	415	423	404
Barium	ppm	<b>&lt;1</b>	0	0	0
Boron	ppm	<b>0</b>	0	0	2

**Depot:** VOLVO0093  
**Unique No:** 11062164  
**Signed:** Wes Davis  
**Report Date:** 06 Jun 2024

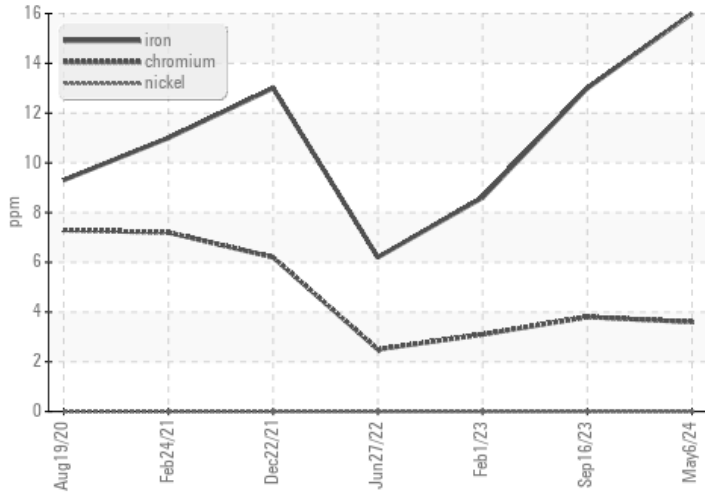


# CONSTRUCTION EQUIPMENT

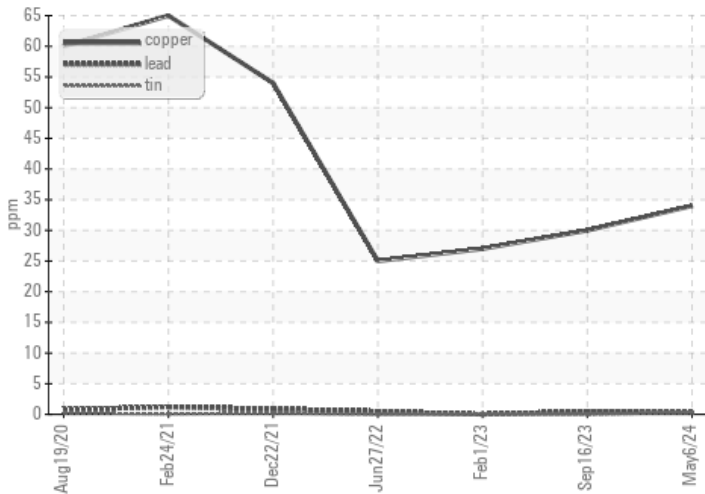


## GRAPHS

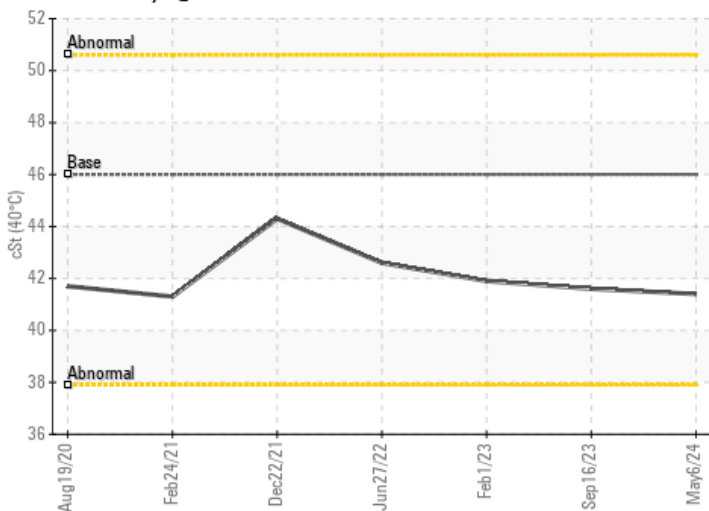
### Ferrous Alloys



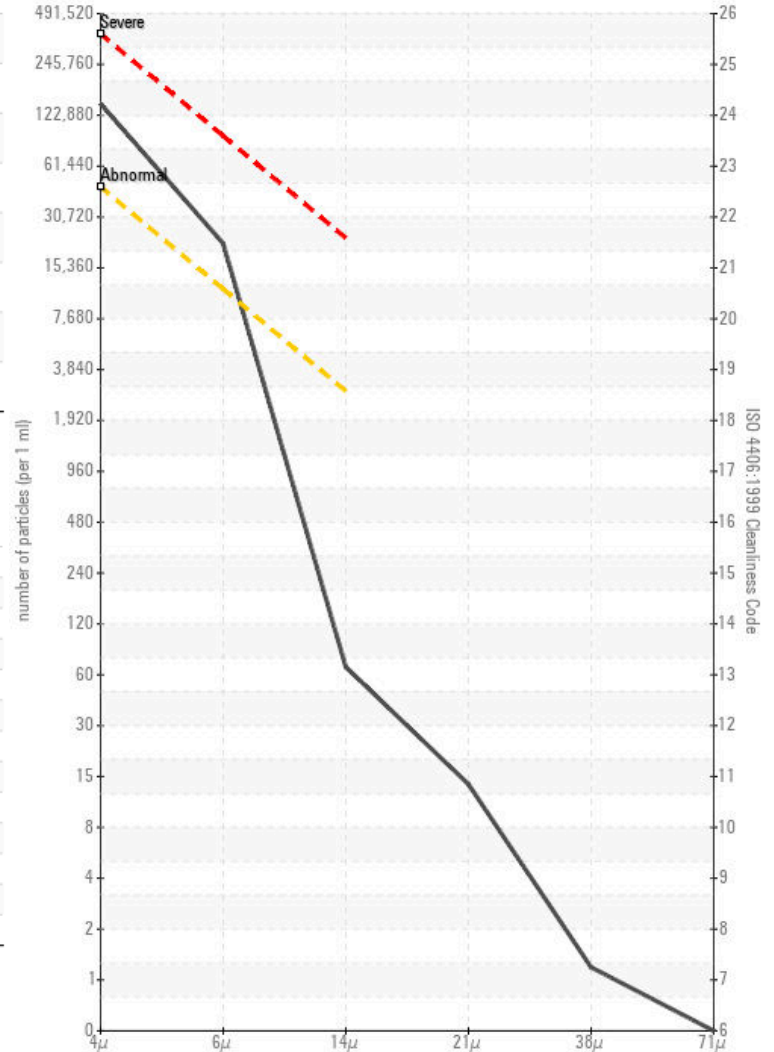
### Non-ferrous Metals



### Viscosity @ 40°C



### Particle Count



### Acid Number





# CONSTRUCTION EQUIPMENT

714837 CENTRAL SITE VOLVO ECR235EL 3 10445 (S/N 3 104445) - SWING DRIVE



**Sample No:** VCP454984  
**Oil Type:** VOLVO PREMIUM GEAR OIL 85W-140 GL-5  
**Job No:** 714837 CENTRAL SITE



## SAMPLE INFORMATION

Sample Number	<b>VCP454984</b>	VCP409345	VCP327624	VCP287890
Sample Date	<b>06 May 2024</b>	01 Feb 2023	22 Dec 2021	19 Aug 2020
Machine Hours	<b>6167</b>	5149	4155	3022
Oil Hours	<b>1000</b>	1000	2000	1000
Oil Changed	<b>Changed</b>	Changed	Changed	Changed
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	NORMAL

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## OIL CONDITION

Visc @ 40°C	cSt	<b>257</b>	127	189	188
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## CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	<b>5</b>	11	24	5
Sodium	ppm	<b>2</b>	0	1	<1
Potassium	ppm	<b>2</b>	<1	2	<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 oil. The condition of the oil is acceptable for the time in service.



## WEAR METALS

Iron	ppm	<b>167</b>	348	804	265
Copper	ppm	<b>4</b>	9	8	2
Lead	ppm	<b>0</b>	<1	<1	<1
Tin	ppm	<b>&lt;1</b>	0	<1	<1
Aluminum	ppm	<b>&lt;1</b>	0	4	<1
Chromium	ppm	<b>1</b>	3	8	2
Molybdenum	ppm	<b>2</b>	<1	<1	0
Nickel	ppm	<b>0</b>	0	2	0
Titanium	ppm	<b>0</b>	0	<1	0
Silver	ppm	<b>0</b>	0	<1	0
Manganese	ppm	<b>2</b>	4	7	4
Vanadium	ppm	<b>0</b>	0	0	0



## ADDITIVES

Calcium	ppm	<b>137</b>	16	7	1
Magnesium	ppm	<b>23</b>	3	0	0
Zinc	ppm	<b>88</b>	211	12	27
Phosphorus	ppm	<b>980</b>	635	410	402
Barium	ppm	<b>&lt;1</b>	0	0	0
Boron	ppm	<b>139</b>	31	3	<1

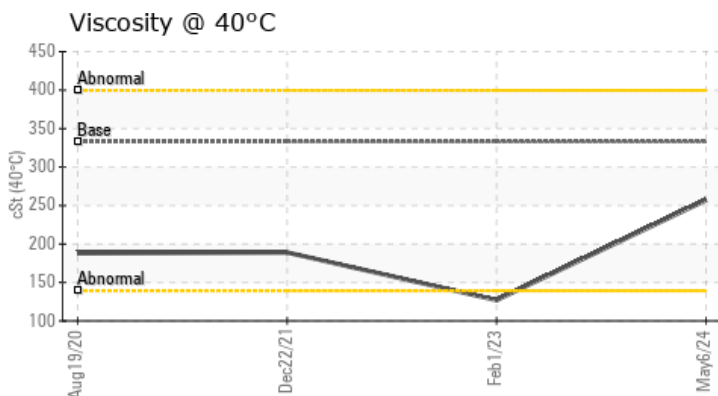
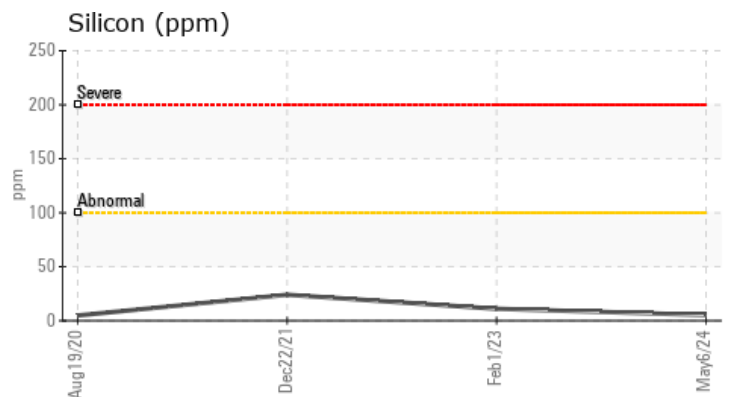
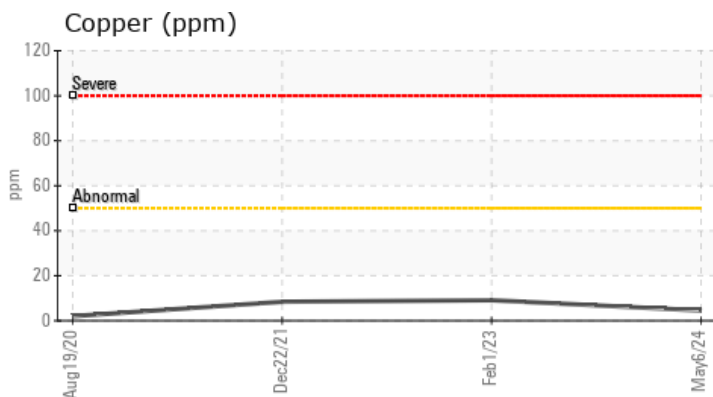
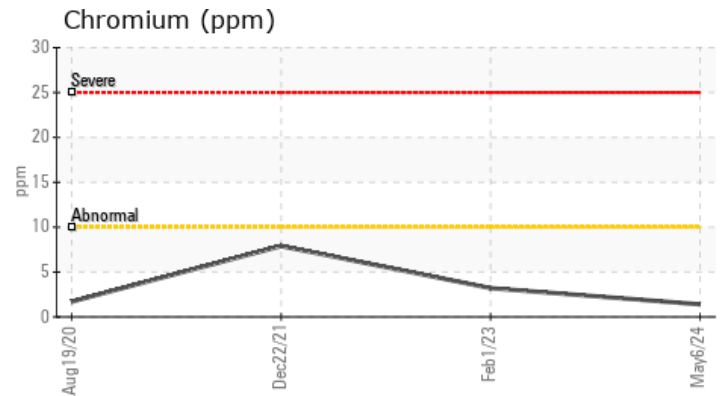
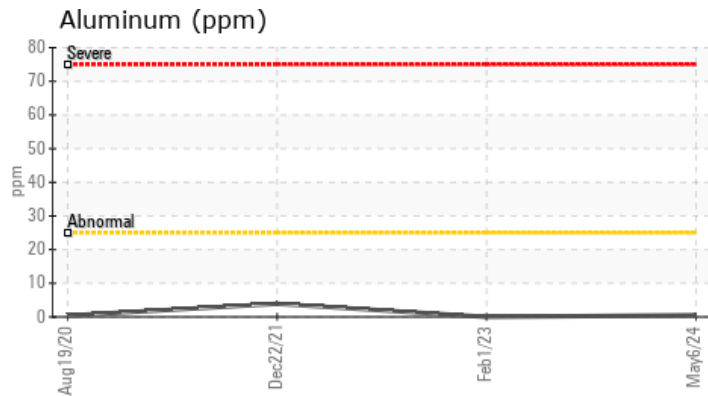
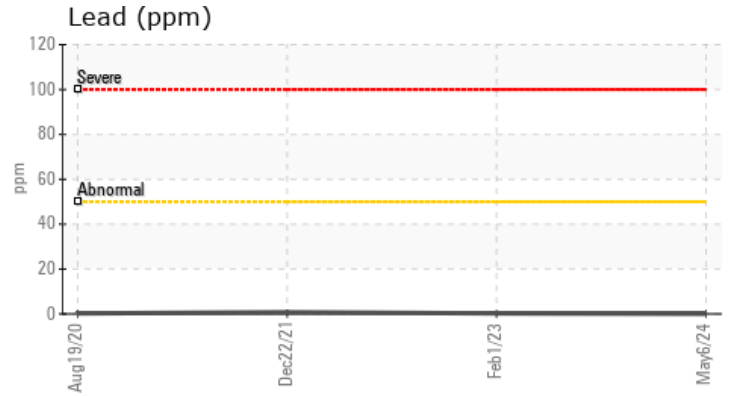
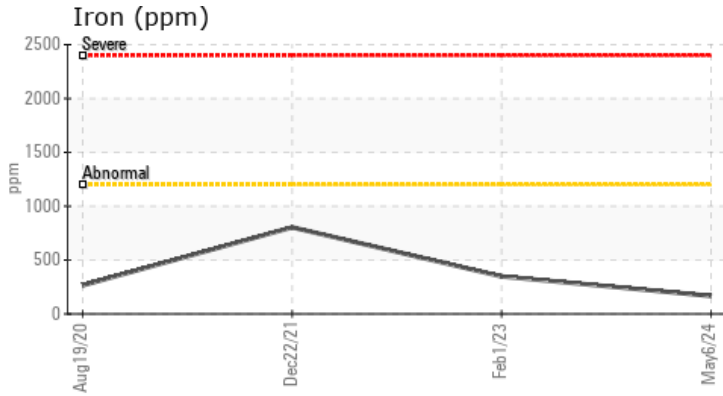
**Depot:** VOLVO0093  
**Unique No:** 11062652  
**Signed:** Don Baldrige  
**Report Date:** 07 Jun 2024



# CONSTRUCTION EQUIPMENT



## GRAPHS





# CONSTRUCTION EQUIPMENT

714837 CENTRAL SITE VOLVO ECR235EL 310445 (S/N 3104445) - REAR LEFT FINAL DRIVE



**Sample No:** VCP451187  
**Oil Type:** VOLVO PREMIUM GEAR OIL 85W-140 GL-5  
**Job No:** 714837 CENTRAL SITE



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Contact: KENNY HANEY  
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## SAMPLE INFORMATION

Sample Number	<b>VCP451187</b>	VCP407292	VCP335394	VCP276895
Sample Date	<b>06 May 2024</b>	01 Feb 2023	22 Dec 2021	19 Aug 2020
Machine Hours	<b>6167</b>	5149	4155	3022
Oil Hours	<b>2000</b>	1000	2000	1000
Oil Changed	<b>Changed</b>	Changed	Changed	Not Changd
Sample Status	<b>SEVERE</b>	SEVERE	SEVERE	ABNORMAL



## OIL CONDITION

Visc @ 40°C	cSt	<b>270</b>	311	381	286
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## CONTAMINATION

Water	%	<b>NEG</b>	NEG	NEG	NEG
Silicon	ppm	<b>▲ 293</b>	▲ 571	▲ 1153	▲ 180
Sodium	ppm	<b>■ 2</b>	■ <1	■ 3	■ <1
Potassium	ppm	<b>■ 4</b>	■ 5	■ 11	■ 2



## WEAR METALS

Iron	ppm	<b>▲ 1712</b>	▲ 2854	▲ 4318	▲ 767
Copper	ppm	<b>■ 1</b>	■ 2	■ 4	■ <1
Lead	ppm	<b>■ &lt;1</b>	■ 0	■ 1	■ <1
Tin	ppm	<b>■ &lt;1</b>	■ 0	■ 1	■ 0
Aluminum	ppm	<b>● 13</b>	● 36	● 94	● 14
Chromium	ppm	<b>▲ 15</b>	▲ 31	▲ 60	▲ 10
Molybdenum	ppm	<b>■ 4</b>	■ 5	■ 8	■ 0
Nickel	ppm	<b>■ &lt;1</b>	■ 3	■ 6	■ <1
Titanium	ppm	<b>1</b>	2	6	1
Silver	ppm	<b>0</b>	0	<1	0
Manganese	ppm	<b>■ 13</b>	■ 21	■ 37	■ 8
Vanadium	ppm	<b>0</b>	<1	<1	0



## ADDITIVES

Calcium	ppm	<b>■ 105</b>	■ 105	■ 270	■ 121
Magnesium	ppm	<b>■ 19</b>	■ 9	■ 20	■ 0
Zinc	ppm	<b>■ 62</b>	■ 63	■ 38	34
Phosphorus	ppm	<b>■ 1008</b>	■ 873	■ 867	■ 740
Barium	ppm	<b>■ &lt;1</b>	■ 0	■ 0	■ 0
Boron	ppm	<b>■ 163</b>	■ 131	■ 99	■ 53

## 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. Gear wear is indicated. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The oil is no longer serviceable due to the presence of contaminants.

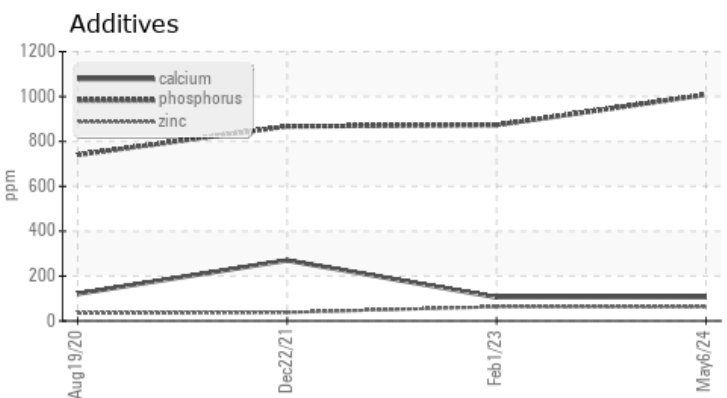
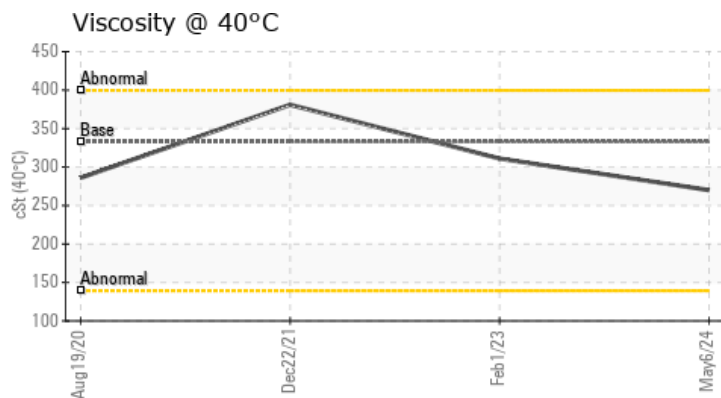
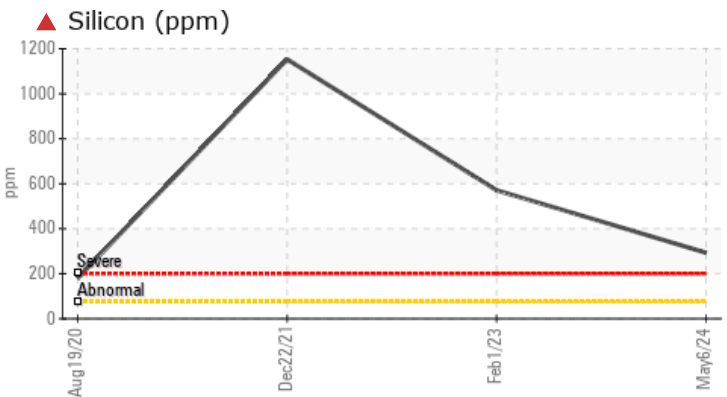
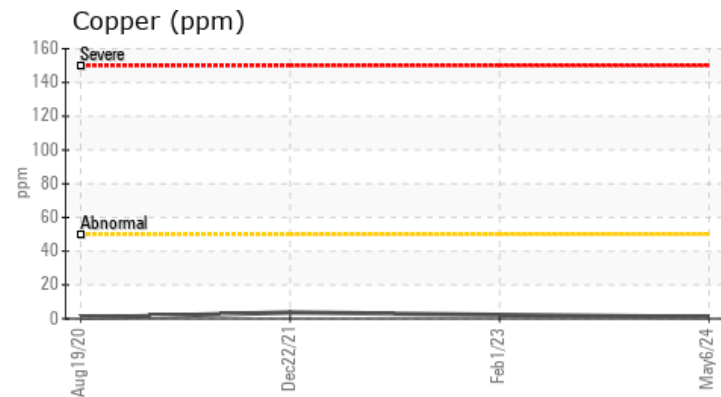
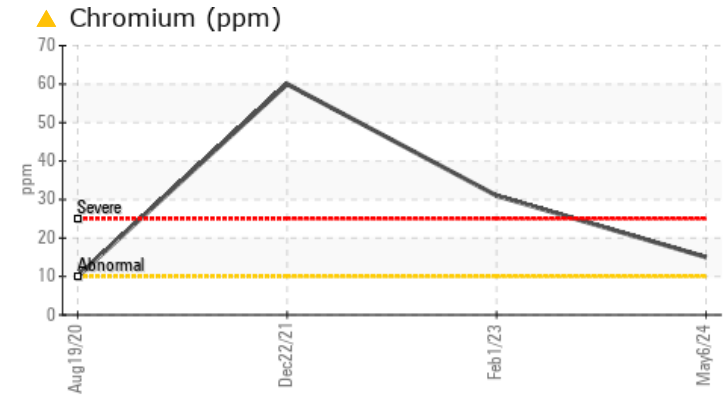
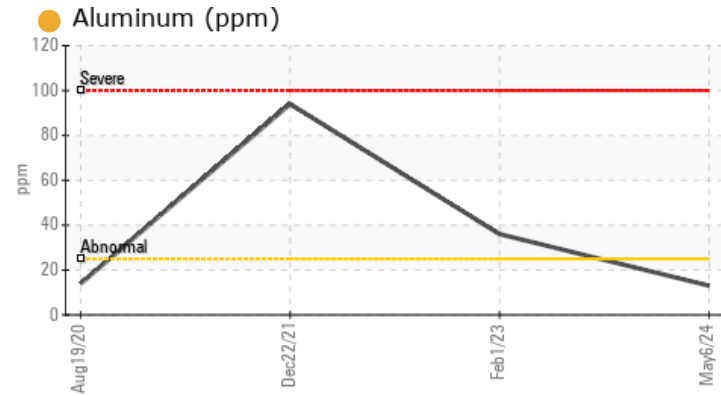
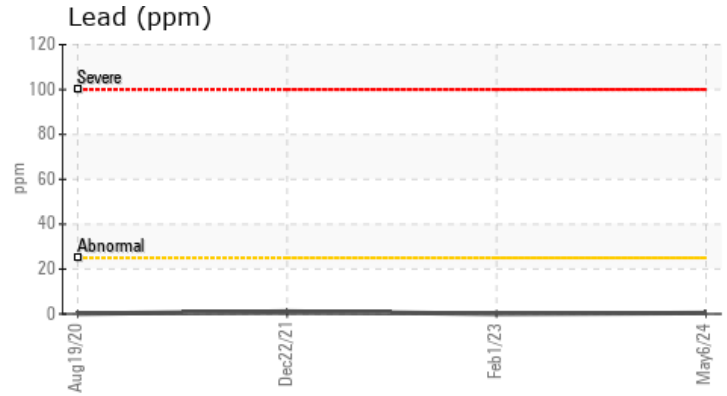
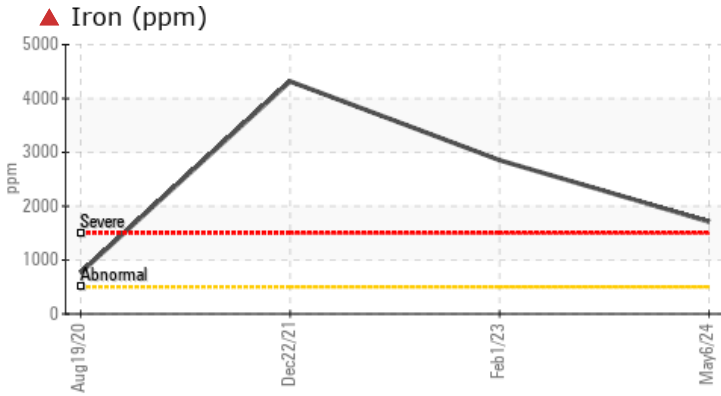
**Depot:** VOLVO0093  
**Unique No:** 11062666  
**Signed:** Don Baldrige  
**Report Date:** 07 Jun 2024



# CONSTRUCTION EQUIPMENT



## GRAPHS

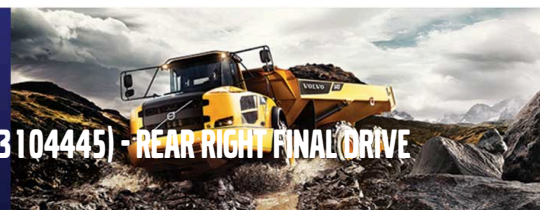






# CONSTRUCTION EQUIPMENT

714837 CENTRAL SITE VOLVO ECR235EL 3 10445 (S/N 3 104445) - REAR RIGHT FINAL DRIVE



**Sample No:** VCP451186  
**Oil Type:** VOLVO PREMIUM GEAR OIL 85W-140 GL-5  
**Job No:** 714837 CENTRAL SITE



## SAMPLE INFORMATION

Sample Number	<b>VCP451186</b>	VCP409537	VCP326906	VCP269241
Sample Date	<b>06 May 2024</b>	01 Feb 2023	22 Dec 2021	19 Aug 2020
Machine Hours	<b>6167</b>	5149	4155	3022
Oil Hours	<b>2000</b>	1000	2000	1000
Oil Changed	<b>Changed</b>	Changed	Changed	Not Changd
Sample Status	<b>SEVERE</b>	SEVERE	SEVERE	ABNORMAL

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F: (813)630-2233



## OIL CONDITION

Visc @ 40°C	cSt	<b>275</b>	410	529	273
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## CONTAMINATION

Water	%	<b>NEG</b>	0.316	NEG	NEG
Silicon	ppm	<b>470</b>	1312	2405	243
Sodium	ppm	<b>2</b>	<1	4	<1
Potassium	ppm	<b>6</b>	9	17	6



## WEAR METALS

Iron	ppm	<b>2730</b>	5301	6883	614
Copper	ppm	<b>2</b>	5	6	<1
Lead	ppm	<b>&lt;1</b>	<1	2	<1
Tin	ppm	<b>&lt;1</b>	0	2	0
Aluminum	ppm	<b>23</b>	77	166	34
Chromium	ppm	<b>24</b>	58	92	12
Molybdenum	ppm	<b>5</b>	9	12	0
Nickel	ppm	<b>2</b>	6	8	<1
Titanium	ppm	<b>2</b>	5	10	2
Silver	ppm	<b>0</b>	0	0	0
Manganese	ppm	<b>20</b>	40	58	8
Vanadium	ppm	<b>&lt;1</b>	<1	<1	0



## ADDITIVES

Calcium	ppm	<b>122</b>	169	312	160
Magnesium	ppm	<b>22</b>	19	45	<1
Zinc	ppm	<b>61</b>	71	32	38
Phosphorus	ppm	<b>983</b>	808	694	739
Barium	ppm	<b>&lt;1</b>	0	0	0
Boron	ppm	<b>151</b>	119	80	62

## 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. Gear wear is indicated. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The oil is no longer serviceable due to the presence of contaminants.

**Depot:** VOLVO0093  
**Unique No:** 11062657  
**Signed:** Don Baldrige  
**Report Date:** 07 Jun 2024



# CONSTRUCTION EQUIPMENT



## VOLVO GRAPHS

