



# CONSTRUCTION EQUIPMENT

## VOLVO L220G 12011 - COOLANT



**Sample No:** VCP331137  
**Oil Type:** VOLVO COOLANT VCS (YELLOW)  
**Job No:**



### SAMPLE INFORMATION

Sample Number	<b>VCP331137</b>	VCP162139	VCE195438	VCP172641
Sample Date	<b>30 Nov 2021</b>	30 Sep 2015	21 Jul 2015	02 May 2015
Machine Hours	<b>18873</b>	12011	8604	8009
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	NORMAL

**CALLANAN**  
 RT 32 677 FLATBUSH RD  
 EAST KINGSTON, NY  
 US 12401  
 Contact:



### COOLANT CONDITION

pH	Scale 0-14	<b>8.44</b>	7.40	7.60	7.70
Reserve Alkalinity	Scale 0-20	---	---	---	---
Nitrites	ppm	<b>0</b>	0	0	0
Percentage Glycol	%	<b>51</b>	52	52	52
Freezing Point	°C	<b>-41</b>	-34	-33	-33

T:  
F:



### CONTAMINATION

Coolant Appearance	<b>normal</b>	normal	normal	normal
Coolant Color	<b>Yllow</b>	Yllow	Yllow	Yllow

### Diagnosis

The fluid is suitable for further service. There is no indication of any contamination in the coolant. The carboxylate level of this fluid is acceptable. The glycol level is acceptable. The pH level of this fluid is within the acceptable limits.

**Depot:** CALEAS  
**Unique No:** 9762887  
**Signed:** Doug Bogart  
**Report Date:** 07 Dec 2021

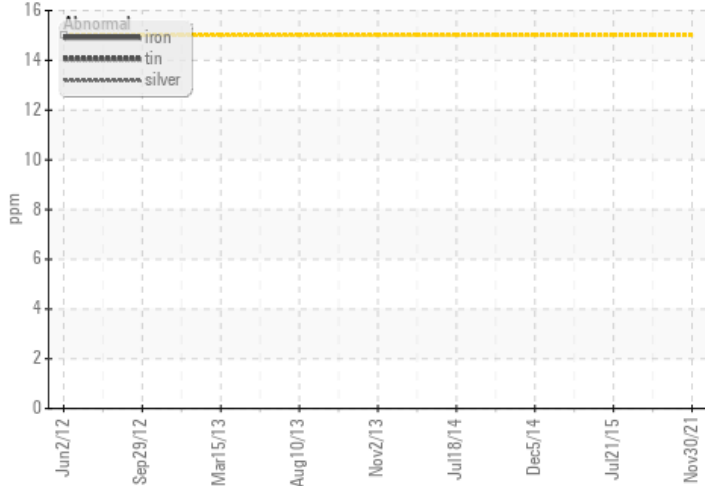


# CONSTRUCTION EQUIPMENT

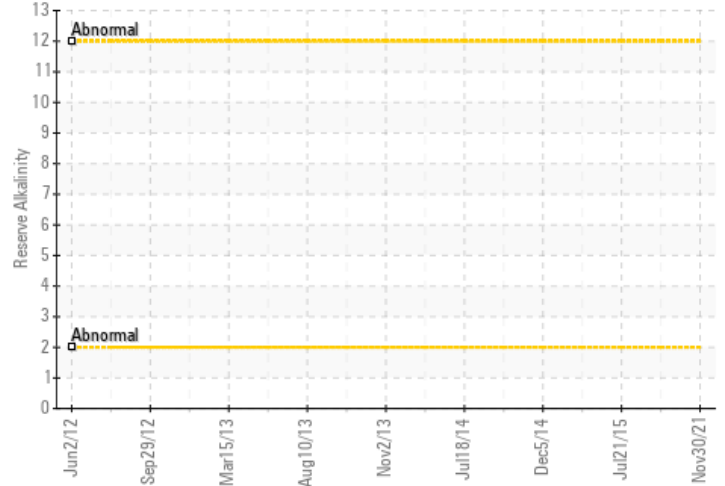


## VOLVO GRAPHS

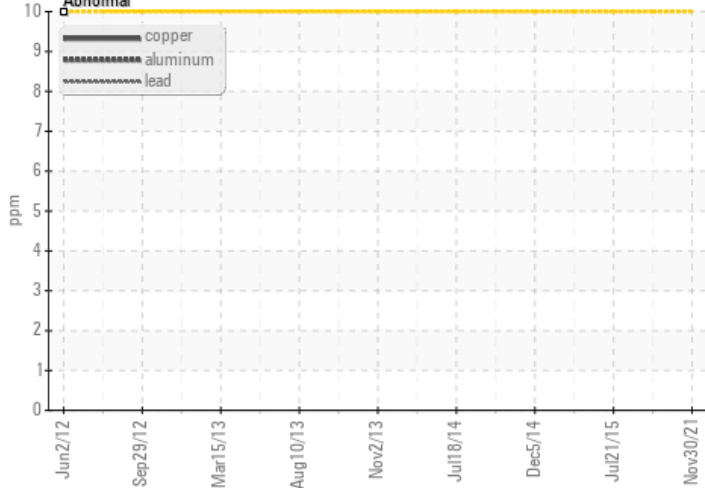
### Iron/Tin/Silver



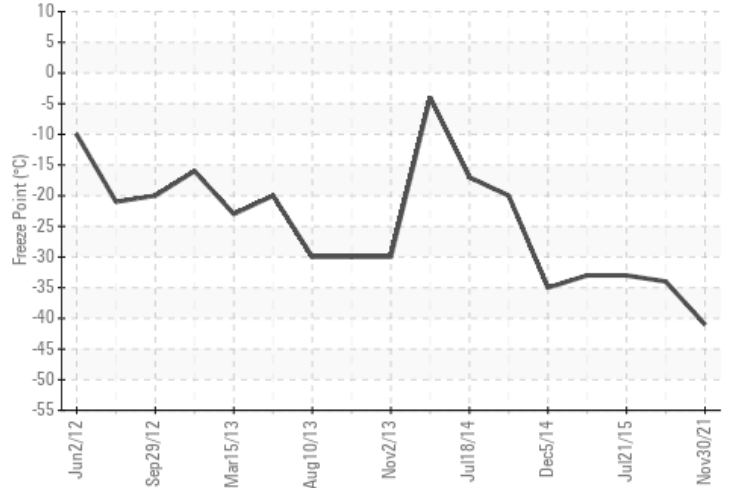
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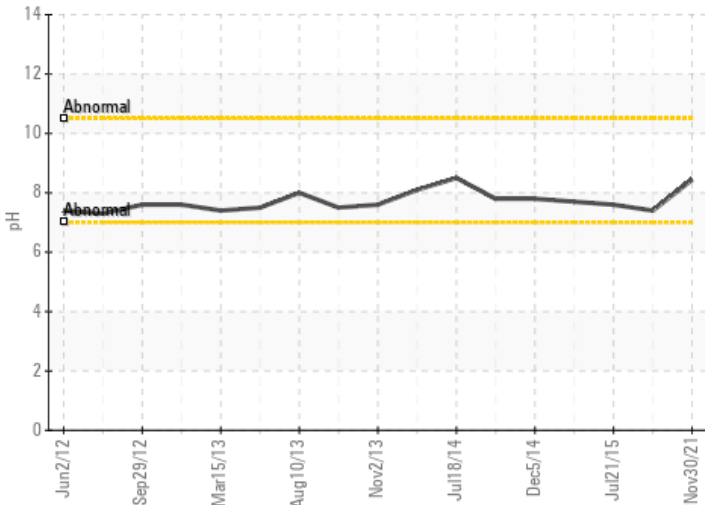
### Copper/Aluminum/Lead



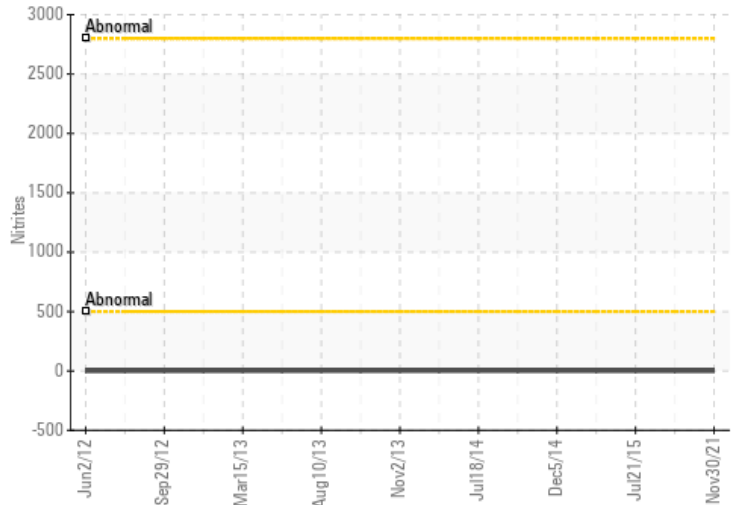
### Freeze Point



### pH



### Nitrites





# CONSTRUCTION EQUIPMENT

## VOLVO L220G 12011 - DIESEL ENGINE



**Sample No:** VCP395440  
**Oil Type:** VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3  
**Job No:**



### SAMPLE INFORMATION

Sample Number	<b>VCP395440</b>	VCP331146	VCP162229	VCP148622
Sample Date	<b>15 Jan 2023</b>	30 Nov 2021	30 Sep 2015	21 Jul 2015
Machine Hours	<b>19908</b>	18873	9146	8604
Oil Hours	<b>19908</b>	0	500	500
Oil Changed	<b>Changed</b>	Not Chngd	N/A	Changed
Sample Status	<b>NORMAL</b>	ABNORMAL	NORMAL	NORMAL

**CALLANAN**  
 RT 32 677 FLATBUSH RD  
 EAST KINGSTON, NY  
 US 12401  
 Contact:

### OIL CONDITION

Visc @ 100°C	cSt	█ <b>12.9</b>	█ 13.0	█ 13.18	█ 13.9
Base Number (BN)	mg KOH/g	█ <b>10.1</b>	█ 11.6	---	---
Oxidation (PA)	%	<b>78</b>	77	█ 64	█ 56

T:  
F:

### 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	%	<b>NEG</b>	NEG	NEG	NEG
Soot %	%	█ <b>1</b>	█ 0.1	█ 0.2	█ 0.1
Nitration (PA)	%	<b>67</b>	47	█ 58	█ 58
Sulfation (PA)	%	<b>65</b>	61	█ 53	█ 47
Glycol	%	<b>NEG</b>	NEG	NEG	NEG
Fuel	%	<b>&lt;1.0</b>	<1.0	<1.0	<1.0
Silicon	ppm	█ <b>12</b>	▲ 21	█ 12	█ 12
Sodium	ppm	█ <b>3</b>	█ 6	█ 4	█ 4
Potassium	ppm	█ <b>3</b>	█ 1	█ 0	█ 2

### WEAR METALS

Iron	ppm	█ <b>27</b>	█ 17	█ 16	█ 16
Copper	ppm	█ <b>10</b>	█ 3	█ 3	█ 3
Lead	ppm	█ <b>&lt;1</b>	█ <1	█ <1	█ <1
Tin	ppm	█ <b>1</b>	█ <1	█ 0	█ <1
Aluminum	ppm	█ <b>2</b>	█ 4	█ 4	█ 4
Chromium	ppm	█ <b>&lt;1</b>	█ <1	█ <1	█ <1
Molybdenum	ppm	█ <b>43</b>	█ 55	█ 8	█ 38
Nickel	ppm	█ <b>0</b>	█ 0	█ 1	█ 2
Titanium	ppm	<b>0</b>	<1	<1	<1
Silver	ppm	█ <b>0</b>	<1	0	<1
Manganese	ppm	█ <b>1</b>	█ <1	█ <1	<1
Vanadium	ppm	<b>0</b>	0	0	0

### ADDITIVES

Calcium	ppm	█ <b>1671</b>	█ 1874	█ 2071	█ 1510
Magnesium	ppm	█ <b>458</b>	█ 533	125	█ 608
Zinc	ppm	█ <b>1057</b>	█ 1054	█ 1057	█ 1004
Phosphorus	ppm	█ <b>884</b>	█ 995	█ 901	█ 847
Barium	ppm	█ <b>2</b>	█ 0	█ 0	█ 0
Boron	ppm	█ <b>38</b>	█ 66	█ 19	█ 32

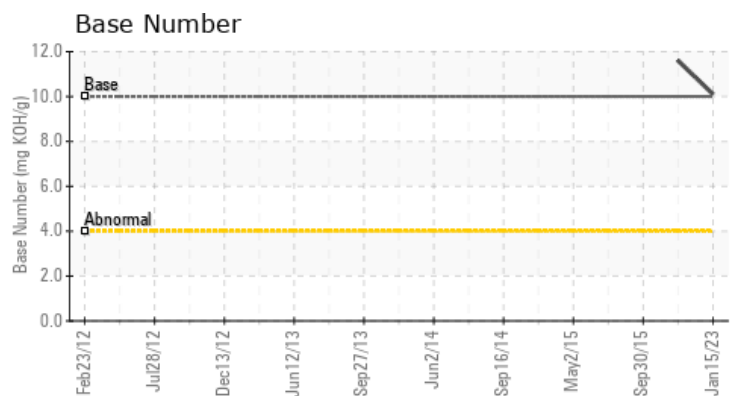
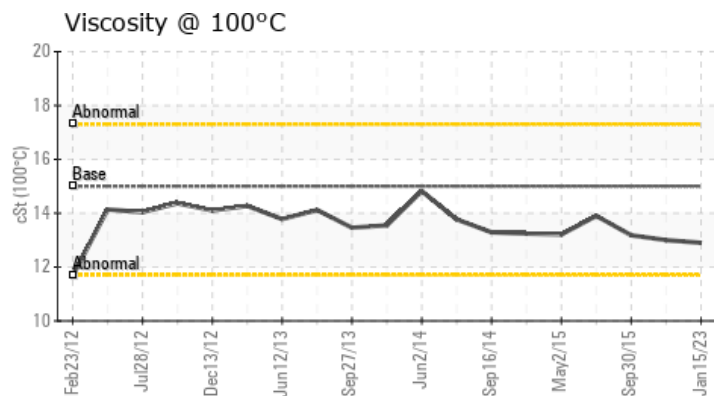
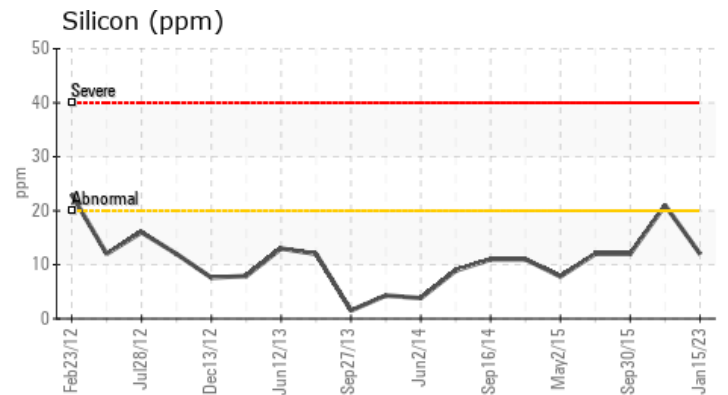
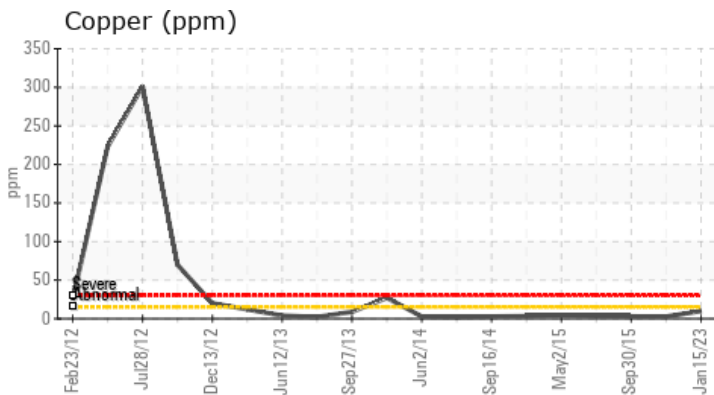
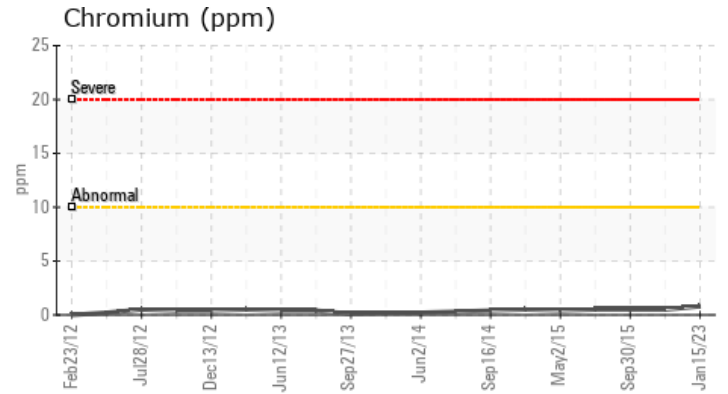
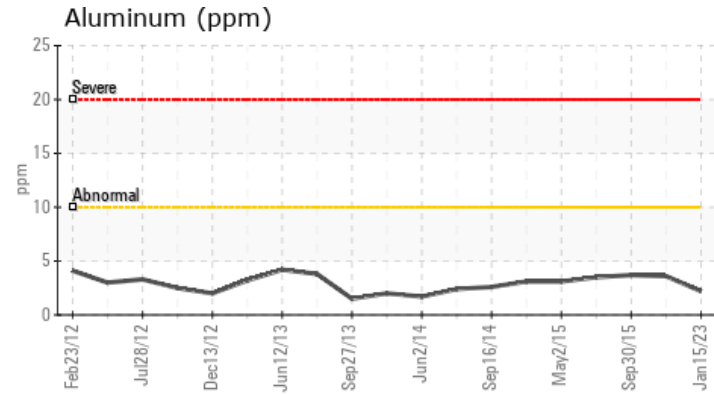
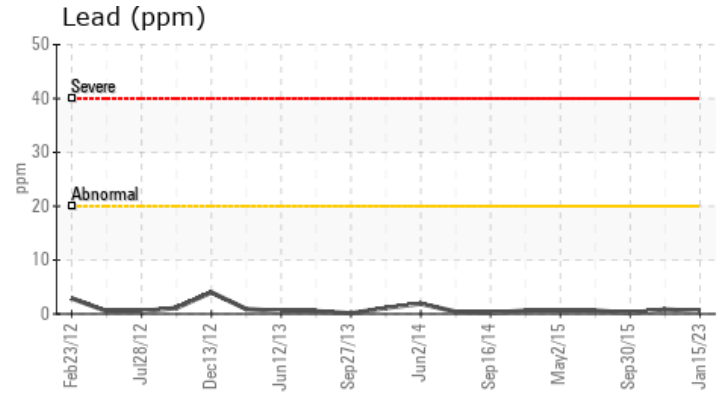
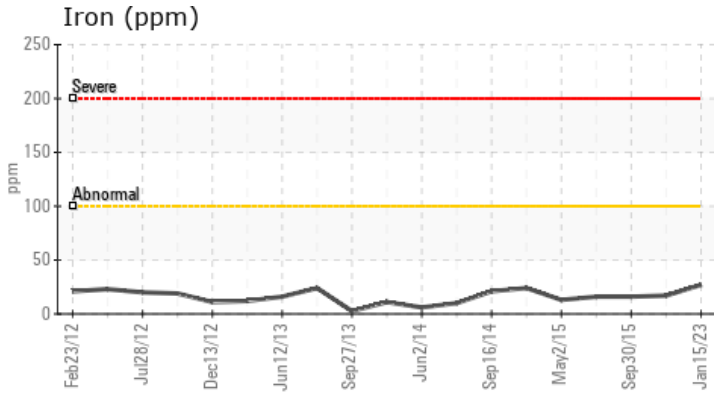
**Depot:** CALEAS  
**Unique No:** 10294030  
**Signed:** Jonathan Hester  
**Report Date:** 17 Jan 2023



# CONSTRUCTION EQUIPMENT



## GRAPHS





# CONSTRUCTION EQUIPMENT

## VOLVO L220G 12011 - TRANSMISSION (AUTO)



**Sample No:** VCP323052  
**Oil Type:** VOLVO AT 102  
**Job No:**



### SAMPLE INFORMATION

Sample Number	<b>VCP323052</b>	VC068873	VCP156781	VCP168048
Sample Date	<b>30 Nov 2021</b>	30 Sep 2015	21 Jul 2015	02 May 2015
Machine Hours	<b>18873</b>	9146	8604	8009
Oil Hours	<b>0</b>	0	1000	500
Oil Changed	<b>Not Changd</b>	N/A	Not Changd	Changed
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	NORMAL

**CALLANAN**  
 RT 32 677 FLATBUSH RD  
 EAST KINGSTON, NY  
 US 12401  
 Contact:



### OIL CONDITION

Visc @ 40°C	cSt	<b>27.7</b>	27.7	27.98	27.86
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T:  
F:



### CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	<b>9</b>	2	1	0
Sodium	ppm	<b>3</b>	3	2	1
Potassium	ppm	<b>8</b>	0	<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 fluid. The condition of the fluid is acceptable for the time in service.



### WEAR METALS

Iron	ppm	<b>5</b>	30	23	31
Copper	ppm	<b>1</b>	2	2	2
Lead	ppm	<b>0</b>	0	0	<1
Tin	ppm	<b>0</b>	0	0	<1
Aluminum	ppm	<b>&lt;1</b>	<1	<1	<1
Chromium	ppm	<b>&lt;1</b>	<1	<1	<1
Molybdenum	ppm	<b>0</b>	0	0	0
Nickel	ppm	<b>&lt;1</b>	<1	0	<1
Titanium	ppm	<b>0</b>	0	0	0
Silver	ppm	<b>&lt;1</b>	0	0	2
Manganese	ppm	<b>2</b>	<1	<1	<1
Vanadium	ppm	<b>0</b>	0	0	0



### ADDITIVES

Calcium	ppm	<b>83</b>	84	93	83
Magnesium	ppm	<b>0</b>	<1	<1	0
Zinc	ppm	<b>3</b>	8	8	6
Phosphorus	ppm	<b>184</b>	169	169	151
Barium	ppm	<b>0</b>	0	0	<1
Boron	ppm	<b>77</b>	65	73	64

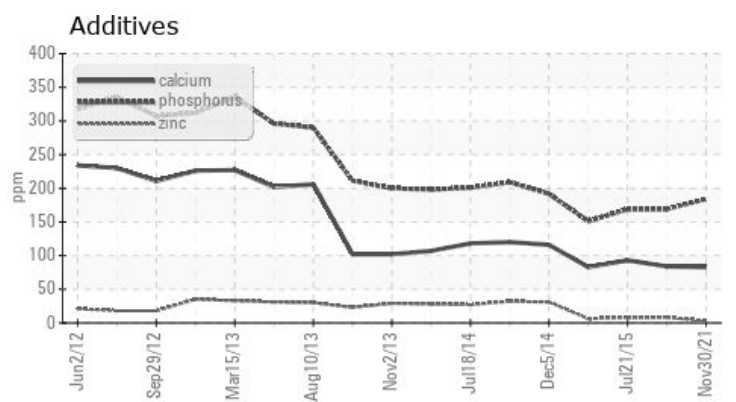
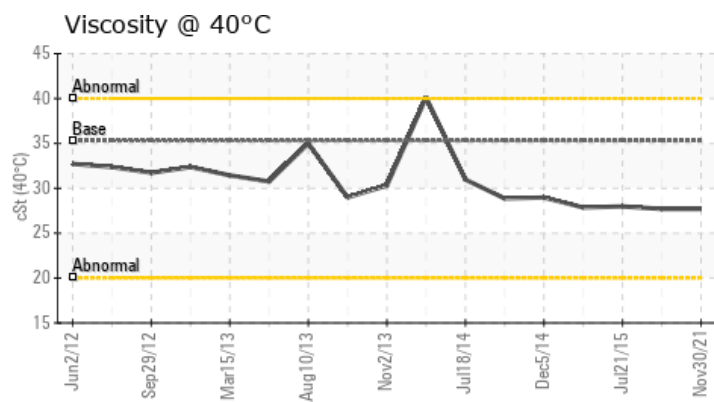
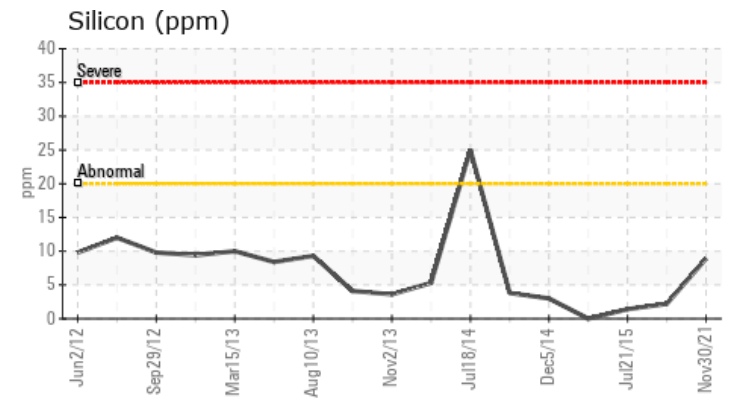
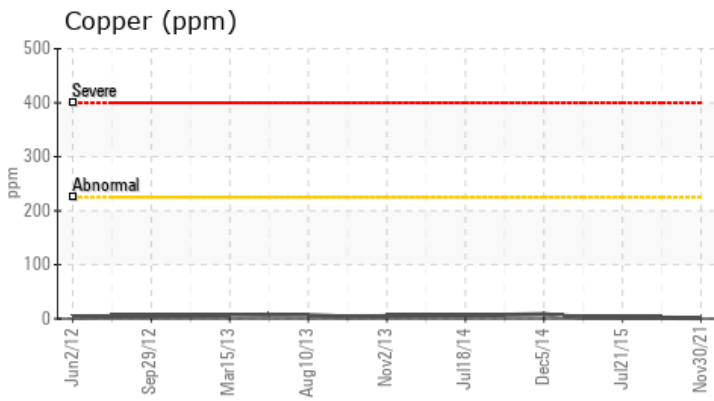
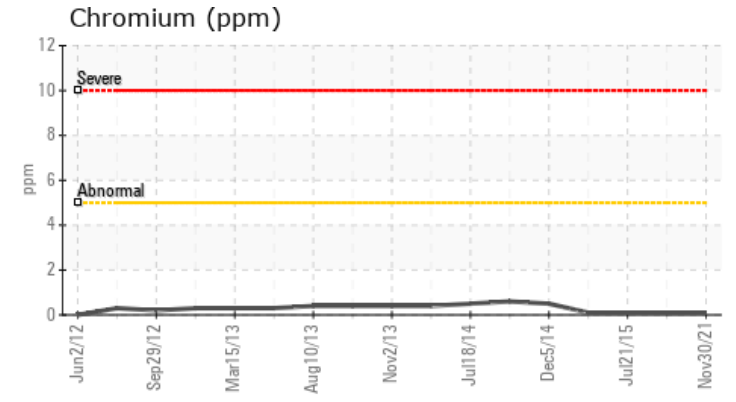
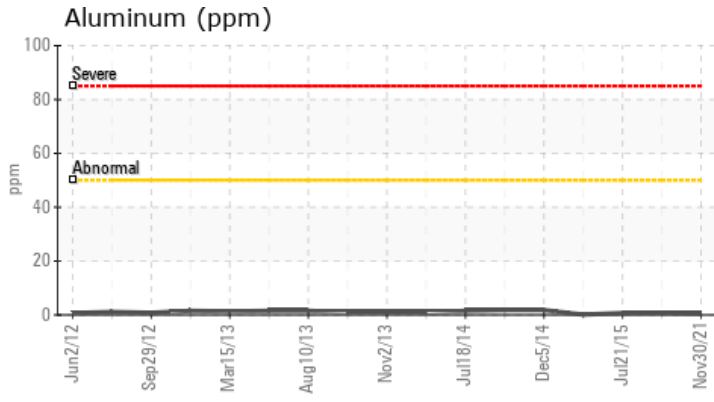
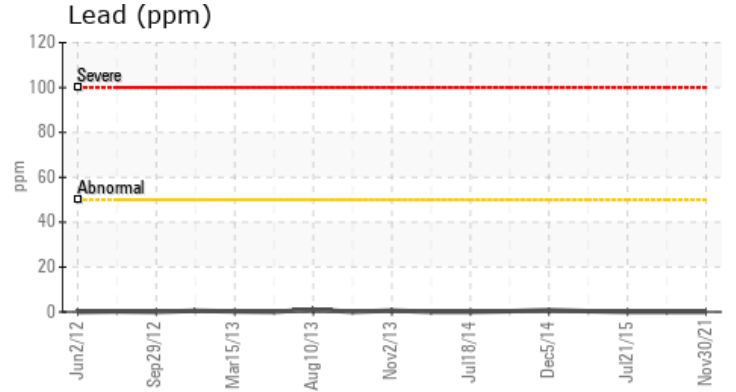
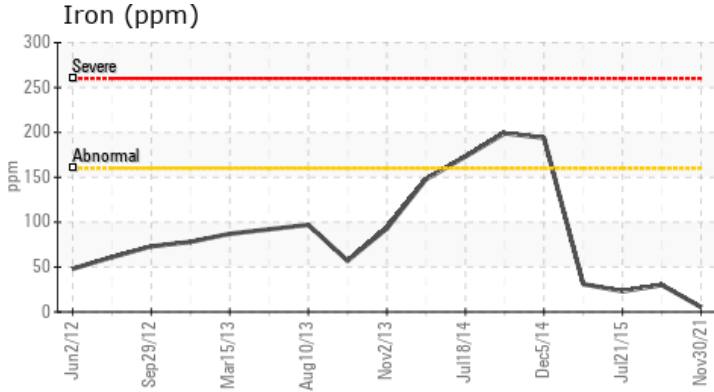
**Depot:** CALEAS  
**Unique No:** 9762797  
**Signed:** Jonathan Hester  
**Report Date:** 03 Dec 2021



# CONSTRUCTION EQUIPMENT



## VOLVO GRAPHS





# CONSTRUCTION EQUIPMENT

## VOLVO L220G 12011 - HYDRAULIC SYSTEM



**Sample No:** VCP331081  
**Oil Type:** VOLVO SUPER HYDRAULIC OIL 46  
**Job No:**



### SAMPLE INFORMATION

Sample Number	<b>VCP331081</b>	VCP162125	VCP148619	VCP168049
Sample Date	<b>30 Nov 2021</b>	30 Sep 2015	21 Jul 2015	02 May 2015
Machine Hours	<b>18873</b>	9146	8604	8009
Oil Hours	<b>0</b>	0	1000	0
Oil Changed	<b>Not Changd</b>	N/A	N/A	Not Changd
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	ATTENTION

**CALLANAN**  
 RT 32 677 FLATBUSH RD  
 EAST KINGSTON, NY  
 US 12401  
 Contact:

### OIL CONDITION

Visc @ 40°C	cSt	<b>42.0</b>	41.51	41.68	42.17
Acid Number (AN)	mg KOH/g	<b>0.728</b>	1.18	0.668	0.940

T:  
F:

### CONTAMINATION

Water	%	<b>NEG</b>	NEG	NEG	NEG
Particles >4µm		<b>11329</b>	216	10886	949
Particles >6µm		<b>1158</b>	117	830	517
Particles >14µm		<b>27</b>	20	18	88
ISO 4406:1999 (c)		<b>21/17/12</b>	15/14/11	21/17/11	17/16/14
Silicon	ppm	<b>11</b>	15	15	11
Sodium	ppm	<b>4</b>	3	2	2
Potassium	ppm	<b>0</b>	0	2	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 amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

### WEAR METALS

Iron	ppm	<b>5</b>	6	6	5
Copper	ppm	<b>1</b>	6	6	5
Lead	ppm	<b>1</b>	0	0	<1
Tin	ppm	<b>&lt;1</b>	0	0	0
Aluminum	ppm	<b>2</b>	3	3	2
Chromium	ppm	<b>&lt;1</b>	<1	<1	<1
Molybdenum	ppm	<b>2</b>	2	2	1
Nickel	ppm	<b>0</b>	<1	<1	<1
Titanium	ppm	<b>&lt;1</b>	<1	0	0
Silver	ppm	<b>0</b>	0	0	0
Manganese	ppm	<b>&lt;1</b>	<1	<1	<1
Vanadium	ppm	<b>0</b>	0	0	0

### ADDITIVES

Calcium	ppm	<b>2751</b>	1898	1936	1782
Magnesium	ppm	<b>30</b>	10	9	8
Zinc	ppm	<b>1207</b>	981	967	861
Phosphorus	ppm	<b>1071</b>	769	805	740
Barium	ppm	<b>0</b>	0	0	0
Boron	ppm	<b>53</b>	45	49	50

**Depot:** CALEAS  
**Unique No:** 9762450  
**Signed:** Jonathan Hester  
**Report Date:** 03 Dec 2021

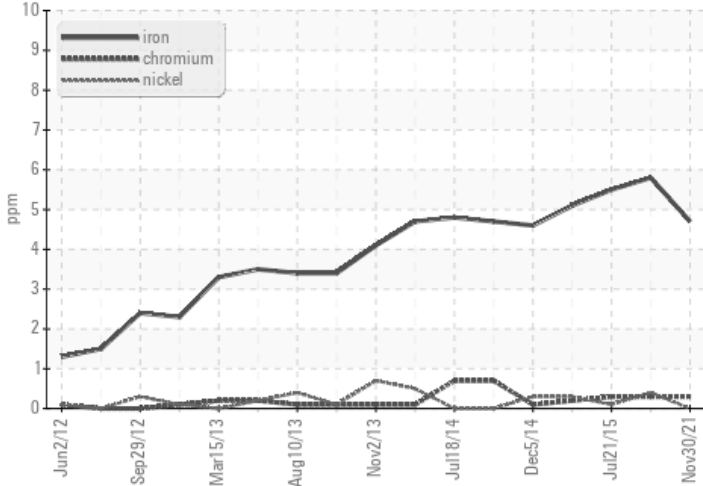


# CONSTRUCTION EQUIPMENT

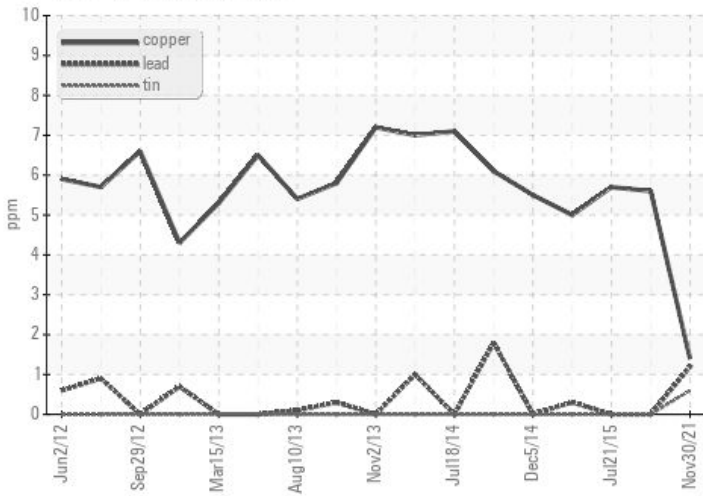


## GRAPHS

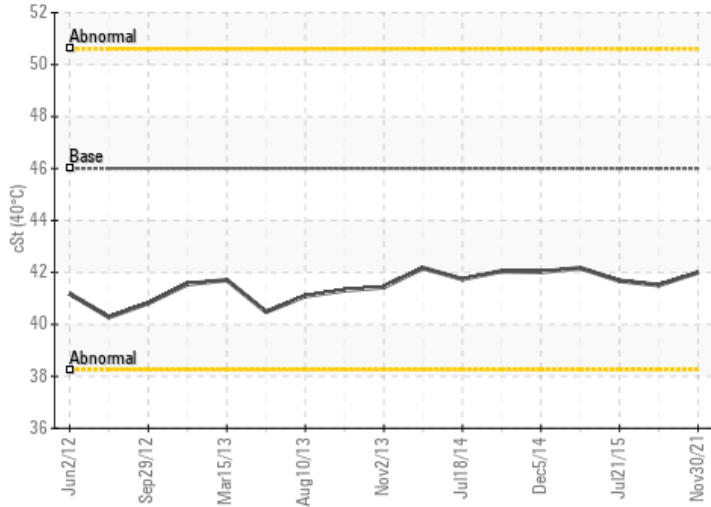
Ferrous Alloys



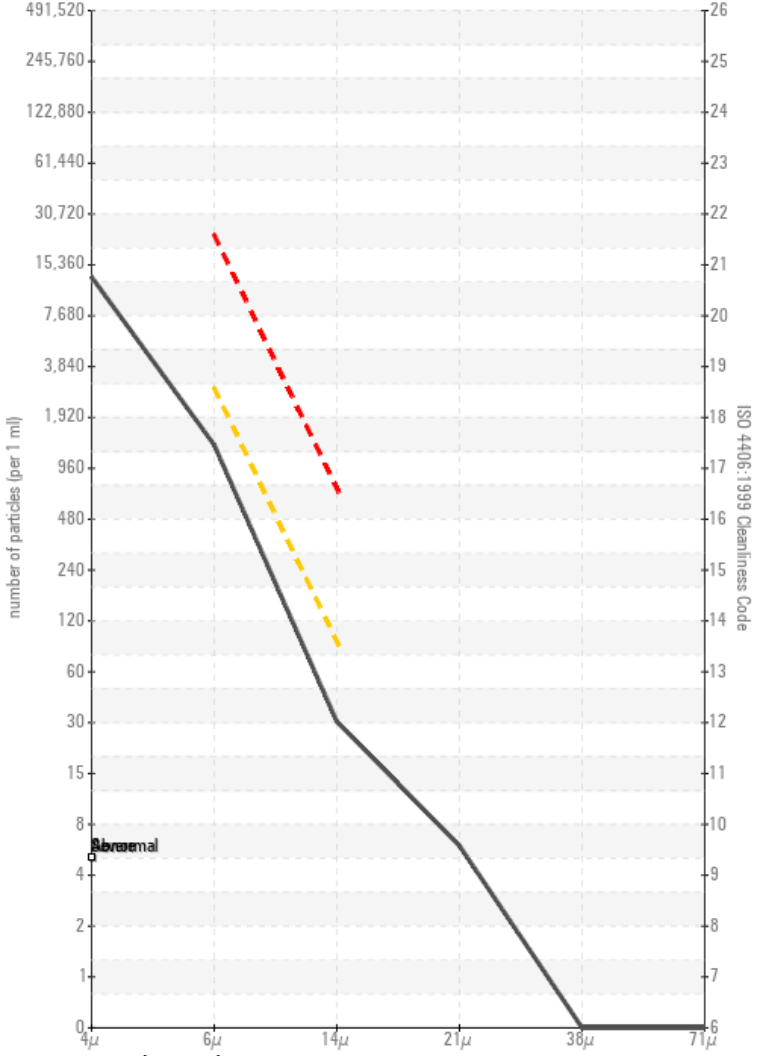
Non-ferrous Metals



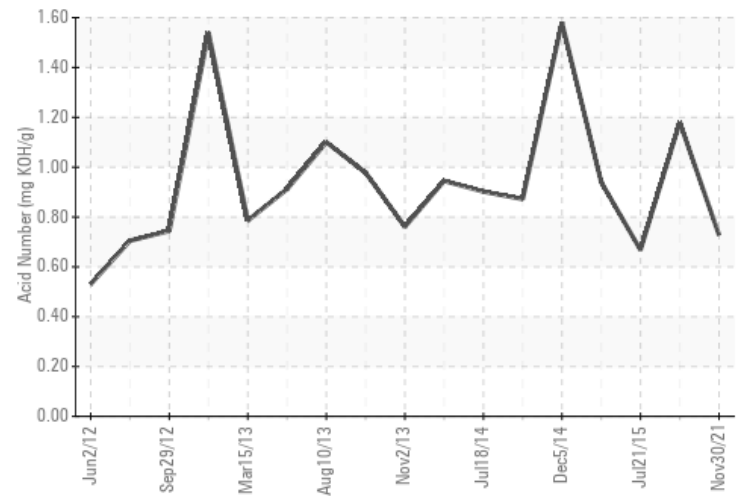
Viscosity @ 40°C



Particle Count



Acid Number







# CONSTRUCTION EQUIPMENT

## VOLVO L220G 12011 - FRONT AXLE



**Sample No:** VCP344538  
**Oil Type:** VOLVO WB 102  
**Job No:**



### SAMPLE INFORMATION

Sample Number	<b>VCP344538</b>	VCP162124	VCP148621	VCP168056
Sample Date	<b>30 Nov 2021</b>	30 Sep 2015	21 Jul 2015	02 May 2015
Machine Hours	<b>18873</b>	9146	8604	8009
Oil Hours	<b>0</b>	0	500	2000
Oil Changed	<b>Not Changd</b>	N/A	Not Changd	Changed
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	NORMAL

**CALLANAN**  
 RT 32 677 FLATBUSH RD  
 EAST KINGSTON, NY  
 US 12401  
 Contact:



### OIL CONDITION

Visc @ 40°C	cSt	<b>40.9</b>	40.19	40.00	40.71
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T:  
F:



### CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	<b>9</b>	8	12	17
Sodium	ppm	<b>1</b>	1	<1	<1
Potassium	ppm	<b>5</b>	0	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 fluid. The condition of the fluid is acceptable for the time in service.



### WEAR METALS

Iron	ppm	<b>72</b>	6	13	100
Copper	ppm	<b>12</b>	2	<1	8
Lead	ppm	<b>1</b>	0	0	<1
Tin	ppm	<b>0</b>	0	0	<1
Aluminum	ppm	<b>&lt;1</b>	<1	<1	<1
Chromium	ppm	<b>1</b>	<1	<1	2
Molybdenum	ppm	<b>0</b>	0	0	<1
Nickel	ppm	<b>0</b>	0	<1	<1
Titanium	ppm	<b>1</b>	<1	0	0
Silver	ppm	<b>0</b>	0	0	0
Manganese	ppm	<b>&lt;1</b>	<1	<1	2
Vanadium	ppm	<b>&lt;1</b>	0	0	0



### ADDITIVES

Calcium	ppm	<b>2716</b>	3844	4196	4837
Magnesium	ppm	<b>10</b>	6	10	15
Zinc	ppm	<b>1214</b>	1664	1624	1799
Phosphorus	ppm	<b>1121</b>	1260	1375	1647
Barium	ppm	<b>0</b>	0	0	0
Boron	ppm	<b>60</b>	97	112	142

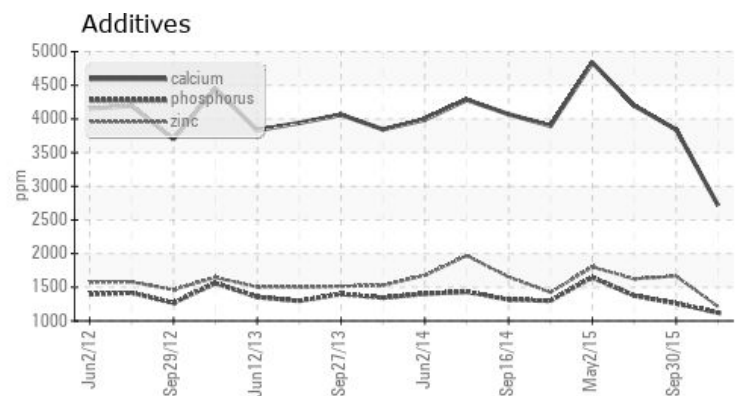
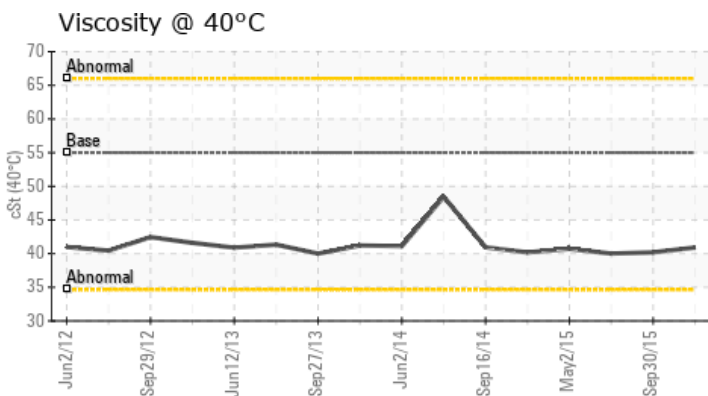
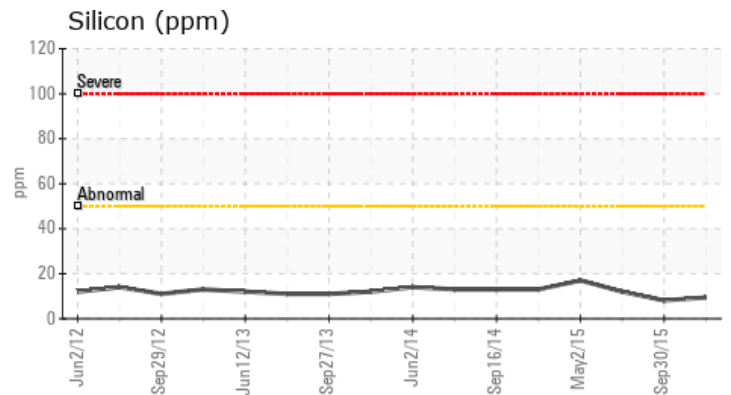
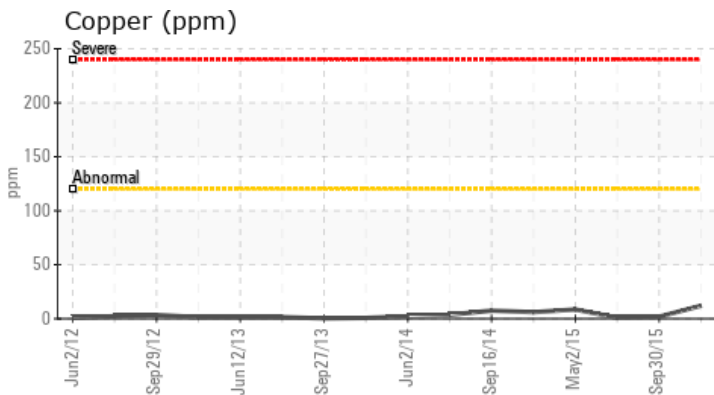
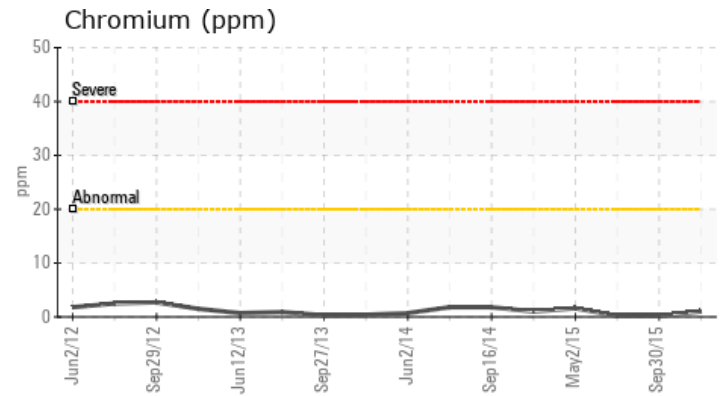
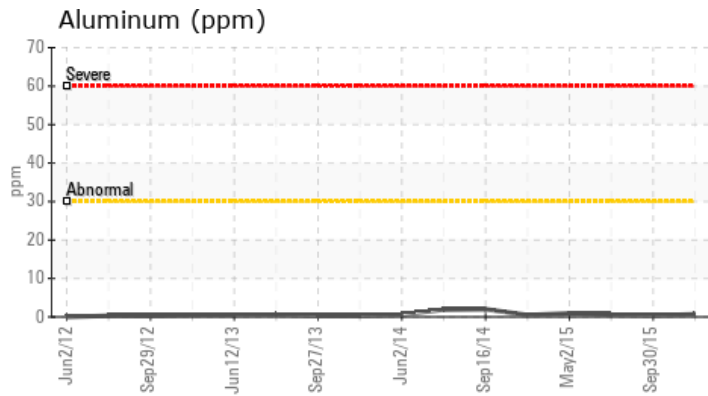
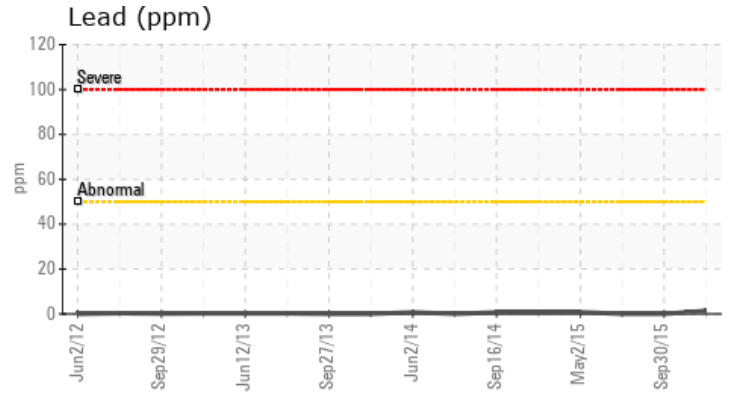
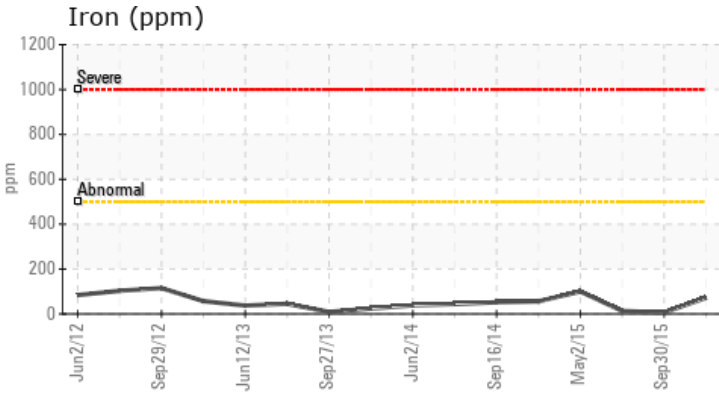
**Depot:** CALEAS  
**Unique No:** 9762807  
**Signed:** Jonathan Hester  
**Report Date:** 03 Dec 2021



# CONSTRUCTION EQUIPMENT



## VOLVO GRAPHS





# CONSTRUCTION EQUIPMENT

## VOLVO L220G 12011 - REAR AXLE



**Sample No:** VCP321672  
**Oil Type:** VOLVO WB 102  
**Job No:**



### SAMPLE INFORMATION

Sample Number	<b>VCP321672</b>	VC046330	VCP148616	VCP168059
Sample Date	<b>30 Nov 2021</b>	30 Sep 2015	21 Jul 2015	02 May 2015
Machine Hours	<b>18873</b>	9146	8604	8009
Oil Hours	<b>0</b>	0	0	2000
Oil Changed	<b>Not Chngd</b>	N/A	N/A	Changed
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	ABNORMAL

**CALLANAN**  
 RT 32 677 FLATBUSH RD  
 EAST KINGSTON, NY  
 US 12401  
 Contact:



### OIL CONDITION

Visc @ 40°C	cSt	<b>42.7</b>	40.00	40.48	40.1
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T:  
F:



### CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	<b>19</b>	8	12	12
Sodium	ppm	<b>2</b>	1	<1	<1
Potassium	ppm	<b>2</b>	2	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 component. The condition of the oil is acceptable for the time in service.



### WEAR METALS

Iron	ppm	<b>71</b>	6	13	101
Copper	ppm	<b>12</b>	2	1	7
Lead	ppm	<b>&lt;1</b>	<1	0	<1
Tin	ppm	<b>0</b>	0	0	<1
Aluminum	ppm	<b>2</b>	<1	<1	<1
Chromium	ppm	<b>&lt;1</b>	<1	<1	1
Molybdenum	ppm	<b>&lt;1</b>	0	0	0
Nickel	ppm	<b>1</b>	0	<1	<1
Titanium	ppm	<b>2</b>	<1	0	0
Silver	ppm	<b>0</b>	0	0	0
Manganese	ppm	<b>&lt;1</b>	<1	<1	2
Vanadium	ppm	<b>0</b>	0	0	0



### ADDITIVES

Calcium	ppm	<b>2727</b>	3938	4180	3739
Magnesium	ppm	<b>11</b>	6	11	10
Zinc	ppm	<b>1214</b>	1677	1617	1429
Phosphorus	ppm	<b>1104</b>	1299	1393	1303
Barium	ppm	<b>0</b>	0	0	0
Boron	ppm	<b>62</b>	97	110	109

**Depot:** CALEAS  
**Unique No:** 9762830  
**Signed:** Doug Bogart  
**Report Date:** 04 Dec 2021



# CONSTRUCTION EQUIPMENT



## GRAPHS

