



CONSTRUCTION EQUIPMENT

W215513 VOLVO L220H 3193 - COOLANT



Sample No: VCP321795
Oil Type: VOLVO COOLANT VCS (YELLOW)
Job No: W215513



SAMPLE INFORMATION

Sample Number	VCP321795	VCP268666	VCP267652	---
Sample Date	21 Jul 2021	14 Jul 2020	22 May 2020	---
Machine Hours	4950	2646	2289	---
Sample Status	NORMAL	NORMAL	NORMAL	---

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



COOLANT CONDITION

pH	Scale 0-14	7.14	7.26	7.26	---
Reserve Alkalinity	Scale 0-20	---	---	---	---
Nitrites	ppm	0	0	0	---
Percentage Glycol	%	50	49	48	---
Freezing Point	°C	-38	-35	-34	---

T:
F:



CONTAMINATION

Coolant Appearance	normal	normal	normal	---
Coolant Color	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: 9610464
Signed: Doug Bogart
Report Date: 09 Aug 2021

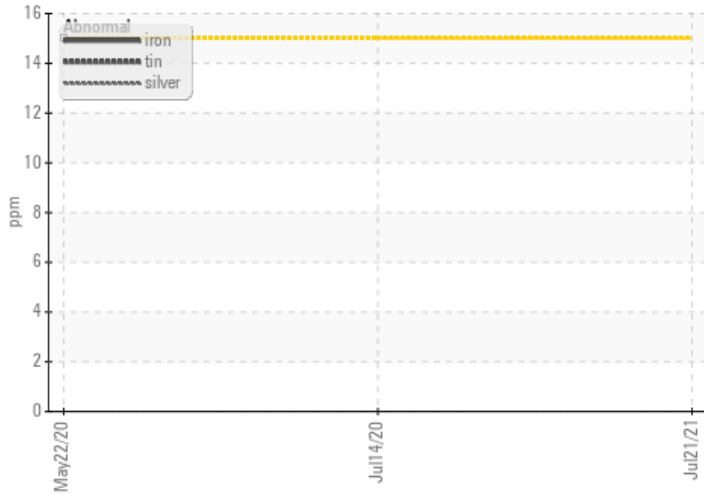


CONSTRUCTION EQUIPMENT

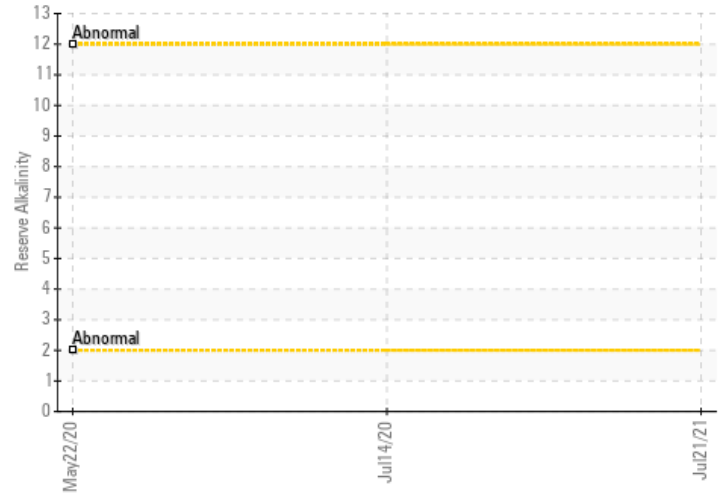


GRAPHS

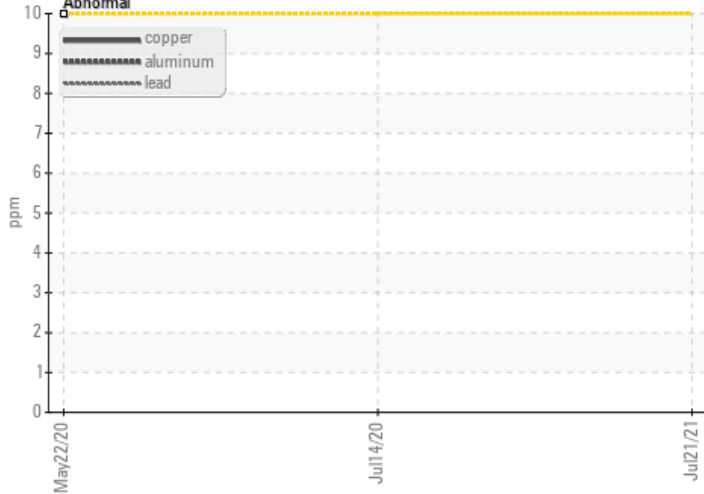
Iron/Tin/Silver



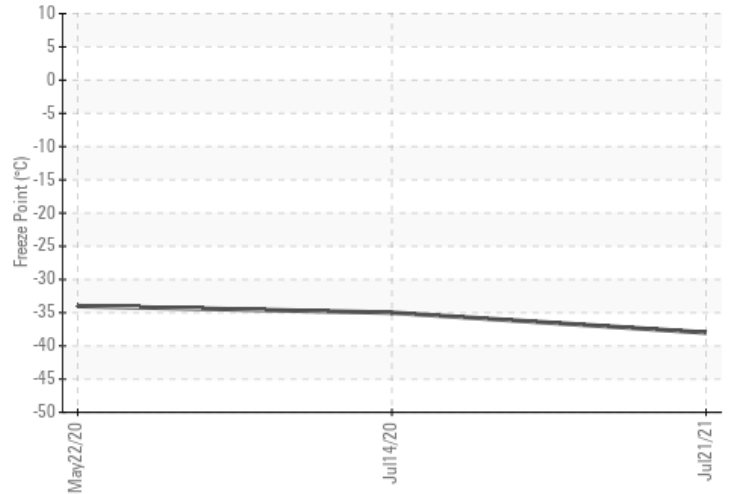
Reserve Alkalinity



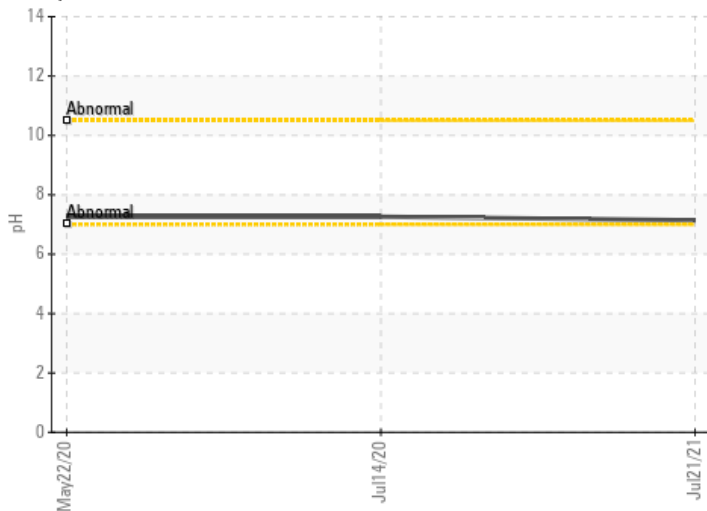
Copper/Aluminum/Lead



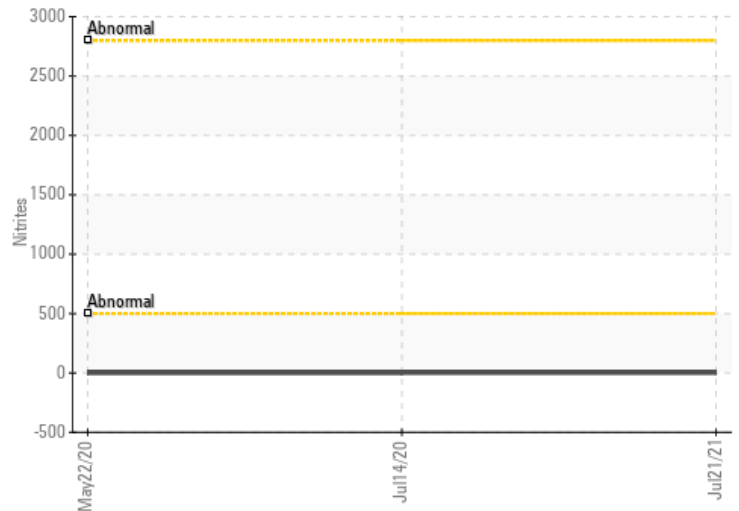
Freeze Point



pH



Nitrites





CONSTRUCTION EQUIPMENT

SWA120227 VOLVO L220H 3193 - DIESEL ENGINE



Sample No: VCP390365
Oil Type: VOLVO VDS-4.5 Premium Motor Oil 15W40
Job No: SWA120227



SAMPLE INFORMATION

Sample Number	VCP390365	VCP342783	VCP322963	VCP268667
Sample Date	28 Dec 2022	20 Jan 2022	22 Jul 2021	14 Jul 2020
Machine Hours	8000	6018	4950	2646
Oil Hours	0	0	900	500
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	ATTENTION	NORMAL

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

OIL CONDITION

Visc @ 100°C	cSt	12.6	12.7	11.8	12.57
Base Number (BN)	mg KOH/g	8.9	10.7	---	---
Oxidation (PA)	%	85	86	67	79

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	%	NEG	NEG	NEG	NEG
Soot %	%	0.2	0.1	0.2	0.1
Nitration (PA)	%	76	62	66	58
Sulfation (PA)	%	60	65	60	63
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	2.1	<1.0
Silicon	ppm	4	7	10	4
Sodium	ppm	2	4	3	5
Potassium	ppm	<1	<1	2	0

WEAR METALS

Iron	ppm	6	4	9	4
Copper	ppm	2	1	6	9
Lead	ppm	1	<1	1	<1
Tin	ppm	<1	<1	<1	0
Aluminum	ppm	<1	2	0	1
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	43	43	64	29
Nickel	ppm	0	<1	<1	<1
Titanium	ppm	0	<1	<1	<1
Silver	ppm	0	0	<1	<1
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	0	0	0

ADDITIVES

Calcium	ppm	1681	1718	1427	1456
Magnesium	ppm	508	494	423	480
Zinc	ppm	1164	1048	989	894
Phosphorus	ppm	921	947	835	784
Barium	ppm	0	0	0	0
Boron	ppm	22	88	197	40

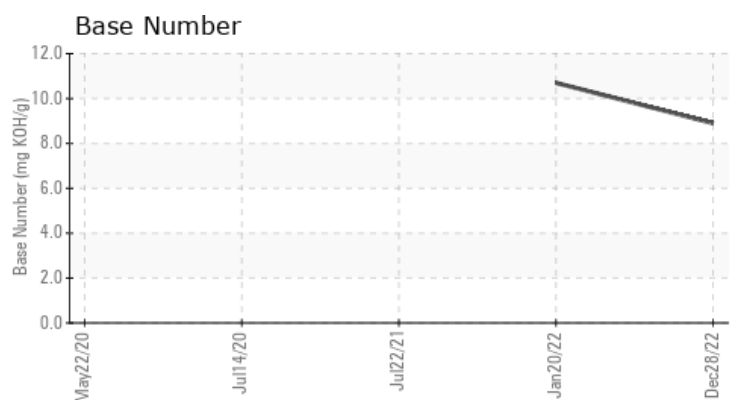
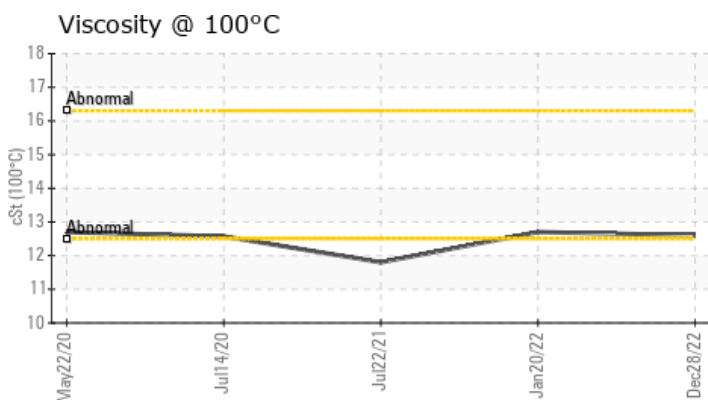
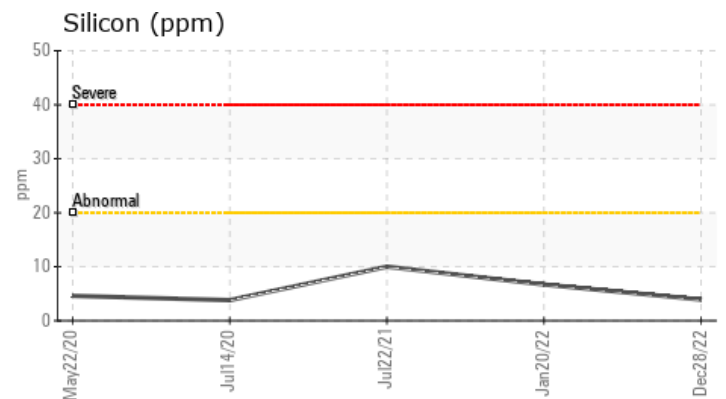
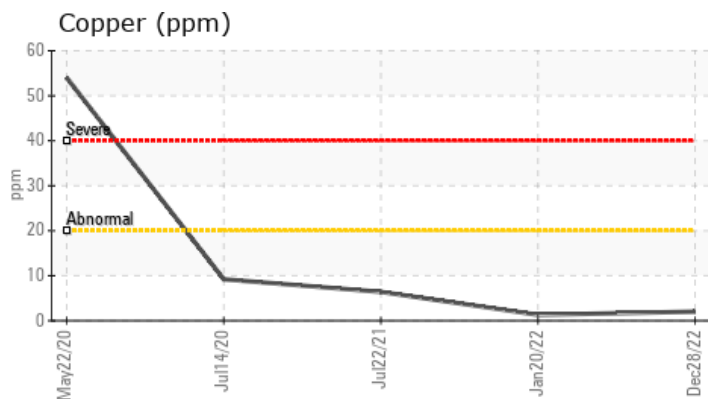
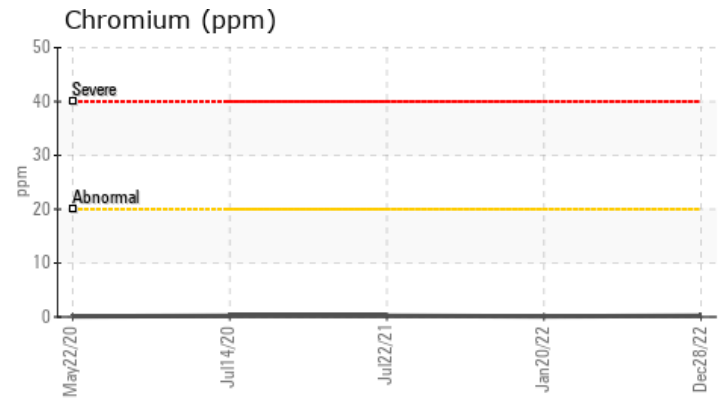
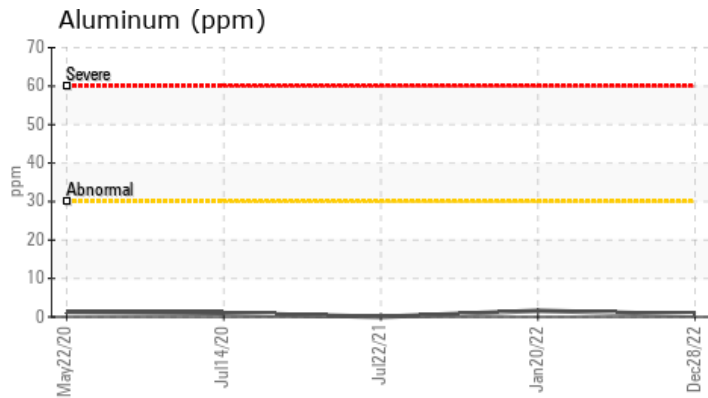
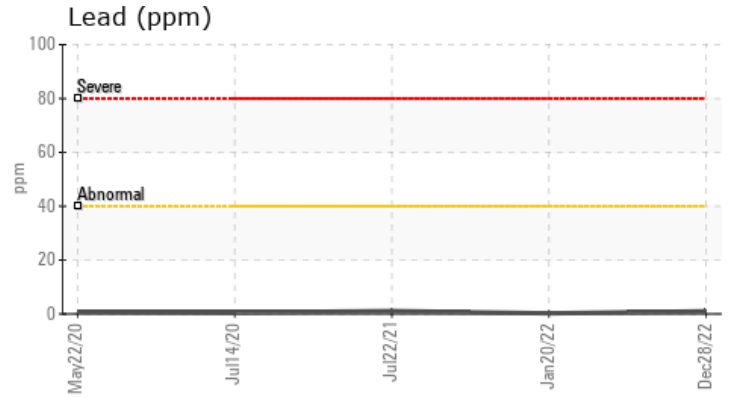
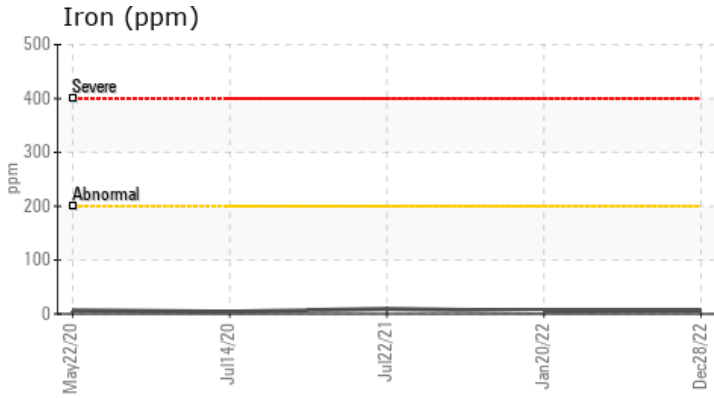
Depot: CALEAS
Unique No: 10286409
Signed: Wes Davis
Report Date: 13 Jan 2023



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

216445 VOLVO L220H 3193 - TRANSMISSION (AUTO)



Sample No: VCP342784
Oil Type: VOLVO AT 102
Job No: 216445



SAMPLE INFORMATION

Sample Number	VCP342784	VCP299175	VCP269172	VCP267649
Sample Date	20 Jan 2022	22 Jul 2021	14 Jul 2020	22 May 2020
Machine Hours	6018	4950	2646	2289
Oil Hours	0	4950	2646	2289
Oil Changed	Not Chngd	Changed	Not Chngd	Not Chngd
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

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



OIL CONDITION

Visc @ 40°C	cSt	28.7	25.8	26.0	26.2
-------------	-----	-------------	------	------	------

T:
F:



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Silicon	ppm	4	7	8	8
Sodium	ppm	<1	5	4	4
Potassium	ppm	0	<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	49	132	84	75
Copper	ppm	4	10	8	8
Lead	ppm	0	<1	2	<1
Tin	ppm	0	<1	0	0
Aluminum	ppm	<1	3	2	2
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	<1	<1	0	<1
Nickel	ppm	<1	<1	0	<1
Titanium	ppm	0	0	0	0
Silver	ppm	0	0	0	0
Manganese	ppm	2	6	5	5
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	90	103	100	98
Magnesium	ppm	3	3	<1	<1
Zinc	ppm	18	18	17	16
Phosphorus	ppm	176	146	144	150
Barium	ppm	<1	0	4	4
Boron	ppm	63	80	58	60

Depot: CALEAS
Unique No: 9825999
Signed: Don Baldrige
Report Date: 26 Jan 2022

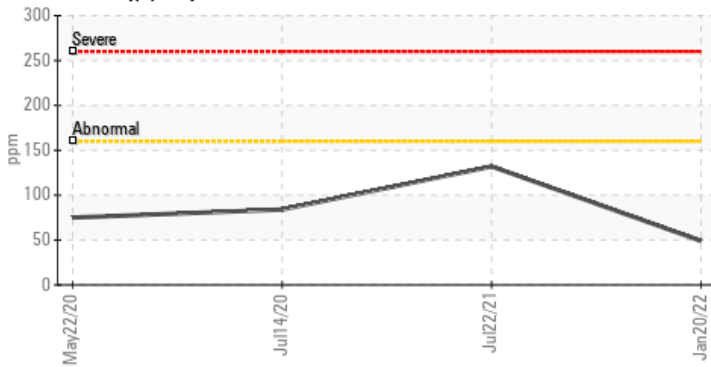


CONSTRUCTION EQUIPMENT

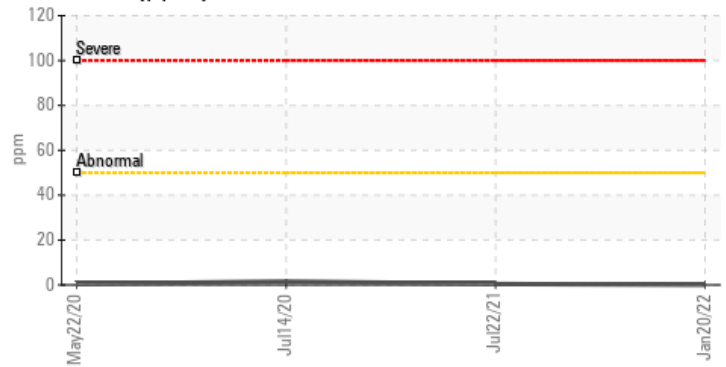


GRAPHS

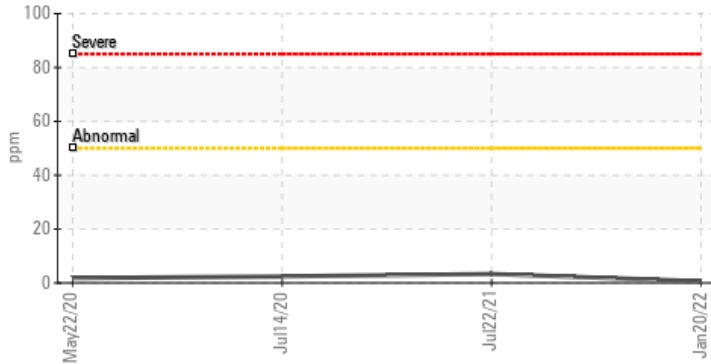
Iron (ppm)



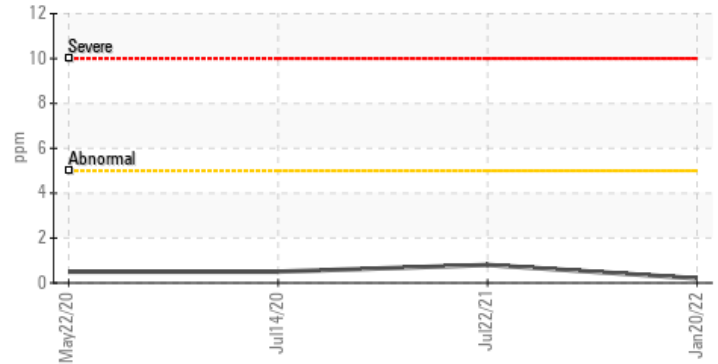
Lead (ppm)



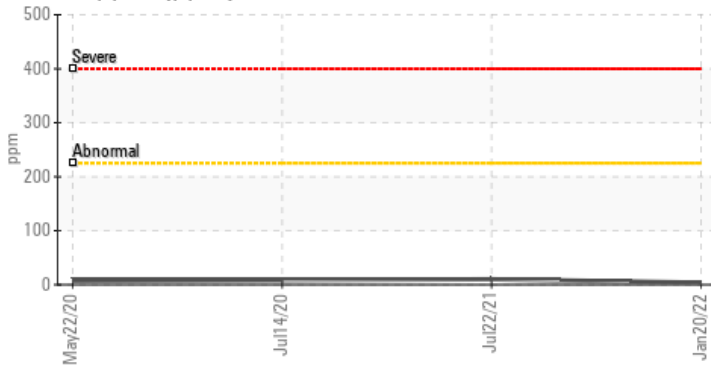
Aluminum (ppm)



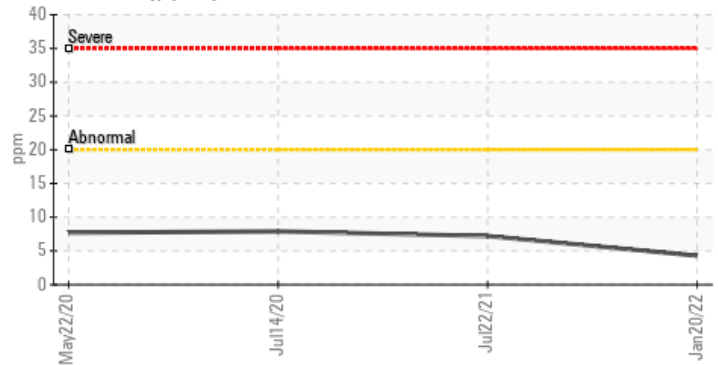
Chromium (ppm)



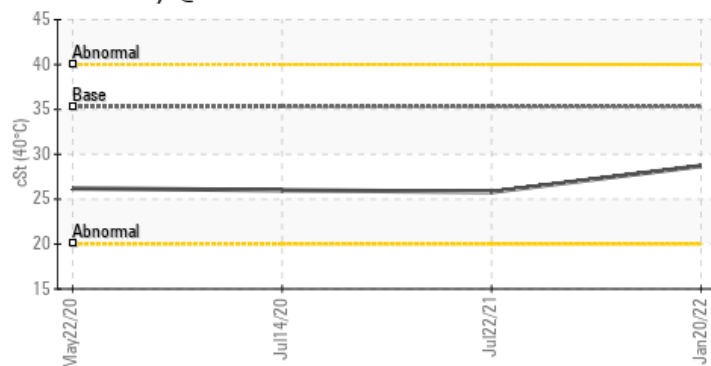
Copper (ppm)



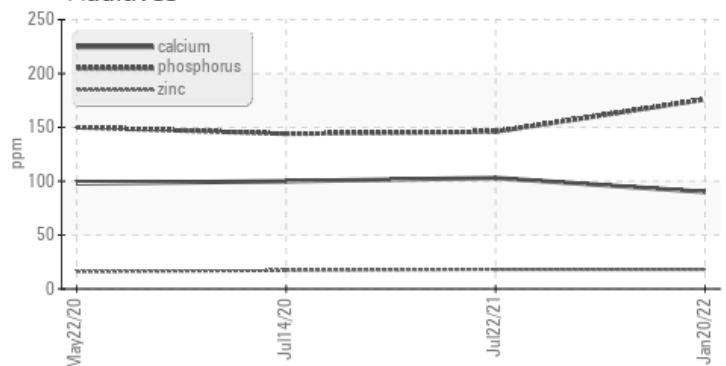
Silicon (ppm)



Viscosity @ 40°C



Additives





CONSTRUCTION EQUIPMENT

216445 VOLVO L220H 3 193 - HYDRAULIC SYSTEM



Sample No: VCP342776
Oil Type: VOLVO SUPER HYDRAULIC OIL 46
Job No: 216445



SAMPLE INFORMATION

Sample Number	VCP342776	VCP321792	VCP269175	VCP267656
Sample Date	20 Jan 2022	22 Jul 2021	14 Jul 2020	22 May 2020
Machine Hours	6018	4950	2646	2289
Oil Hours	0	4950	2646	2289
Oil Changed	Not Chngd	Changed	Not Chngd	Not Chngd
Sample Status	ABNORMAL	ABNORMAL	ATTENTION	ATTENTION

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

OIL CONDITION

Visc @ 40°C	cSt	39.9	37.4	37.6	37.71
Acid Number (AN)	mg KOH/g	0.35	0.331	0.389	0.380

T:
F:

CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Particles >4µm		▲ 63243	---	■ 2044	■ 1447
Particles >6µm		▲ 8421	---	■ 166	■ 146
Particles >14µm		▲ 375	---	■ 18	■ 11
ISO 4406:1999 (c)		23/20/16	---	18/15/11	18/14/11
Silicon	ppm	■ 4	■ 4	■ 3	■ 0
Sodium	ppm	■ 2	■ 1	■ <1	■ 0
Potassium	ppm	■ 0	■ <1	■ <1	■ 0

Diagnosis

We recommend you service the filters on this component. 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	■ 8	■ 8	■ 4	■ 2
Copper	ppm	■ 3	■ 6	■ 5	■ 5
Lead	ppm	■ <1	■ 2	■ 1	■ 1
Tin	ppm	■ <1	■ <1	■ 0	■ <1
Aluminum	ppm	■ 1	■ 2	■ <1	■ 0
Chromium	ppm	■ 1	■ 3	■ 1	■ 1
Molybdenum	ppm	■ <1	■ <1	■ 0	■ 0
Nickel	ppm	■ 0	■ 0	■ <1	■ 0
Titanium	ppm	0	0	0	0
Silver	ppm	<1	0	0	<1
Manganese	ppm	■ <1	■ <1	■ <1	■ 0
Vanadium	ppm	0	0	0	0

ADDITIVES

Calcium	ppm	■ 464	■ 72	■ 57	■ 59
Magnesium	ppm	■ 4	■ <1	■ <1	■ <1
Zinc	ppm	■ 544	■ 425	■ 378	■ 434
Phosphorus	ppm	■ 424	■ 325	■ 315	■ 343
Barium	ppm	■ 0	■ 0	■ 0	■ 0
Boron	ppm	■ 17	■ 2	■ 1	■ 1

Depot: CALEAS
Unique No: 9825507
Signed: Don Baldrige
Report Date: 26 Jan 2022

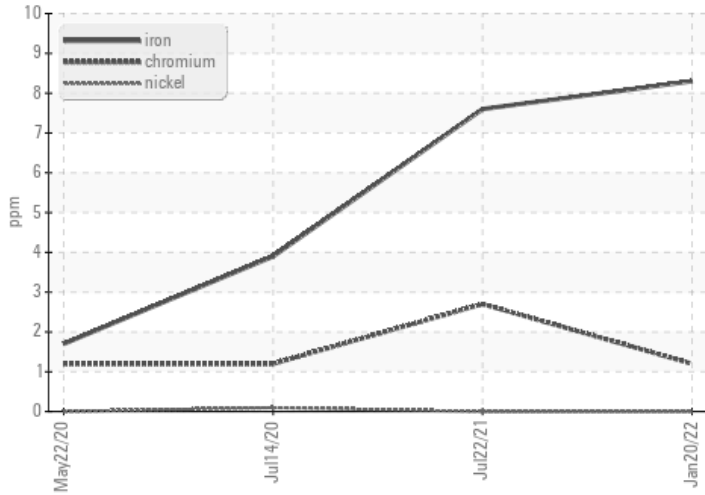


CONSTRUCTION EQUIPMENT

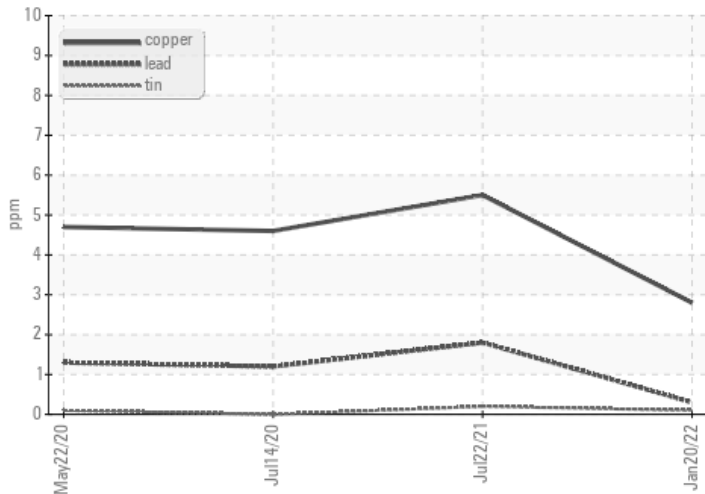


GRAPHS

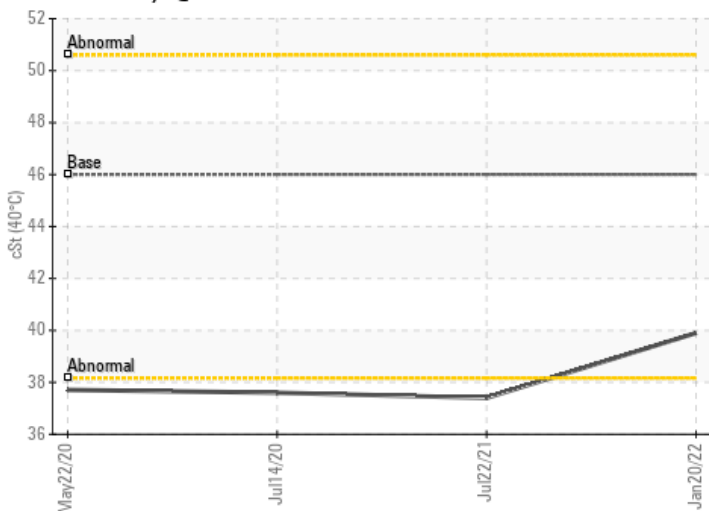
Ferrous Alloys



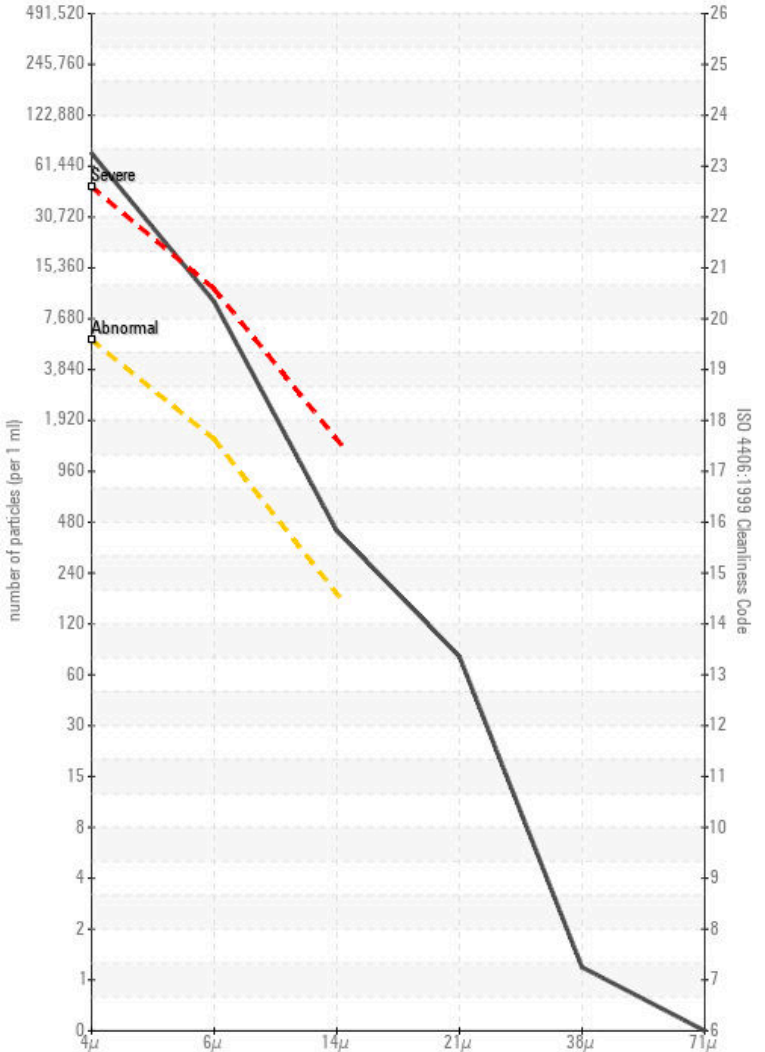
Non-ferrous Metals



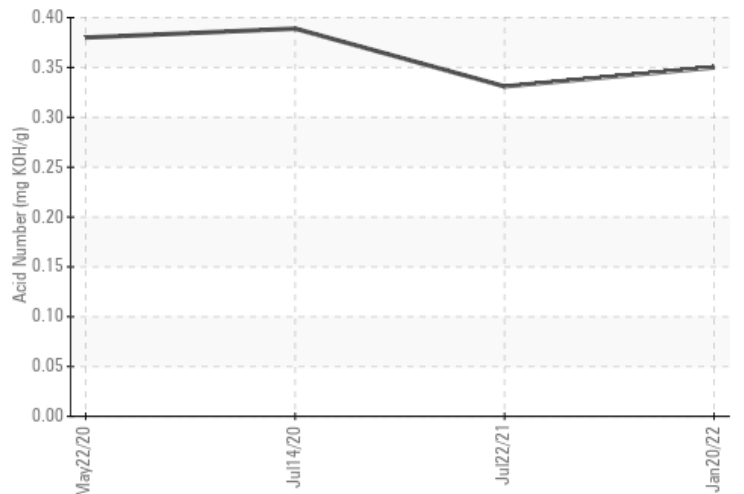
Viscosity @ 40°C



Particle Count



Acid Number





CONSTRUCTION EQUIPMENT

W215513 VOLVO L220H 3193 - FRONT AXLE



Sample No: VCP321784
Oil Type: VOLVO WB 102
Job No: W215513



SAMPLE INFORMATION

Sample Number	VCP321784	VCP268665	VCP267878	---
Sample Date	22 Jul 2021	14 Jul 2020	22 May 2020	---
Machine Hours	4950	2646	2289	---
Oil Hours	2000	2646	2289	---
Oil Changed	Changed	Not Changd	Not Changd	---
Sample Status	NORMAL	NORMAL	NORMAL	---

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



OIL CONDITION

Visc @ 40°C	cSt	36.7	39.7	39.6	---
-------------	-----	-------------	------	------	-----

T:
F:



CONTAMINATION

Water	%	NEG	NEG	NEG	---
Silicon	ppm	11	9	11	---
Sodium	ppm	3	4	3	---
Potassium	ppm	<1	0	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

Iron	ppm	57	57	129	---
Copper	ppm	11	8	7	---
Lead	ppm	<1	0	<1	---
Tin	ppm	<1	0	0	---
Aluminum	ppm	<1	<1	<1	---
Chromium	ppm	<1	<1	3	---
Molybdenum	ppm	1	<1	1	---
Nickel	ppm	0	<1	<1	---
Titanium	ppm	0	<1	0	---
Silver	ppm	<1	0	0	---
Manganese	ppm	2	2	4	---
Vanadium	ppm	0	0	0	---



ADDITIVES

Calcium	ppm	3658	3423	3643	---
Magnesium	ppm	8	5	7	---
Zinc	ppm	1473	1491	1366	---
Phosphorus	ppm	1264	1142	1266	---
Barium	ppm	0	0	0	---
Boron	ppm	171	109	108	---

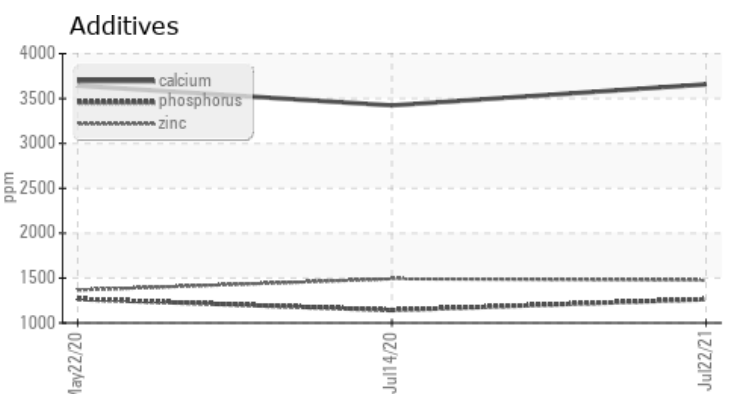
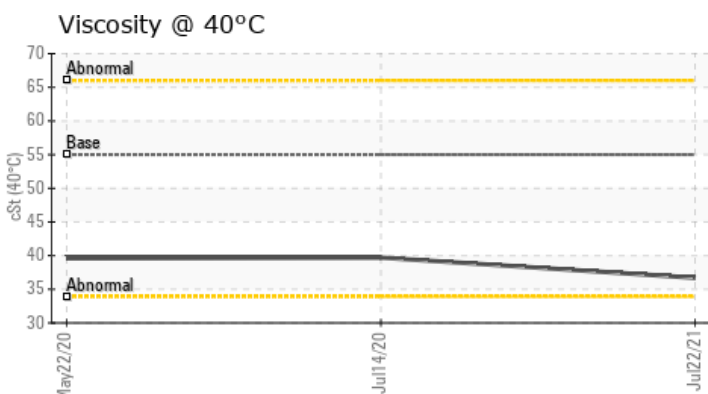
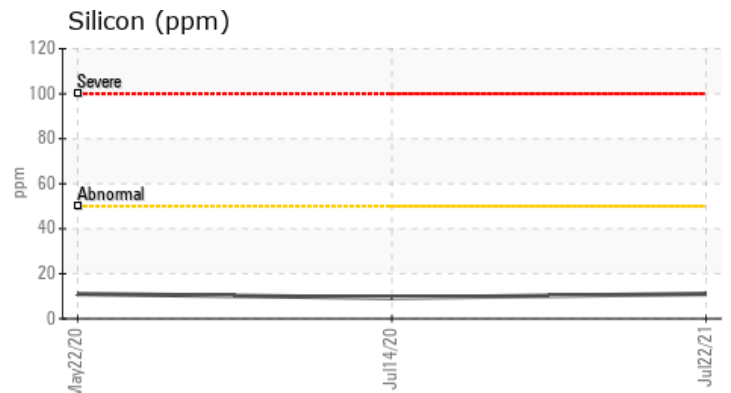
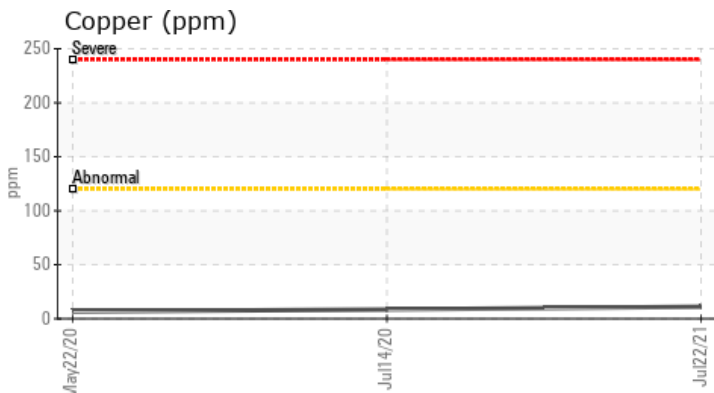
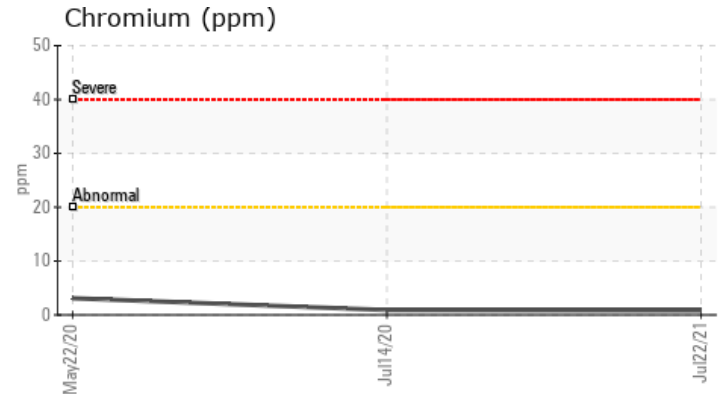
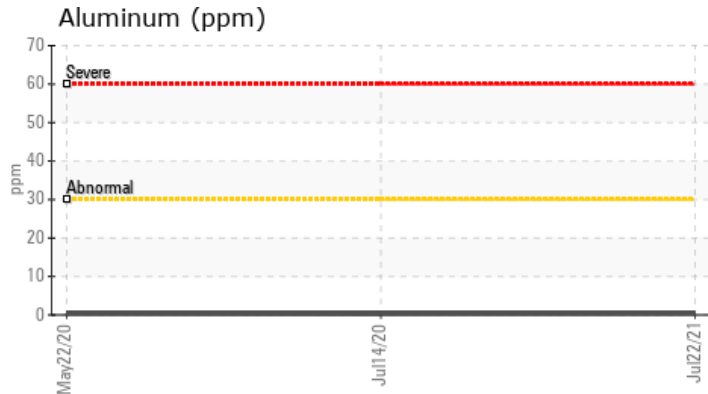
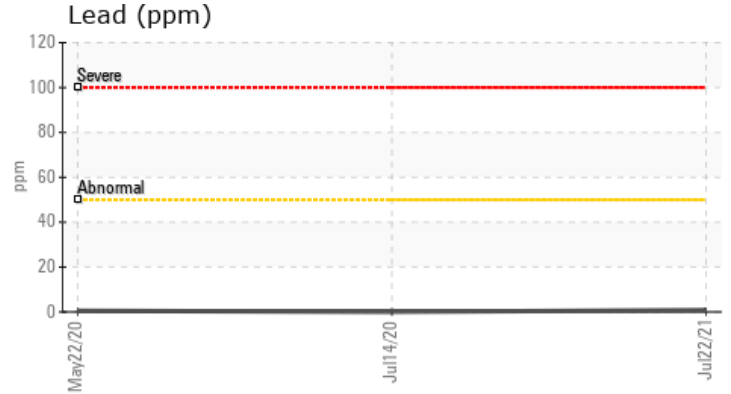
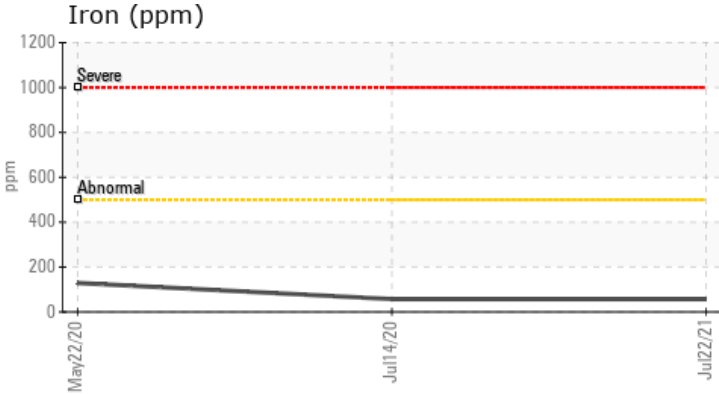
Depot: CALEAS
Unique No: 9610327
Signed: Wes Davis
Report Date: 09 Aug 2021



CONSTRUCTION EQUIPMENT



GRAPHS





CONSTRUCTION EQUIPMENT

W215513 VOLVO L220H 3193 - REAR AXLE



Sample No: VCP323107
Oil Type: VOLVO WB 102
Job No: W215513



SAMPLE INFORMATION

Sample Number	VCP323107	VCP268662	VCP267639	---
Sample Date	22 Jul 2021	14 Jul 2020	22 May 2020	---
Machine Hours	4950	2646	2289	---
Oil Hours	2000	2646	2289	---
Oil Changed	Changed	Not Changd	N/A	---
Sample Status	NORMAL	NORMAL	NORMAL	---

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



OIL CONDITION

Visc @ 40°C	cSt	41.3	39.6	39.9	---
-------------	-----	-------------	------	------	-----

T:
F:



CONTAMINATION

Water	%	NEG	NEG	NEG	---
Silicon	ppm	12	10	10	---
Sodium	ppm	3	4	4	---
Potassium	ppm	<1	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 condition of the oil is acceptable for the time in service.



WEAR METALS

Iron	ppm	34	62	128	---
Copper	ppm	7	9	7	---
Lead	ppm	<1	<1	<1	---
Tin	ppm	<1	0	0	---
Aluminum	ppm	<1	<1	<1	---
Chromium	ppm	<1	1	3	---
Molybdenum	ppm	2	<1	1	---
Nickel	ppm	0	0	<1	---
Titanium	ppm	0	<1	0	---
Silver	ppm	<1	0	0	---
Manganese	ppm	2	2	4	---
Vanadium	ppm	0	0	0	---



ADDITIVES

Calcium	ppm	3665	3557	3625	---
Magnesium	ppm	9	5	7	---
Zinc	ppm	1513	1524	1359	---
Phosphorus	ppm	1321	1165	1277	---
Barium	ppm	0	0	0	---
Boron	ppm	182	110	113	---

Depot: CALEAS
Unique No: 9610324
Signed: Wes Davis
Report Date: 09 Aug 2021



CONSTRUCTION EQUIPMENT



GRAPHS

