



# CONSTRUCTION EQUIPMENT

## VOLVO L220H 2211 - DIESEL ENGINE



**Sample No:** VCP415084  
**Oil Type:** SHELL ROTELLA T3 15W40  
**Job No:**



### SAMPLE INFORMATION

Sample Number	VCP415084	VCP410713	VCP410513	VCP419635
Sample Date	15 Sep 2023	25 Aug 2023	04 Aug 2023	12 Jul 2023
Machine Hours	40651	40381	40081	39812
Oil Hours	270	300	269	297
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

**COVANTA ENERGY**  
 141 CRANBERRY HWY  
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### OIL CONDITION

Visc @ 100°C	cSt	13.3	13.1	13.1	13.0
Base Number (BN)	mg KOH/g	6.7	7.4	7.4	8.2
Oxidation (PA)	%	45	51	53	55

### CONTAMINATION

Soot %	%	0.1	0.1	0.1	0.1
Nitration (PA)	%	52	54	53	55
Sulfation (PA)	%	47	50	49	52
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	9	11	9	8
Sodium	ppm	1	1	2	2
Potassium	ppm	1	<1	2	<1

### WEAR METALS

Iron	ppm	4	4	3	3
Copper	ppm	<1	<1	<1	<1
Lead	ppm	<1	<1	0	<1
Tin	ppm	<1	<1	<1	<1
Aluminum	ppm	0	1	<1	2
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	30	42	44	53
Nickel	ppm	2	2	1	1
Titanium	ppm	<1	0	<1	<1
Silver	ppm	0	0	<1	0
Manganese	ppm	<1	0	<1	<1
Vanadium	ppm	<1	0	<1	<1

### ADDITIVES

Calcium	ppm	2070	1834	1964	2010
Magnesium	ppm	192	236	272	344
Zinc	ppm	1139	1080	1183	1243
Phosphorus	ppm	919	911	956	1013
Barium	ppm	0	0	0	0
Boron	ppm	32	42	49	62

### 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.

**Depot:** COVWES  
**Unique No:** 10661526  
**Signed:** Doug Bogart  
**Report Date:** 26 Sep 2023



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## GRAPHS

