



# CONSTRUCTION EQUIPMENT

## 4154HO JG ENVIRO VOLVO ECR235E 311390 - DIESEL ENGINE



**Sample No:** VCP435019  
**Oil Type:** VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3  
**Job No:** 4154HO JG ENVIRO



### SAMPLE INFORMATION

Sample Number	<b>VCP435019</b>	VCP426603	VCP293499	VCP311935
Sample Date	<b>16 Aug 2023</b>	08 May 2023	05 Aug 2022	04 Aug 2021
Machine Hours	<b>2715</b>	2064	1568	1069
Oil Hours	<b>500</b>	500	0	0
Oil Changed	<b>Changed</b>	Changed	Changed	Changed
Sample Status	<b>ABNORMAL</b>	NORMAL	ABNORMAL	NORMAL

**HIGHWAY EQUIPMENT AND SUPPLY CO**  
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### OIL CONDITION

Visc @ 100°C	cSt	█ <b>13.2</b>	█ 12.8	▲ 12.2	█ 13.3
Base Number (BN)	mg KOH/g	█ <b>10.0</b>	█ 10.6	█ 11.4	---
Oxidation (PA)	%	<b>73</b>	80	78	84

### Diagnosis

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. Elemental level of silicon (Si) above normal. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



### CONTAMINATION

Soot %	%	█ <b>0.1</b>	█ 0.1	█ 0.2	█ 0.2
Nitration (PA)	%	<b>60</b>	59	72	71
Sulfation (PA)	%	<b>56</b>	60	61	61
Glycol	%	<b>NEG</b>	NEG	NEG	NEG
Fuel	%	<b>&lt;1.0</b>	<1.0	█ 0.6	<1.0
Silicon	ppm	▲ <b>29</b>	█ 13	█ 11	█ 13
Sodium	ppm	█ <b>3</b>	█ 3	█ 0	█ 5
Potassium	ppm	█ <b>0</b>	█ 2	█ <1	█ 2



### WEAR METALS

Iron	ppm	█ <b>11</b>	█ 32	█ 58	█ 91
Copper	ppm	█ <b>1</b>	█ 1	█ 3	█ 5
Lead	ppm	█ <b>0</b>	█ <1	█ <1	█ <1
Tin	ppm	█ <b>&lt;1</b>	█ 1	█ 1	█ 2
Aluminum	ppm	█ <b>3</b>	█ 4	█ 8	█ 5
Chromium	ppm	█ <b>&lt;1</b>	█ 1	█ 2	█ 3
Molybdenum	ppm	█ <b>46</b>	█ 44	█ 39	█ 40
Nickel	ppm	█ <b>0</b>	█ 1	█ 0	█ 3
Titanium	ppm	<b>&lt;1</b>	0	<1	<1
Silver	ppm	█ <b>0</b>	█ 0	0	0
Manganese	ppm	█ <b>&lt;1</b>	█ <1	█ <1	█ 2
Vanadium	ppm	<b>&lt;1</b>	<1	0	0



### ADDITIVES

Calcium	ppm	█ <b>1845</b>	█ 1658	█ 1775	█ 1788
Magnesium	ppm	█ <b>554</b>	█ 545	█ 447	█ 480
Zinc	ppm	█ <b>1169</b>	█ 1129	█ 1096	█ 940
Phosphorus	ppm	█ <b>983</b>	█ 940	█ 920	█ 793
Barium	ppm	█ <b>0</b>	█ 0	█ 0	█ 0
Boron	ppm	█ <b>38</b>	█ 43	█ 37	█ 57

**Depot:** INSEPH  
**Unique No:** 10621099  
**Signed:** Don Baldrige  
**Report Date:** 28 Aug 2023



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## GRAPHS

