

OIL ANALYSIS REPORT

Area CRANE - T LANGE T LANGE MAIN ENGINE

Component Main Engine Fluid

CHEVRON DELO 400 LE 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

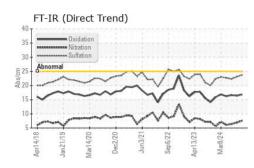


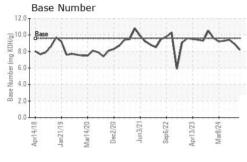
Sample Rating Trend

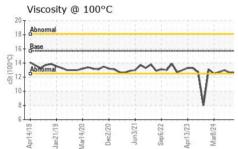
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0892637	WC0922385	WC0892640
Sample Date		Client Info		03 Jul 2024	31 May 2024	16 Apr 2024
Machine Age	hrs	Client Info		37733	37245	36508
Oil Age	hrs	Client Info		500	500	500
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	٧	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	8	5	4
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	4	3	3
Lead	ppm	ASTM D5185m	>18	2	3	0
Copper	ppm	ASTM D5185m	>80	3	3	2
Tin	ppm	ASTM D5185m	>14	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 294	history1 352	history2 444
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	294	352	444
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	294 0	352 0	444 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	294 0 126	352 0 129	444 0 127
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	294 0 126 0	352 0 129 <1	444 0 127 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	294 0 126 0 638	352 0 129 <1 702	444 0 127 <1 699
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		294 0 126 0 638 1508	352 0 129 <1 702 1661	444 0 127 <1 699 1610
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1200	294 0 126 0 638 1508 676	352 0 129 <1 702 1661 751	444 0 127 <1 699 1610 748
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1200 1300	294 0 126 0 638 1508 676 843	352 0 129 <1 702 1661 751 904	444 0 127 <1 699 1610 748 872
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1200 1300 3200	294 0 126 0 638 1508 676 843 2316	352 0 129 <1 702 1661 751 904 2923	444 0 127 <1 699 1610 748 872 2969
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base	294 0 126 0 638 1508 676 843 2316 current	352 0 129 <1 702 1661 751 904 2923 history1	444 0 127 <1 699 1610 748 872 2969 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1200 1300 3200 limit/base >20	294 0 126 0 638 1508 676 843 2316 current 5	352 0 129 <1 702 1661 751 904 2923 history1 6	444 0 127 <1 699 1610 748 872 2969 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1200 1300 3200 limit/base >20 >75	294 0 126 0 638 1508 676 843 2316 current 5 2	352 0 129 <1 702 1661 751 904 2923 history1 6 2	444 0 127 <1 699 1610 748 872 2969 history2 6 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20	294 0 126 0 638 1508 676 843 2316 current 5 2 2 2	352 0 129 <1 702 1661 751 904 2923 history1 6 2 2 1	444 0 127 <1 699 1610 748 872 2969 history2 6 2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20 limit/base	294 0 126 0 638 1508 676 843 2316 current 5 2 2 2 2	352 0 129 <1 702 1661 751 904 2923 history1 6 2 1 history1	444 0 127 <1 699 1610 748 872 2969 history2 6 2 0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20 limit/base	294 0 126 0 638 1508 676 843 2316 <u>current</u> 5 2 2 2 2 2 <u>current</u>	352 0 129 <1 702 1661 751 904 2923 history1 6 2 2 1 history1 0.4	444 0 127 <1 699 1610 748 872 2969 history2 6 2 0 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20 limit/base	294 0 126 0 638 1508 676 843 2316 <i>current</i> 5 2 2 2 <i>current</i> 0.5 7.6	352 0 129 <1 702 1661 751 904 2923 history1 6 2 2 1 history1 0.4 6.9	444 0 127 <1 699 1610 748 872 2969 history2 6 2 0 history2 0.2 6.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 3200 limit/base >20 >75 >20 limit/base >20 s20 >30	294 0 126 0 638 1508 676 843 2316 current 5 2 2 2 2 current 0.5 7.6 23.7	352 0 129 <1 702 1661 751 904 2923 history1 6 2 2 1 history1 0.4 6.9 23.1	444 0 127 <1 699 1610 748 872 2969 history2 6 2 0 history2 0.2 6.4 22.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	1200 1300 3200 limit/base >20 >75 >20 limit/base >20 >30 limit/base	294 0 126 0 638 1508 676 843 2316 Current 5 2 2 2 2 Current 0.5 7.6 23.7 Current	352 0 129 <1 702 1661 751 904 2923 history1 6 2 2 1 history1 0.4 6.9 23.1 history1	444 0 127 <1 699 1610 748 872 2969 history2 6 2 0 0 history2 0.2 6.4 22.3 history2



OIL ANALYSIS REPORT



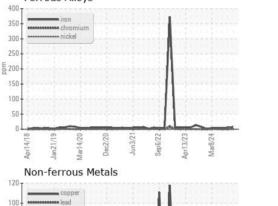


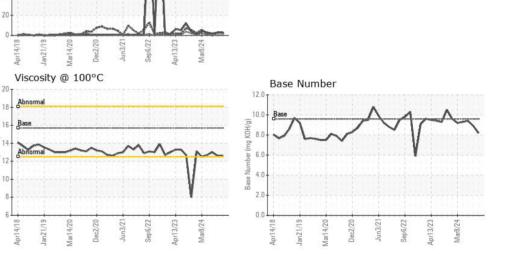


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.7	12.6	12.6	13.0
GRAPHS						

Ferrous Alloys

St (100°C)





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 **ASSOCIATED TERMINALS - CRANE** Sample No. : WC0892637 Received : 18 Jul 2024 Lab Number : 06241250 Tested : 19 Jul 2024 CONVENT, LA Unique Number : 11130084 Diagnosed : 19 Jul 2024 - Wes Davis US 70723 Test Package : FLEET Contact: GREG JOSEY Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. gjosey@associatedterminals.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (225)562-3515

Report Id: STJCONKL [WUSCAR] 06241250 (Generated: 07/21/2024 11:53:01) Rev: 1

Contact/Location: GREG JOSEY - STJCONKL

Page 2 of 2