

## **OIL ANALYSIS REPORT**

#### Area L2 Machine Id UNION Grey Water Pump-58033C Component

Pump Fluid

DIESEL ENGINE OIL SAE 30 (16 QTS)

#### DIAGNOSIS

## Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

## Wear

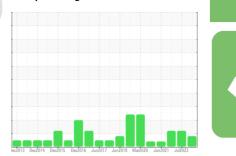
All component wear rates are normal.

### Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



Sample Rating Trend

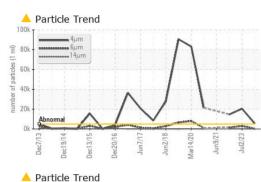
 $\checkmark$ 

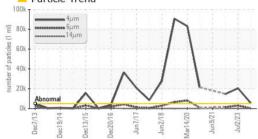
ISO

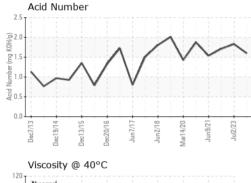
SAMPLE INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0771984	WC0771997	WC0552813
Sample Date		Client Info		02 Jan 2024	02 Jul 2023	03 Sep 2022
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ATTENTION	ABNORMAL	ABNORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Water		WC Method	>.1	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	3	3	3
Chromium	ppm	ASTM D5185m	>5	<1	0	0
Nickel	ppm	ASTM D5185m	>5	0	<1	0
Titanium	ppm	ASTM D5185m	>3	108	100	96
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>7	2	<1	<1
Lead	ppm	ASTM D5185m	>12	3	2	6
Copper	ppm	ASTM D5185m	>30	<1	<1	<1
Tin	ppm	ASTM D5185m	>9	<1	<1	<1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		1	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 166	history1 198	history2 186
	ppm ppm					
Boron		ASTM D5185m	250	166	198 0 <1	186
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	250 10 100	166 0	198 0 <1 <1	186 0 <1 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	166 0 <1 0 735	198 0 <1 <1 684	186 0 <1 0 661
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	166 0 <1 0 735 1398	198 0 <1 <1 684 1355	186 0 <1 0 661 1336
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	250 10 100 450 3000 1150	166 0 <1 0 735 1398 922	198 0 <1 <1 684 1355 1047	186 0 <1 0 661 1336 1016
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	166 0 <1 0 735 1398 922 1161	198 0 <1 <1 684 1355 1047 1155	186 0 <1 0 661 1336 1016 1130
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	250 10 100 450 3000 1150	166 0 <1 0 735 1398 922	198 0 <1 <1 684 1355 1047	186 0 <1 0 661 1336 1016
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	250 10 100 450 3000 1150 1350 4250 limit/base	166 0 <1 0 735 1398 922 1161 3993 current	198 0 <1 <1 684 1355 1047 1155	186 0 <1 0 661 1336 1016 1130 3692 history2
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	250 10 100 450 3000 1150 1350 4250 limit/base	166 0 <1 0 735 1398 922 1161 3993	198 0 <1 <1 684 1355 1047 1155 3996	186 0 <1 0 661 1336 1016 1130 3692 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	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	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >60	166 0 <1 0 735 1398 922 1161 3993 current	198 0 <1 <1 684 1355 1047 1155 3996 history1 8 0	186 0 <1 0 661 1336 1016 1130 3692 history2 5 3
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 <b>method</b> ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >60	166 0 <1 0 735 1398 922 1161 3993 current 6	198 0 <1 <1 684 1355 1047 1155 3996 history1 8	186 0 <1 0 661 1336 1016 1130 3692 history2 5
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 <b>method</b> ASTM D5185m	250 10 100 450 3000 1150 1350 4250 kimit/base >60 >75	166 0 <1 0 735 1398 922 1161 3993 current 6 0 4	198 0 <1 684 1355 1047 1155 3996 history1 8 0 3 history1	186 0 <1 0 661 1336 1016 1130 3692 history2 5 3
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	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >60 >75 >20 <b>Imit/base</b> >5000	166 0 <1 0 735 1398 922 1161 3993 current 6 0 4 4 <u>current</u>	198 0 <1 <1 684 1355 1047 1155 3996 history1 8 0 3 3 history1 ▲ 20456	186 0 <1 0 661 1336 1016 1130 3692 history2 5 3 3 <1 history2 ↓ 14600
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >60 >75 >20 <b>limit/base</b>	166 0 <1 0 735 1398 922 1161 3993 current 6 0 4	198 0 <1 684 1355 1047 1155 3996 history1 8 0 3 history1	186 0 <1 0 661 1336 1016 1130 3692 history2 5 3 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>bimit/base</b> >60 >75 >20 <b>bimit/base</b> >5000 >1300 >160	166 0 <1 0 735 1398 922 1161 3993 <i>current</i> 6 0 4 <i>current</i> 6 5648 313 8	198 0 <1 <1 684 1355 1047 1155 3996 history1 8 0 3 9 6 0 3 0 3 0 1 20456 ▲ 20456	186 0 <1 0 661 1336 1016 1130 3692 history2 5 3 3 <1 history2 ↓ 14600
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	250 10 100 450 3000 1150 1350 4250 <b>binit/base</b> >60 >75 >20 <b>binit/base</b> >5000 >1300 >160 >40	166 0 <1 0 735 1398 922 1161 3993 current 6 0 4 current 6 5648 313 8 2	198 0 <1 <1 684 1355 1047 1155 3996 <b>history1</b> 8 0 3 3 <b>history1</b> ▲ 20456 ▲ 20456 ▲ 3054 120	186 0 <1 0 661 1336 1016 1130 3692 <b>history2</b> 5 3 3 <1 <b>history2</b> ↓ 14600 ▲ 14600 ▲ 1403 76 21
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >60 >75 >20 <b>imit/base</b> >5000 >1300 >160 >40 >40	166 0 <1 0 735 1398 922 1161 3993 Current 6 0 4 Current 4 5648 313 8 2 0	198 0 <1 684 1355 1047 1155 3996 bistory1 8 0 3 bistory1 ▲ 20456 ▲ 3054 120 27 1	186 0 <1 0 661 1336 1016 1130 3692 history2 5 3 <1 bistory2 ∧ 14000 ∧ 1403 76 21 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >60 >75 >20 <b>imit/base</b> >5000 >1300 >160 >40 >40	166 0 <1 0 735 1398 922 1161 3993 current 6 0 4 current 6 5648 313 8 2	198 0 <1 <1 684 1355 1047 1155 3996 <b>history1</b> 8 0 3 3 <b>history1</b> ▲ 20456 ▲ 20456 ▲ 3054 120	186 0 <1 0 661 1336 1016 1130 3692 bistory2 5 3 <1 bistory2 ↓ 14600 ↓ 1403 76 ≥1



# **OIL ANALYSIS REPORT**



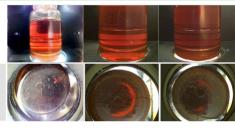


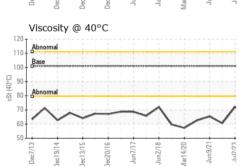


FLUID DEGRADATION		method				history2
Acid Number (AN)	mg KOH/g	ASTM D8045		1.60	1.83	1.71
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	LIGHT
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	>.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	TIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	101	66.9	72.1	60.6
SAMPLE IMAGES		method	limit/base	current	history1	history2

Color

Bottom





Ferrous Alloys Particle Count 20 491,52 122,88 튭.10 30,72 0. ISO 4406:1999 Clea -20 in9/21 ar14/20 Dec13/15 Dec7/1 Dec19/1 lec20/ Der 1,920 18 16 Non-ferrous Metals 480 30 120 14 20 30 12 8 Aar14/20 2 Dec13/1 I/Lun Dec7/ Pc19/ Jec20/ Viscosity @ 40°C 0.5 gr a.(mg KOH/g) a.c Acid Number 120 Abnormal Base CSt (40°C) 08 (40°C) 09 (40°C) nber Acid Nur 0'0 40 Dec7/13 71/Lun Jun2/18 Jun9/21 Dec7/13 Dec13/15 Mar14/20 Dec13/15 Mar14/20 Jun9/21 Dec20/16 1/17/11 Jun2/18 Dec19/14 Dec20/16 Dec19/1

**Conoco Phillips ALASKA INC** Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : WC0771984 Recieved : 16 Jan 2024 C/O LAF (ALPINE), 6441 S AIRPARK PL Lab Number ANCHORAGE, AK : 06061911 Diagnosed : 18 Jan 2024 : 10833293 : Don Baldridge US 99502 Unique Number Diagnostician Test Package : IND 2 (Additional Tests: PrtCount) Contact: Chris Van Ryzin Ben DeRaeve Certificate L2367 alp1084@conocophillips.com To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (907)670-4128 F: (907)670-4137 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: CONANCAK [WUSCAR] 06061911 (Generated: 01/18/2024 12:19:20) Rev: 1

Submitted By: Chris Van Ryzin Ben DeRaeve

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