

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

OIL Machine Id P-3160A (S/N WATER INJECTION PUMP) Pump

Fluid

Area

CASTROL PERFECTO XPG 32 (35 GAL)

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 fluid. The amount and size of particulates present in the system are acceptable.

Fluid Condition

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

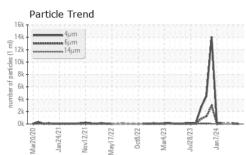
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		HLC0003305	HLC0003133	HLC0003192
Sample Date		Client Info		02 May 2024	01 Apr 2024	04 Mar 2024
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
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	0	<1	0
Chromium	ppm	ASTM D5185m	>5	0	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Titanium	ppm	ASTM D5185m	>3	0	<1	<1
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>7	0	1	2
Lead	ppm	ASTM D5185m	>12	<1	2	<1
Copper	ppm	ASTM D5185m	>30	0	<1	<1
Tin	ppm	ASTM D5185m	>9	0	1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		0	<1	<1
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	0	0
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	0	0	<1	<1
	ppm ppm		0	0	<1 <1	<1 0
Manganese	ppm					
Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	0	0	<1	0
Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	0 0 0	<1 <1 4	0 <1 3
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 25	0 0 0 13	<1 <1 4 25	0 <1
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	0 0 0	<1 <1 4	0 <1 3 21
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 25 0	0 0 0 13 0	<1 <1 4 25 2	0 <1 3 21 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 25 0 1500 limit/base	0 0 13 0 1671	<1 <1 4 25 2 1502	0 <1 3 21 0 1384
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 25 0 1500 limit/base	0 0 13 0 1671 current	<1 <1 4 25 2 1502 history1	0 <1 3 21 0 1384 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 25 0 1500 limit/base >60	0 0 13 0 1671 current <1	<1 <1 4 25 2 1502 history1 <1	0 <1 3 21 0 1384 history2 1
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 method ASTM D5185m ASTM D5185m	0 0 25 0 1500 limit/base >60	0 0 13 0 1671 current <1 2	<1 <1 4 25 2 1502 history1 <1 0	0 <1 3 21 0 1384 history2 1 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 25 0 1500 limit/base >60 >20	0 0 13 0 1671 current <1 2 <1	<1 <1 4 25 2 1502 history1 <1 0 1	0 <1 3 21 0 1384 history2 1 0 1
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	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	0 0 25 0 1500 imit/base >60 >20 imit/base	0 0 13 0 1671 current <1 2 <1 2 <1	<1 <1 4 25 2 1502 history1 <1 0 1 history1	0 <1 3 21 0 1384 history2 1 0 1 1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	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 ASTM D5185m	0 0 25 0 1500 imit/base >60 >20 imit/base	0 0 13 0 1671 <i>current</i> <1 2 <1 2 <1 <i>current</i> 49	<1 <1 4 25 2 1502 history1 <1 0 1 history1 102	0 <1 3 21 0 1384 history2 1 0 1 1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4μm Particles >6μm Particles >14μm	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 ASTM D5185m	0 0 25 0 1500 limit/base >60 >20 limit/base	0 0 13 0 1671 <i>current</i> <1 2 <1 2 <1 <i>current</i> 49 15	<1 <1 4 25 2 1502 history1 <1 0 1 history1 102 42	0 <1 3 21 0 1384 history2 1 0 1 1 history2
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	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647	0 0 25 0 1500 imit/base >60 >20 imit/base >20 2500 >320	0 0 13 0 1671 <i>current</i> <1 2 <1 2 <1 <i>current</i> 49 15 1	<1 <1 4 25 2 1502 history1 <1 0 1 history1 102 42 11	0 <1 3 21 0 1384 history2 1 0 1 1 0 1 1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >21µm Particles >38µm	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 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 25 0 1500 imit/base >60 >20 imit/base >20 s200 >320 >80 >20	0 0 13 0 1671 current <1 2 <1 2 <1 current 49 15 1 1	<1 <1 4 25 2 1502 history1 <10 102 42 11 4	0 <1 3 21 0 1384 history2 1 0 1 history2
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	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 ASTM D7647 ASTM D7647 ASTM D7647	0 0 25 0 1500 imit/base >60 >20 imit/base >20 s200 >320 >80 >20	0 0 13 0 1671 current <1 2 <1 2 <1 current 49 15 1 1 1 0	<1 <1 4 25 2 1502 history1 <10 102 42 11 4 102 11	0 <1 3 21 0 1384 history2 1 0 1 1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >21µm Particles >38µm Particles >71µm	ppm ppm ppm ppm ppm ppm ppm ppm IESS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 25 0 1500 imit/base >60 >20 imit/base >20 >2500 >320 >320 >80 >20 >20	0 0 13 0 1671 current <1 2 <1 current 49 15 1 1 1 0 0 0	<1 <1 4 25 2 1502 history1 <10 102 42 11 4 10 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	0 <1 3 21 0 1384 history2 1 0 1 1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm iESS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 25 0 1500 imit/base >60 >20 imit/base >20 >320 >320 >320 >320 >320 >320 >320	0 0 13 0 1671 current <1 2 <1 current 49 15 1 1 1 0 0 13/11/7	<1 <1 4 25 2 1502 history1 <10 10 10 42 11 4 1 0 14 1 0 14/13/11	0 <1 3 21 0 1384 history2 1 0 1 history2

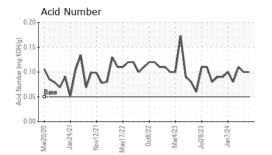
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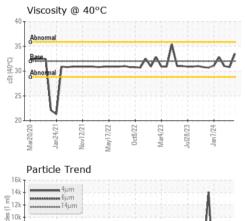
Page 1 of 2



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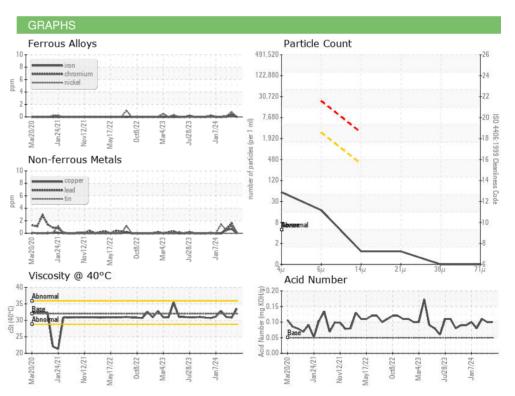






14k (12k 12k 10k 10k 8k 6k 4k 2k			m 2m					Å	
Ok	lar20/20	lan 24/21	lov12/21	ay17/22	0ct8/22	Mar4/23	Jul28/23	Jan7/24	

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	>.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32.0	33.5	30.8	31.0
SAMPLE IMAGES	3	method	limit/base	current	history1	history2
Color				•		
Bottom						



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 HILCORP NORTHSTAR FACILITY Sample No. : HLC0003305 Received : 16 May 2024 Lab Number : 06181980 Tested : 20 May 2024 PRUDHOE BAY, AK Unique Number : 11033306 Diagnosed : 20 May 2024 - Don Baldridge US 99734 Test Package : IND 2 (Additional Tests: PrtCount) Contact: PERRY NEEL Certificate 12367 pneel@hilcorp.com To discuss this sample report, contact Customer Service at 1-800-237-1369. T: (907)670-3514 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (907)659-5377

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Contact/Location: PERRY NEEL - BPENOR

Page 2 of 2