

## **OIL ANALYSIS REPORT**

Area K5 CONSTRUCTION CORPORATION - HODGKINS IL

SAMPLE INFORMATION method

LEAHY WOLF PREMIUM 15W40 (9 hrs)

# NORMAL



Sample Rating Trend

DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

4290

Fluid

Diesel Engine

### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

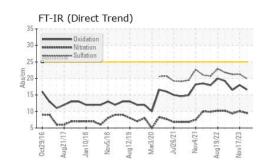
### Fluid Condition

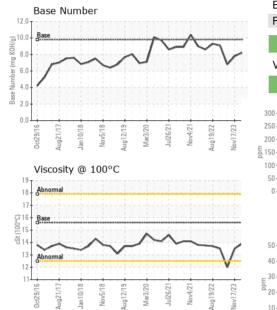
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		PCA0122038	LW0008428	LW0007695
Sample Date		Client Info		19 Apr 2024	17 Nov 2023	23 Aug 2023
Machine Age	hrs	Client Info		24926	24926	24377
Oil Age	hrs	Client Info		24926	549	1048
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ATTENTION
			12 11 11			
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	1.2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	۹	method	limit/base	current	history1	history2
	0					
Iron	ppm		>120	13	17	20
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	6	12	20
Lead	ppm	ASTM D5185m	>40	<1	3	2
Copper	ppm	ASTM D5185m	>330	<1	2	2
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1 2	history2 22
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	0	2	22
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	0 0	2 0	22 0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 62	2 0 61	22 0 49
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 62 0	2 0 61 <1	22 0 49 <1 445
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 62 0 1089	2 0 61 <1 886	22 0 49 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 62 0 1089 1189 1149	2 0 61 <1 886 1251 1116	22 0 49 <1 445 1939 1072
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	limit/base	0 0 62 0 1089 1189	2 0 61 <1 886 1251 1116 1271	22 0 49 <1 445 1939
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		0 0 62 0 1089 1189 1149 1386	2 0 61 <1 886 1251 1116 1271 2684	22 0 49 <1 445 1939 1072 1267 4098
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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	limit/base	0 0 62 0 1089 1189 1149 1386 3929 current	2 0 61 <1 886 1251 1116 1271 2684 history1	22 0 49 <1 445 1939 1072 1267 4098 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 0 62 0 1089 1189 1149 1386 3929 current 4	2 0 61 <1 886 1251 1116 1271 2684 history1 6	22 0 49 <1 445 1939 1072 1267 4098 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 62 0 1089 1189 1149 1386 3929 current 4 1	2 0 61 <1 886 1251 1116 1271 2684 history1 6 6	22 0 49 <1 445 1939 1072 1267 4098 history2 7 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 62 0 1089 1189 1149 1386 3929 current 4	2 0 61 <1 886 1251 1116 1271 2684 history1 6	22 0 49 <1 445 1939 1072 1267 4098 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	limit/base	0 0 62 0 1089 1189 1149 1386 3929 current 4 1 10 current	2 0 61 <1 886 1251 1116 1271 2684 history1 6 6	22 0 49 <1 445 1939 1072 1267 4098 history2 7 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	0 0 62 0 1089 1189 1149 1386 3929 current 4 1 10	2 0 61 <1 886 1251 1116 1271 2684 history1 6 6 6 31	22 0 49 <1 445 1939 1072 1267 4098 history2 7 3 52 history2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	0 0 62 0 1089 1189 1149 1386 3929 current 4 1 10 current	2 0 61 <1 886 1251 1116 1271 2684 history1 6 6 6 31 31 history1	22 0 49 <1 445 1939 1072 1267 4098 history2 7 3 52 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >4	0 0 62 0 1089 1189 1149 1386 3929 current 4 1 10 current 0.6	2 0 61 <1 886 1251 1116 1271 2684 history1 6 6 6 31 history1 1	22 0 49 <1 445 1939 1072 1267 4098 history2 7 3 52 history2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >4 >20	0 0 62 0 1089 1189 1149 1386 3929 current 4 1 10 current 0.6 9.5	2 0 61 <1 886 1251 1116 1271 2684 history1 6 6 6 31 history1 1 1 10.1	22 0 49 <1 445 1939 1072 1267 4098 history2 7 3 52 history2 1 9.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	limit/base >25 >20 limit/base >20 >4 >20 >30 limit/base	0 0 62 0 1089 1189 1149 1386 3929 current 4 1 10 current 0.6 9.5 19.9 current	2 0 61 <1 886 1251 1116 1271 2684 history1 6 6 6 31 history1 1 10.1 21.3 history1	22 0 49 <1 445 1939 1072 1267 4098 history2 7 3 52 history2 1 9.4 21.2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	Imit/base >25 >20 Imit/base >20 >4 >20 >4 >20 >30	0 0 62 0 1089 1189 1149 1386 3929 current 4 1 10 current 0.6 9.5 19.9	2 0 61 <1 886 1251 1116 1271 2684 history1 6 6 6 31 history1 1 1 10.1 21.3	22 0 49 <1 445 1939 1072 1267 4098 <b>history2</b> 7 3 52 <b>history2</b> 1 9.4 21.2



# **OIL ANALYSIS REPORT**





LE

~~~~	White Metal Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
~~~~	Vollow Motal		Vidual	NONL	NONE	NONL	NONE
~~~~	reliuw wietai	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
Mar3/20 Jul26/21 Nov4/21 Aug19/22 Nov17/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Ma Juľ No Aug1 Nov1	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Mar3/20 Mar3/20 Jul26/21 Nov4/21 Aug19/22 Nov17/23	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
M	FLUID PROPE	RTIES	method	limit/base	e current	history1	history2
VV	Visc @ 100°C	cSt	ASTM D44	5 15.6	13.9	13.5	12.0
	GRAPHS						
	Iron (ppm)				Lead (ppm)		
	300 250 Severe			1	80 Severe	in an	annann
Mar3/20 Jul26/21 Nov4/21 Aug19/22 Nov17/23	250 - 200 -						
Mar3/20 Jul26/21 Nov4/21 Aug19/22 Nov17/23	E 150 - Abnormal			шd	40 - Abnormal		
	100						
	50				20		
	9/16 1/17 0/18	.ug12/19 - Mar3/20 -	Jul26/21- Nov4/21- ug19/22	1/23		5/18 - 2/19 - 3/20 -	Jul26/21- Nov4/21- ug19/22
	0ct29/16 Aug21/17 Jan10/18 Nov5/18	Aug12/19 Mar3/20	Jul26/21- Nov4/21-	Nov17/23	0ct29/16 Aug21/17 Jan10/18	Nov5/18 Aug12/19 Mar3/20	Jul26/21 Nov4/21 Aug19/22 Nov17/23
~~	Aluminum (ppm)				Chromium (p		
1 mg/	50 Severe				<sup>50</sup> T 3 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 -	inininini	ammana
V	40 -				40 - Severe		
21	E 30 Abnomal			E I I I I I I I I I I I I I I I I I I I	30 20 - Abnormal		
Mar3/20 Jul26/21 Nov4/21 Aug19/22 Nov17/23	20 4			Λ			
A L A UNON	10			$  \rangle$	10		
		719 20	121- 121- 122-	/23	0 1 9 1 9	/18 /19 /20	/21 /21
	0ct29/16 Aug21/17 Jan10/18 Nov5/18	Aug12/19 - Mar3/20 -	Jul26/21 Nov4/21 Aug19/22	Nov17/23	0ct29/16 Aug21/17 Jan10/18	Nov5/18 Aug12/19 Mar3/20	Jul26/21 Nov4/21 Aug19/22 Nov17/23
	Copper (ppm)	A	Aı	Z	Silicon (ppm)		V V
	400 Abnormal					,	
	300 -				60		
	톱 200			E	40		
				1	Abnormal		
	100 -				20		
	0 18	20	/21	23		18 19 20	22 23
	0ct29/16 Aug21/17 Jan10/18 Nov5/18	Aug 1 2/19 Mar3/20	Jul26/21 Nov4/21 Aug19/22	Nov17/23	0ct29/16 Aug21/17 Jan10/18	Nov5/18 Aug 12/19 Mar3/20	Jul26/21 Nov4/21 Aug19/22 Nov17/23
	Viscosity @ 100°C	<	A	2	Base Numbe		A N
	20 T	- 1915-1111			20-	•	
	18 - Abnormal			Base Number (mg KOH/g)	0.0 - Base		-A
	() 16 - Base		derestard.	r (mg		$\sim$	V
	Abnormal	~	~		4.0		
	12-	Treeters	1.1.1.1.1.1.1	A ase N	2.0		
		20	21+		0.04+++++++++++++++++++++++++++++++++++	19	21- 21- 22
	0ct29/16 Aug21/17 Jan10/18 Nov5/18	Aug 12/19 Mar3/20	Jul26/21 Nov4/21 Aug19/22	Nov17/23	0ct29/16 Aug21/17 Jan10/18	Nov5/18 Aug12/19 Mar3/20	Jul26/21 Nov4/21 Aug19/22 Nov17/23
Unique Numb	: WearCheck USA - 50	1 Madiso Recei Teste Diagr	in Ave., Car ived : 2 id : 2 nosed : 2		K5 CO	a INSTRUCTION 6301	N CORPORATION S EAST AVENUE HODGKINS, II US 6052t ntact: Dave Gorsk

\* - 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)

Report Id: K5CWES [WUSCAR] 06160070 (Generated: 04/25/2024 19:33:02) Rev: 1

Submitted By: NOELLE TERRAULT

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