

# **OIL ANALYSIS REPORT**

## Area Pillen Family Farms Machine Id LSTK70

Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 40 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

#### Wear

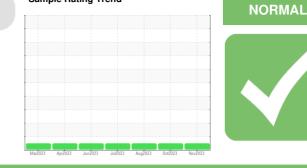
All component wear rates are normal.

## 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		SBP0006214	SBP0006253	SBP0002415
Sample Date		Client Info		02 Nov 2023	09 Oct 2023	29 Aug 2023
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
CONTAMINATION	۷	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6	8	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	3	2	8
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	<1	2	1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 2	history1 <1	history2 2
	ppm ppm					
Boron		ASTM D5185m	250	2	<1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	2 0	<1 3	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	2 0 57	<1 3 62	2 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	2 0 57 0	<1 3 62 0	2 0 61 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	2 0 57 0 1102	<1 3 62 0 924	2 0 61 <1 1006
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	2 0 57 0 1102 955	<1 3 62 0 924 1086	2 0 61 <1 1006 1098
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	2 0 57 0 1102 955 1019	<1 3 62 0 924 1086 989	2 0 61 <1 1006 1098 1142
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	250 10 100 450 3000 1150 1350	2 0 57 0 1102 955 1019 1307	<1 3 62 0 924 1086 989 1233	2 0 61 <1 1006 1098 1142 1369
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	2 0 57 0 1102 955 1019 1307 3038	<1 3 62 0 924 1086 989 1233 3307	2 0 61 <1 1006 1098 1142 1369 3390
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	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	2 0 57 0 1102 955 1019 1307 3038 current	<1 3 62 0 924 1086 989 1233 3307 history1	2 0 61 <1 1006 1098 1142 1369 3390 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 <b>method</b>	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216	2 0 57 0 1102 955 1019 1307 3038 current 3	<1 3 62 0 924 1086 989 1233 3307 history1 4	2 0 61 <1 1006 1098 1142 1369 3390 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 ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216	2 0 57 0 1102 955 1019 1307 3038 current 3 -	<1 3 62 0 924 1086 989 1233 3307 history1 4 0	2 0 61 <1 1006 1098 1142 1369 3390 history2 5 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	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >20	2 0 57 0 1102 955 1019 1307 3038 <u>current</u> 3 3 <1 7	<1 3 62 0 924 1086 989 1233 3307 history1 4 0 9	2 0 61 <1 1006 1098 1142 1369 3390 history2 5 2 2 18
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	250 10 100 450 3000 1150 1350 4250 216 >216 >20 Limit/base	2 0 57 0 1102 955 1019 1307 3038 current 3 <1 7 current	<1 3 62 0 924 1086 989 1233 3307 history1 4 0 9 history1	2 0 61 <1 1006 1098 1142 1369 3390 history2 5 2 18 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >20 <b>limit/base</b> >3 >20	2 0 57 0 1102 955 1019 1307 3038 current 3 3 <1 7 current 0.3	<1 3 62 0 924 1086 989 1233 3307 history1 4 0 9 9 history1 0.3	2 0 61 <1 1006 1098 1142 1369 3390 history2 5 2 18 history2 0.3
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	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >20 <b>limit/base</b> >3 >20	2 0 57 0 1102 955 1019 1307 3038 <u>current</u> 3 3 <1 7 <u>current</u> 0.3 6.0	<1 3 62 0 924 1086 989 1233 3307 history1 4 0 9 history1 0.3 6.2	2 0 61 <1 1006 1098 1142 1369 3390 history2 5 2 18 history2 0.3 6.2
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	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >216 >20 <b>Imit/base</b> >3 >20 >30	2 0 57 0 1102 955 1019 1307 3038 current 3 3 <1 7 current 0.3 6.0 18.3	<1 3 62 0 924 1086 989 1233 3307 history1 4 0 9 history1 0.3 6.2 18.6	2 0 61 <1 1006 1098 1142 1369 3390 <b>history2</b> 5 2 18 <b>history2</b> 0.3 6.2 18.5
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	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >216 >20 <b>imit/base</b> >3 >20 >30	2 0 57 0 1102 955 1019 1307 3038 current 3 3 <1 7 current 0.3 6.0 18.3	<1 3 62 0 924 1086 989 1233 3307 history1 4 0 9 history1 0.3 6.2 18.6 history1	2 0 61 <1 1006 1098 1142 1369 3390 history2 5 2 2 18 history2 0.3 6.2 18.5 history2



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Mar29/23

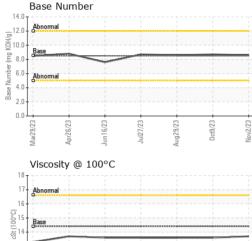
nr26/23

Jun16/23

13 Abnorma

12

# **OIL ANALYSIS REPORT**



Jul27/23

Aug29/23

0ct9/23

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	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.7	13.6	13.6
GRAPHS						

Ferrous Alloys 16 14 12 는 10 면접 Π. Nov2/23 pr26/23 un16/23 Non-ferrous Metals 10 2 0 ct9/73 Mar29/7 Viscosity @ 100°C Base Number 18 14.0 17 12.0 0.01 KOH/d) 0.8 Build 16 cSt (100°C) Ba mber 6.0 13 Base N 4 ( Abnorma 12 2.0 11-0.0 Aug29/23. 0ct9/23 -Nov2/23 -Nov2/23 -Apr26/23 Jun16/23 Jul27/23 Aug29/23 0ct9/23 Mar29/23 Apr26/23 Jun 16/23 Mar29/23 : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Pillen Family Farms - 722828 Laboratory Sample No. : SBP0006214 Received : 06 Dec 2023 26741 NE-91 Lab Number Diagnosed : 08 Dec 2023 Humphrey, NE : 06027056 : 10776847 Unique Number Diagnostician : Wes Davis US 61357 Contact: Troy Runge troyfr@pillenfamilyfarms.com



\* - 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)

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F: