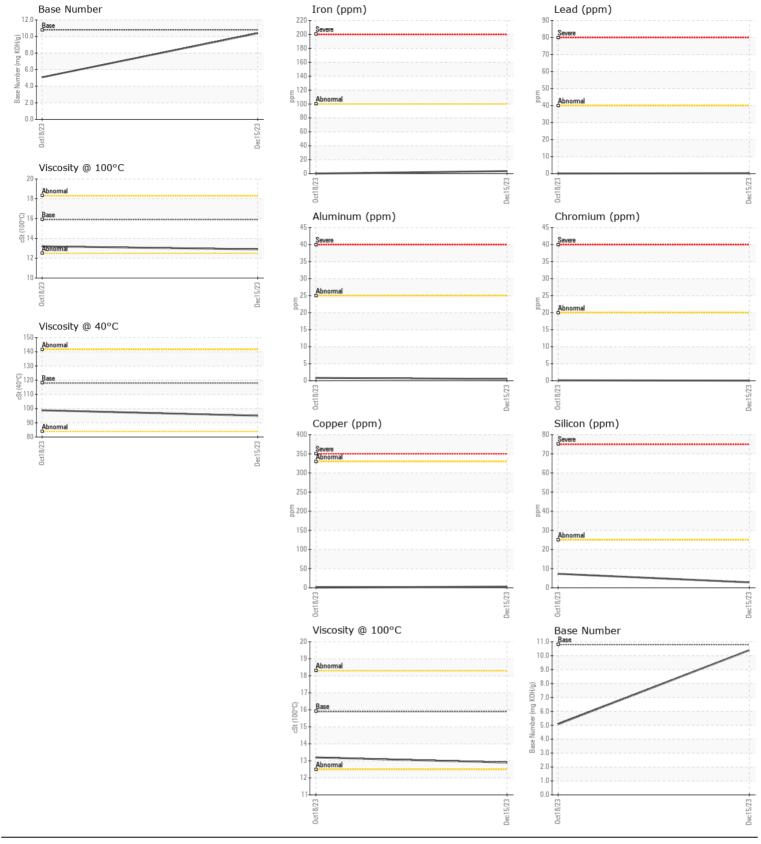
MOB TULCO WEAR			WEAR CONTAMINATION			NORMAL	
001 - Tulsa Division					NORMAL		
OIL ANALYSIS REPORT			FLUID CONDITION			NORMAL	
Machine Id CATERPILLAR 980N Component Diesel Engine Fluid TULCO LUBSOIL CK-4		1076	7)				
RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
	Sample Number		Client Info		TO10003048	TO10002799	
Resample at the next service interval to monitor.	Sample Date		Client Info		15 Dec 2023	18 Oct 2023	
	Machine Age	hrs	Client Info		8765	8534	
	Oil Age	hrs	Client Info		231	300	
	Filter Age	hrs	Client Info		231	300	
	Oil Changed		Client Info		Not Changd	Changed	
	Filter Changed		Client Info		Not Changd	Changed	
	Sample Status				NORMAL	NORMAL	
WEAR	Iron	ppm	ASTM D5185m		4	0	
All component wear rates are normal	Chromium	ppm	ASTM D5185m		0	<1	
All component wear rates are normal.	Nickel	ppm	ASTM D5185m		0	0	
	Titanium	ppm	ASTM D5185m		0	0	
	Silver	ppm	ASTM D5185m		0	0	
	Aluminum	ppm	ASTM D5185m		<1	<1	
	Lead	ppm	ASTM D5185m		<1	0	
	Copper Tin	ppm	ASTM D5185m		3 0	<1 0	
	Vanadium	ppm	ASTM D5185m ASTM D5185m	>15	0 <1	0	
	White Metal	ppm scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Silicon				•	7	
		ppm	ASTM D5185m	>25	3	7	
CONTAMINATION			ACTM DE10E	. 00			
	Potassium	ppm	ASTM D5185m		<1	1	
	Potassium Fuel		WC Method	>5	<1.0	1 <1.0	
	Potassium Fuel Water		WC Method WC Method	>5	<1.0 NEG	NEG	
	Potassium Fuel Water Glycol	ppm	WC Method WC Method WC Method	>5 >0.2	<1.0 NEG NEG	NEG NEG	
	Potassium Fuel Water Glycol Soot %	ppm %	WC Method WC Method WC Method *ASTM D7844	>5 >0.2 >3	<1.0 NEG NEG 0.2	NEG NEG 0.1	
	Potassium Fuel Water Glycol Soot % Nitration	ppm % Abs/cm	WC Method WC Method WC Method *ASTM D7844 *ASTM D7624	>5 >0.2 >3 >20	<1.0 NEG NEG 0.2 8.1	NEG NEG 0.1 5.0	
	Potassium Fuel Water Glycol Soot % Nitration Sulfation	ppm % Abs/cm Abs/.1mm	WC Method WC Method *ASTM D7844 *ASTM D7624 *ASTM D7415	>5 >0.2 >3 >20 >30	<1.0 NEG NEG 0.2 8.1 20.1	NEG NEG 0.1 5.0 21.2	  
CONTAMINATION There is no indication of any contamination in the oil.	Potassium Fuel Water Glycol Soot % Nitration	ppm % Abs/cm	WC Method WC Method WC Method *ASTM D7844 *ASTM D7624	>5 >0.2 >3 >20	<1.0 NEG NEG 0.2 8.1	NEG NEG 0.1 5.0	   

## 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.

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Copper	ppm	ASTM D5185m	>330	3	<1	
Tin	ppm	ASTM D5185m	>15	0	0	
Vanadium	ppm	ASTM D5185m		<1	0	
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Silicon	ppm	ASTM D5185m	>25	3	7	
Potassium	ppm	ASTM D5185m	>20	<1	1	
Fuel		WC Method	>5	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
Soot %	%	*ASTM D7844	>3	0.2	0.1	
Nitration	Abs/cm	*ASTM D7624	>20	8.1	5.0	
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.1	21.2	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Odor Emulsified Water		*Visual *Visual	NORML >0.2	NORML NEG	NORML NEG	
Emulsified Water	scalar	*Visual		NEG	NEG	
Emulsified Water Sodium	scalar ppm	*Visual ASTM D5185m		NEG 14	NEG 2	
Emulsified Water Sodium Boron	scalar ppm ppm	*Visual ASTM D5185m ASTM D5185m		NEG 14 9	NEG 2 58	 
Emulsified Water Sodium Boron Barium	scalar ppm ppm ppm	*Visual ASTM D5185m ASTM D5185m ASTM D5185m	>0.2	NEG 14 9 0	NEG 2 58 0	
Emulsified Water Sodium Boron Barium Molybdenum	scalar ppm ppm ppm ppm	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		NEG 14 9 0 56	NEG 2 58 0 39	  
Emulsified Water Sodium Boron Barium Molybdenum Manganese	scalar ppm ppm ppm ppm ppm	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 65	NEG 14 9 0 56 0	NEG 2 58 0 39 <1	   
Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium	scalar ppm ppm ppm ppm ppm	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 65 1060	NEG 14 9 0 56 0 872	NEG 2 58 0 39 <1 492	       
Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	scalar ppm ppm ppm ppm ppm ppm	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 65 1060 1140	NEG 14 9 0 56 0 872 1074	NEG 2 58 0 39 <1 492 1516	     
Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	scalar ppm ppm ppm ppm ppm ppm ppm	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 65 1060 1140 1170	NEG 14 9 0 56 0 872 1074 1050	NEG 2 58 0 39 <1 492 1516 933	
Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	scalar ppm ppm ppm ppm ppm ppm ppm ppm	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 65 1060 1140 1170 1230	NEG 14 9 0 56 0 872 1074 1050 1215	NEG 2 58 0 39 <1 492 1516 933 1109	
Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	scalar ppm ppm ppm ppm ppm ppm ppm ppm ppm	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>0.2 65 1060 1140 1170 1230 3130	NEG 14 9 0 56 0 872 1074 1050 1215 3118	NEG 2 58 0 39 <1 492 1516 933 1109 2945	
Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Oxidation	scalar ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7144	>0.2 65 1060 1140 1170 1230 3130 >25	NEG 14 9 0 56 0 872 1074 1050 1215 3118 16.7	NEG 2 58 0 39 <1 492 1516 933 1109 2945 18.3	
Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Oxidation Base Number (BN)	scalar ppm ppm ppm ppm ppm ppm ppm ppm ppm Abs/.1mm mg KOH/g	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D7414 ASTM D2896	>0.2 65 1060 1140 1170 1230 3130 >25 10.8	NEG 14 9 0 56 0 872 1074 1050 1215 3118 16.7 10.39	NEG 2 58 0 39 <1 492 1516 933 1109 2945 18.3 5.08	
Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Oxidation Base Number (BN) Visc @ 40°C	scalar ppm ppm ppm ppm ppm ppm ppm ppm ppm Abs/.1mm mg KOH/g cSt	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D7414 ASTM D2896 ASTM D445	>0.2 65 1060 1140 1170 1230 3130 >25 10.8 118	NEG 14 9 0 56 0 872 1074 1050 1215 3118 16.7 10.39 95.0	NEG 2 58 0 39 <1 492 1516 933 1109 2945 18.3 5.08 98.8	
Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Oxidation Base Number (BN)	scalar ppm ppm ppm ppm ppm ppm ppm ppm ppm Abs/.1mm mg KOH/g	*Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D7414 ASTM D2896	>0.2 65 1060 1140 1170 1230 3130 >25 10.8	NEG 14 9 0 56 0 872 1074 1050 1215 3118 16.7 10.39	NEG 2 58 0 39 <1 492 1516 933 1109 2945 18.3 5.08	



ANCHOR STONE TULSA ROCK Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. Recieved : 21 Dec 2023 TULSA ROCK QUARRY, 66TH ST N 145TH AVENUE : TO10003048 Lab Number : 26 Dec 2023 :06042706 Diagnosed TULSA, OK Diagnostician : Wes Davis : 10803314 US 74137 **Unique Number** Test Package : MOB 2 (Additional Tests: KV40, VI) Contact: SKIP SAENGERHAUSEN Certificate L2367 skip@anchorstoneco.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: (918)928-4575 F: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: SKIP SAENGERHAUSEN

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