

## **OIL ANALYSIS REPORT**

Sample Rating Trend



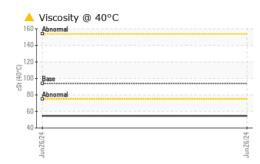
## Area MINING ME-581 CATERPILLAR 988F BNH01437 Rear Left Final Drive

Fluid SHELL Spirax S4 CX 30 (--- GAL)

Jesample at the next service interval to monitor.       Sample Date       Client Info       26 Jun 2024           Jear       Machine Age       hrs       Client Info       54690           Il component wear rates are normal.       Oil Age       hrs       Client Info       0           Ooll Age       hrs       Client Info       0            Oil Changed       Client Info       Not Changd            Oil Changed       Client Info       Not Changd           Sample Status       Imathematical indicates of any contamination in the indicates of is within SAE 20 ange, advise investigate. The condition of the oil is       Mater       WC Method       >0.2       NEG           WEAR METALS       method       limit/base       current       history1       history2	DIAGNOSIS	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Wathine Age       hrs       Client Info       54690           In component wear rates are normal.       Oil Age       hrs       Client Info       0           bree is no indication of any contamination in the i.       Fild Condition       Sample Status       0            Scority of sample indicates oil is within SAE 20 ange, advise investigate. The condition of the oil is coptable for the time in service.       Method       Imit/base       current       history1       history2         Water       Water       WC Method       >0.2       NEG           Wear       Water       WC Method       >0.2       NEG           Nickel       ppm       ASTM DBISS(m)       >800       8           Nickel       ppm       ASTM DBISS(m)       >10       0           Nickel       ppm       ASTM DBISS(m)       >10       0           Silver       ppm       ASTM DBISS(m)       >10       0           Aluminum       ppm       ASTM DBISS(m)       >5       <1           Lead <t< th=""><th>A Recommendation</th><th>Sample Number</th><th></th><th>Client Info</th><th></th><th>WC0942053</th><th></th><th></th></t<>	A Recommendation	Sample Number		Client Info		WC0942053		
Oil Age       hrs       Client Info       0           bere is no indication of any contamination in the it.       Oil Age       Client Info       Not Changd           Flid Condition       iscosity of sample indicates oil is within SAE 20 ange, advise investigate. The condition of the oil is iscosity of sample indicates oil is within SAE 20       method       limit/base       current       history1       history2         Water       WC Method       >0.2       NEG            WEAR METALS       method       limit/base       current       history1       history2         Nickel       ppm       ASTM05H8(m)       >800       8           Nickel       ppm       ASTM05H8(m)       >50       <1           Nickel       ppm       ASTM05H8(m)       >55       <1           Silver       ppm       ASTM05H8(m)       >55       <1           Aluminum       ppm       ASTM05H8(m)       >55       <1           Aluminum       ppm       ASTM05H8(m)       >50       <1           Aluminum       ppm <th>Resample at the next service interval to monitor.</th> <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>26 Jun 2024</th> <th></th> <th></th>	Resample at the next service interval to monitor.	Sample Date		Client Info		26 Jun 2024		
II component wear rates are normal.     Oil Age     hrs     Client Info     Not     Not        ontamination     here is no indication of any contamination in the it.     Oil Changed     Client Info     Not Changd         Fulid Condition     iscosity of sample indicates oil is within SAE 20 ange, advise investigate. The condition of the oil is     CONTAMINATION     wethod     limit/base     current     history1     history2       Water     WC Method     >.0.2     NEG         Oil Age     method     limit/base     current     history1     history2       Verare     WC Method     >.0.2     NEG         Note of the time in service.     WC Method     >.0.2     NEG         Verare     WC Method     >.0.2     NEG         Note of the time in service.     Water     wethod     limit/base     current     history1     history1       Note of the time in service.     fron     ppm     ASTM 05185(m)     >800     8         Note of the time in service.     fron     ppm     ASTM 05185(m)     >15     0         Note of the time in service.     ppm     ASTM 05185(m)     >15	Wear	Machine Age	hrs	Client Info		54690		
Sample Status       Image: Sample Status       ABNORMAL           Fluid Condition iscosity of sample indicates oil is within SAE 20 ange, advise investigate. The condition of the oil is coceptable for the time in service.       Sample Status       wethod       limit/base       current       history1       history2         Water       WC Method       >0.2       NEG           WEAR METALS       method       limit/base       current       history1       history2         Iron       ppm       ASTM D5185(m)       >800       8           Nickel       ppm       ASTM D5185(m)       >10       0           Nickel       ppm       ASTM D5185(m)       >15       0           Aluminum       ppm       ASTM D5185(m)       >75       5           Vanadium       ppm       ASTM D5185(m)       >50<	All component wear rates are normal.	Oil Age	hrs	Client Info		0		
sample Status       Sample Status       ABNORMAL	Contamination	Oil Changed		Client Info		Not Changd		
il. Fluid Condition iscosity of sample indicates oil is within SAE 20 ange, advise investigate. The condition of the oil is coeptable for the time in service. Water WC Method >0.2 NEG Current history1 history2 WeGR METALS WeGR METALS NegR METALS		Sample Status				ABNORMAL		
Fluid Condition         iscosity of sample indicates oil is within SAE 20         Mater       WC Method       >.0.2       NEG          Wear METALS       method       limit/base       current       history1       history2         Iron       ppm       ASTM D5185(m)       >.800       8          Chromium       ppm       ASTM D5185(m)       >.10       0          Chromium       ppm       ASTM D5185(m)       >.5           Chromium       ppm       ASTM D5185(m)       >.5        0           Chromium       ppm       ASTM D5185(m)       >.5        0           Silver       ppm       ASTM D5185(m)       >.10 <th>oil.</th> <th>CONTAMINATION</th> <th>J</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>historv2</th>	oil.	CONTAMINATION	J	method	limit/base	current	history1	historv2
WEAR METALS       method       imit/base       current       history1       history2         ange, advise investigate. The condition of the oil is       ppm       ASTM D5185(m)       >800       8           Iron       ppm       ASTM D5185(m)       >10       0           Nickel       ppm       ASTM D5185(m)       >5       <1           Aluminum       ppm       ASTM D5185(m)       >75       5           Lead       ppm       ASTM D5185(m)       >50       0           Antimony       ppm       ASTM D5185(m)       >50       0	Fluid Condition		-					
cceptable for the time in service.       Iron       ppm       ASTM D5185(m)       >800       8           Iron       ppm       ASTM D5185(m)       >800       8           Chromium       ppm       ASTM D5185(m)       >10       0           Nickel       ppm       ASTM D5185(m)       >5       <1           Nickel       ppm       ASTM D5185(m)       >5       <1           Silver       ppm       ASTM D5185(m)       >15       0           Aluminum       ppm       ASTM D5185(m)       >75       5           Lead       ppm       ASTM D5185(m)       >75       5           Copper       ppm       ASTM D5185(m)       >50       0           Antimony       ppm       ASTM D5185(m)       >50       0           Vanadium       ppm       ASTM D5185(m)       >50       0           Beryllium       ppm       ASTM D5185(m)       50	Viscosity of sample indicates oil is within SAE 20	water		WC Method	>0.2	NEG		
Chromium       ppm       ASTM D5185(m)       >10       0           Nickel       ppm       ASTM D5185(m)       >5       <1           Titanium       ppm       ASTM D5185(m)       >15       0           Silver       ppm       ASTM D5185(m)       >2       0           Aluminum       ppm       ASTM D5185(m)       >75       5           Aluminum       ppm       ASTM D5185(m)       >10       <1           Lead       ppm       ASTM D5185(m)       >10       <1           Copper       ppm       ASTM D5185(m)       >75       44           Tin       ppm       ASTM D5185(m)       >8       0           Antimony       ppm       ASTM D5185(m)       >50       0           Vanadium       ppm       ASTM D5185(m)       >0            Beryllium       ppm       ASTM D5185(m)       0            ADDITIVES	range, advise investigate. The condition of the oil is acceptable for the time in service.	WEAR METALS		method	limit/base	current	history1	history2
Nickel       ppm       ASTM D5185(m)       >5       <1           Titanium       ppm       ASTM D5185(m)       >15       0           Silver       ppm       ASTM D5185(m)       >2       0           Aluminum       ppm       ASTM D5185(m)       >75       5           Lead       ppm       ASTM D5185(m)       >10       <1		Iron	ppm	ASTM D5185(m)	>800	8		
TitaniumppmASTM D5185(m)>150SilverppmASTM D5185(m)>20AluminumppmASTM D5185(m)>755LeadppmASTM D5185(m)>10<1		Chromium	ppm	ASTM D5185(m)	>10	0		
Silver       ppm       ASTM D5185(m)       >2       0           Aluminum       ppm       ASTM D5185(m)       >75       5           Lead       ppm       ASTM D5185(m)       >10       <1		Nickel	ppm	ASTM D5185(m)	>5	<1		
Aluminum       ppm       ASTM D5185(m)       >75       5           Lead       ppm       ASTM D5185(m)       >10       <1           Copper       ppm       ASTM D5185(m)       >75       44           Tin       ppm       ASTM D5185(m)       >8       0           Antimony       ppm       ASTM D5185(m)       >50       0           Vanadium       ppm       ASTM D5185(m)       >50       0           Beryllium       ppm       ASTM D5185(m)       >0            ADDITIVES       method       limit/base       current       history1       history2         Boron       ppm       ASTM D5185(m)       0           Barium       ppm       ASTM D5185(m)       0		Titanium	ppm	ASTM D5185(m)	>15	0		
LeadppmASTM D5185(m)>10<1		Silver	ppm	ASTM D5185(m)	>2	0		
CopperppmASTM D5185(m)>7544TinppmASTM D5185(m)>80AntimonyppmASTM D5185(m)>500VanadiumppmASTM D5185(m)>500BerylliumppmASTM D5185(m)0CadmiumppmASTM D5185(m)0ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)0BariumppmASTM D5185(m)4ASTM D5185(m)ppmASTM D5185(m)0		Aluminum	ppm	ASTM D5185(m)	>75	5		
Tin       ppm       ASTM D5185(m)       >8       0           Antimony       ppm       ASTM D5185(m)       >50       0           Vanadium       ppm       ASTM D5185(m)       >50       0           Beryllium       ppm       ASTM D5185(m)       0           Cadmium       ppm       ASTM D5185(m)       0           ADDITIVES       method       limit/base       current       history1       history2         Boron       ppm       ASTM D5185(m)       4           Barium       ppm       ASTM D5185(m)       0		Lead	ppm	ASTM D5185(m)	>10	<1		
AntimonyppmASTM D5185(m)>500VanadiumppmASTM D5185(m)0BerylliumppmASTM D5185(m)0CadmiumppmASTM D5185(m)0ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)4BariumppmASTM D5185(m)0		Copper	ppm	ASTM D5185(m)	>75	44		
VanadiumppmASTM D5185(m)0BerylliumppmASTM D5185(m)0CadmiumppmASTM D5185(m)0ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)4BariumppmASTM D5185(m)0		Tin	ppm	ASTM D5185(m)	>8	0		
BerylliumppmASTM D5185(m)0CadmiumppmASTM D5185(m)0ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)4BariumppmASTM D5185(m)0		Antimony	ppm	ASTM D5185(m)	>50	0		
CadmiumppmASTM D5185(m)0ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)4BariumppmASTM D5185(m)0		Vanadium	ppm	ASTM D5185(m)		0		
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)4BariumppmASTM D5185(m)0		Beryllium	ppm	ASTM D5185(m)		0		
Boron         ppm         ASTM D5185(m)         4             Barium         ppm         ASTM D5185(m)         0		Cadmium	ppm	ASTM D5185(m)		0		
Barium         ppm         ASTM D5185(m)         0		ADDITIVES		method	limit/base	current	history1	history2
		Boron	ppm	ASTM D5185(m)		4		
Molybdenum         ppm         ASTM D5185(m)         2		Barium	ppm	ASTM D5185(m)		0		
		Molybdenum	ppm	ASTM D5185(m)		2		
Manganese         ppm         ASTM D5185(m)         <1		Manganese	ppm	ASTM D5185(m)		<1		
Magnesium         ppm         ASTM D5185(m)         15		Magnesium	ppm	ASTM D5185(m)		15		
Calcium         ppm         ASTM D5185(m)         3256		Calcium	ppm	ASTM D5185(m)		3256		
Phosphorus         ppm         ASTM D5185(m)         875		Phosphorus	ppm	ASTM D5185(m)		875		
Zinc ppm ASTM D5185(m) 1051		Zinc	ppm	ASTM D5185(m)		1051		
Sulfur ppm ASTM D5185(m) 3109		Sulfur	ppm	ASTM D5185(m)		3109		
Lithium ppm ASTM D5185(m) <1		Lithium	ppm	ASTM D5185(m)		<1		
CONTAMINANTS method limit/base current history1 history2		CONTAMINANTS		method	limit/base	current	history1	history2
Silicon ppm ASTM D5185(m) >400 7		Silicon	ppm	ASTM D5185(m)	>400	7		
Sodium ppm ASTM D5185(m) <1		Sodium	ppm	ASTM D5185(m)		<1		
Potassium ppm ASTM D5185(m) >20 <1		<b>D</b> · · · ·						



## **OIL ANALYSIS REPORT**



	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	Visual*	NONE	NONE		
	Yellow Metal	scalar	Visual*	NONE	NONE		
	Precipitate	scalar	Visual*	NONE	NONE		
	Silt	scalar	Visual*	NONE	NONE		
	Debris	scalar	Visual*	NONE	NONE		
	Sand/Dirt	scalar	Visual*	NONE	NONE		
Jun26/24	Appearance	scalar	Visual*	NORML	NORML		
Juni	Odor	scalar	Visual*	NORML	NORML		
	Emulsified Water	scalar	Visual*	>0.2	NEG		
	Free Water	scalar	Visual*		NEG		
	FLUID PROPER	<b>FIES</b>	method	limit/base	current	history1	history2
	Visc @ 40°C	cSt	ASTM D7279(m)		<b>5</b> 4.7		
	SAMPLE IMAGE	S	method	limit/base	current	history1	history2
		0	method	innin base	Current	Thistory I	Thistory Z
	Color					no image	no image
	Bottom					no image	no image
	Non-ferrous Meta	ls		Jun28/24			
	Viscosity @ 40°C			Jun26/24			
	140			Jun26/24			
boratory mple No. b Number	: WearCheck - C8-117 : WC0942053 : 02645958 5811510	5 Appleby Recei Teste	ived : 05 ed : 05	ngton, ON L7 5 Jul 2024 5 Jul 2024	260	<b>Cov</b> ) Unimin Road,	ia Canada Lto County Rd. #4 Havelock, O

: 05 Jul 2024 - Kevin Marson

Accredited Laboratory Test Package : CONST To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

Diagnosed

Unique Number : 5811510

CA KOL 1Z0 Contact: Dan Lyon dan.lyon@coviacorp.com T: (705)632-8904 F:

Report Id: COVHAV [WCAMIS] 02645958 (Generated: 07/05/2024 16:17:04) Rev: 1

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Submitted By: Paul Laneville Page 2 of 2