

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend

# H/R JAW CRUSHER 5011 DRIVE

Gearbox

### SHELL OMALA S2 G 220 (45 GAL)

#### DIAGNOSIS

#### Recommendation

We advise that you check all areas where dirt can enter the system. The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

#### 🔺 Wear

Gear wear is indicated.

#### Contamination

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

#### Fluid Condition

The condition of the oil is acceptable for the time in service.

DIRT

SAMPLE INFORMATION         Interloy         Interloy         Interloy         Interloy         Interloy         Interloy         Interloy           Sample Aumber         Client Info         28 Sep 2023         08 Sep 2023         14 Jul 2023           Machine Age         hrs         Client Info         19351         19242         18921           Oil Age         hrs         Client Info         Changed         Not Changd         Not Changd           Sample Status         Imit Mass         current         history1         history1         history2           Iron         ppm         ASTM D5185m         >200         A 342         187         65           Chromium         ppm         ASTM D5185m         >200         2         1         -1           Nickel         ppm         ASTM D5185m         >200         2         1         -1           Silver         ppm         ASTM D5185m         >200         2         -1         -1           Inimuma         ppm         ASTM D5185m         >200         2         -1         -1           Vanadum         ppm         ASTM D5185m         >0         0         0         0           Vanadum         ppm         ASTM D	SAMPLE INFORM		method	limit/base	ourroot	historut	history
Sample Date         Client Info         26 Sep 2023         08 Sep 2023         14 Jul 2023           Machine Age         hrs         Client Info         19351         19242         18921           Oil Age         hrs         Client Info         492         382         62           Oil Changed         Client Info         48NORMAL         ABNORMAL         Not Changd           Sample Status         Imathematic         Imathematic         ABNORMAL         ABNORMAL         Not Changd           VEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM 05185m         >10         3         1         <1           Nickel         ppm         ASTM 05185m         >10         2         1         <1           Muminum         ppm         ASTM 05185m         0         0         0         0           Aduminum         ppm         ASTM 05185m         >10         2         <1         <1           Nadimum         ppm         ASTM 05185m         0         0         0         0           Aduminum         ppm         ASTM 05185m         0         0         0         0				-inni/base		history1	history2
Machine Age         hrs         Client Info         19351         19242         18921           Oil Age         hrs         Client Info         492         382         62           Oil Changed         Client Info         492         382         62           Sample Status         Client Info         492         382         62           WeAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM 05185m         >10         3         1         -1           Nickel         ppm         ASTM 05185m         >10         2         1         -1           Silver         ppm         ASTM 05185m         >20         2         -1         -1           Tin         ppm         ASTM 05185m         >200         2         -1         -1           Copper         ppm         ASTM 05185m         >200         2         -1         -1           Cadmium         ppm         ASTM 05185m         0         0         0         0           Admaganese         ppm         ASTM 05185m         0.0         5         6         0           Admaganese         ppm			Client Info				WC0760475
Oil Age     hrs     Client Info     492     382     62       Oil Changed     Client Info     Changed     Not Changd     Not Changd       Sample Status     method     limitbase     current     history1     history2       Iron     ppm     ASTM 05186m     >10     3     1     -1       Nickel     ppm     ASTM 05186m     >10     3     1     -1       Nickel     ppm     ASTM 05186m     >10     2     1     -1       Nickel     ppm     ASTM 05186m     >20     2     1     -1       Marinum     ppm     ASTM 05186m     >20     2     -1     -1       Aluminum     ppm     ASTM 05186m     >20     2     -1     -1       Aluminum     ppm     ASTM 05186m     >20     2     -1     -1       Tin     ppm     ASTM 05186m     >10     -1     0     0       Adadum     ppm     ASTM 05186m     >0     0     -1     -1     1       Mandum     ppm     ASTM 05186m     0     0     -1     -1     1       Mandum     ppm     ASTM 05186m     0     0     -1     -1     1       Mandum     ppm			Client Info		26 Sep 2023	08 Sep 2023	14 Jul 2023
Oil Changed Sample Status         Client Info         Changed ABNORMAL         Not Changd ABNORMAL         Not Changd ABNORMAL         Not Changd ABNORMAL         Not Changd ABNORMAL           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >10         3 42         187         65           Chromium         ppm         ASTM D5185m         >10         3         2         1         1           Nickel         ppm         ASTM D5185m         >10         3         2         1         1           Numinum         ppm         ASTM D5185m         >50         4         28         23         5           Lead         ppm         ASTM D5185m         >50         <1         0         0           Vanadium         ppm         ASTM D5185m         >200         2         <1         0         0           Additionum         ppm         ASTM D5185m         >0         0         0         0         0           Adamium         ppm         ASTM D5185m         0         0         0         1         1         1           Barium         ppm         ASTM D5185m<	Machine Age	hrs	Client Info		19351	19242	
Sample Status         method         Imit/base         current         history1         NoRMAL           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >200         A 342         187         65           Chromium         ppm         ASTM D5185m         >10         3         1         <1	Oil Age	hrs	Client Info		492	382	62
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >200         A 342         187         65           Chromium         ppm         ASTM D5185m         >10         3         1         <1	Oil Changed		Client Info		Changed	Not Changd	Not Changd
Iron         ppm         ASTM D5185m         >200         A 342         187         65           Chromium         ppm         ASTM D5185m         >10         3         1         <1	Sample Status				ABNORMAL	ABNORMAL	NORMAL
Chromium         ppm         ASTM D5185m         >10         3         1         <1           Nickel         ppm         ASTM D5185m         >10         2         1         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185m         >10         2         1         <1           Titanium         ppm         ASTM D5185m         0         0         0           Silver         ppm         ASTM D5185m         >25         ▲ 28         ▲         23         5           Lead         ppm         ASTM D5185m         >50         <1	Iron	ppm	ASTM D5185m	>200	<b>A</b> 342	187	65
Intanium         ppm         ASTM D5185m         3         2         <1           Silver         ppm         ASTM D5185m         >25         ▲ 28         ▲ 23         5           Lead         ppm         ASTM D5185m         >20         2         <1	Chromium	ppm	ASTM D5185m	>10	3	1	<1
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Silver         ppm         ASTM D5185m         0         0         0         0           Aluminum         ppm         ASTM D5185m         >225         ▲ 28         ▲ 23         5           Lead         ppm         ASTM D5185m         >50         <1	Titanium		ASTM D5185m		3	2	<1
Aluminum         ppm         ASTM D5185m         >25         A 28         A 23         5           Lead         ppm         ASTM D5185m         >50         <1							
Lead         ppm         ASTM D5185m         >50         <1         0         0           Copper         ppm         ASTM D5185m         >200         2         <1				>25	-		
Copper         ppm         ASTM D5185m         >200         2         <1         <1           Tin         ppm         ASTM D5185m         >10         <1							
Tin         ppm         ASTM D5185m         ≥10         <1         0         0           Vanadium         ppm         ASTM D5185m         0         <1							
Vanadium       ppm       ASTM D5185m       Imit/base       current       history1       history2         Boron       ppm       ASTM D5185m       0       0       0       0         Boron       ppm       ASTM D5185m       4.4       2       <1					_		
CadmiumppmASTM D5185m000ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m4.42<1				210			
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m4.42<1							
Boron       ppm       ASTM D5185m       4.4       2       <1       2         Barium       ppm       ASTM D5185m       0.0       0       0       0         Molybdenum       ppm       ASTM D5185m       0       0       <1       <1         Manganese       ppm       ASTM D5185m       0       5       3       <1         Magnesium       ppm       ASTM D5185m       0       5       6       0         Calcium       ppm       ASTM D5185m       0       18       26       <1         Phosphorus       ppm       ASTM D5185m       0       18       26       <1         Sulfur       ppm       ASTM D5185m       0       0       4       0         Sulfur       ppm       ASTM D5185m       7039       11869       11667       11564         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >50       92       74       25         Sodium       ppm       ASTM D5185m       >20       8       6       2         VISUAL       method       limit/base       current <td< th=""><th></th><th>pp</th><th></th><th>limit/base</th><th></th><th></th><th>-</th></td<>		pp		limit/base			-
BariumppmASTM D5185m0.0000MolybdenumppmASTM D5185m00<1		nnm					
Molybdenum         ppm         ASTM D5185m         0         0         <1         <1           Manganese         ppm         ASTM D5185m         0         5         3         <1							
ManganeseppmASTM D5185m53<1MagnesiumppmASTM D5185m0560CalciumppmASTM D5185m01826<1							÷
MagnesiumppmASTM D5185m0560CalciumppmASTM D5185m01826<1				0			
CalciumppmASTM D5185m01826<1PhosphorusppmASTM D5185m215310291294ZincppmASTM D5185m0040SulfurppmASTM D5185m7039118691166711564CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>50▲ 92▲ 7425SodiumppmASTM D5185m>50▲ 92▲ 7425SodiumppmASTM D5185m>20862VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONEPrecipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLConceptorscalar*Visual>0.2NEGNEGNEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2 <td>•</td> <td></td> <td></td> <td>0</td> <th></th> <td></td> <td></td>	•			0			
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PotassiumppmASTM D5185m>20862VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONEPrecipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2		ppm		>50	-		
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White Metal       scalar       *Visual       NONE       NONE       NONE       NONE         Yellow Metal       scalar       *Visual       NONE       NONE       NONE       NONE       NONE         Precipitate       scalar       *Visual       NONE       NONE       NONE       NONE       NONE         Silt       scalar       *Visual       NONE       NONE       NONE       NONE       NONE         Debris       scalar       *Visual       NONE       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       >0.2       NEG       NEG       NEG         FLUID PROPERTIES       method       limit/base       current       history1       history2	Potassium	ppm	ASTM D5185m	>20	8	6	2
Yellow Metalscalar*VisualNONENONENONENONENONEPrecipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGFree Waterscalar*VisualImit/basecurrenthistory1history2	VISUAL		method	limit/base	current	history1	history2
Precipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGFree Waterscalar*VisualImit/basecurrenthistory1history2	White Metal	scalar		NONE	NONE	NONE	
Siltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGFree Waterscalar*VisualImit/basecurrenthistory1history2	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Debrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGFree Waterscalar*VisualNEGNEGNEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGFree Waterscalar*VisualImit/basecurrenthistory1history2	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGFree Waterscalar*VisualNEGNEGNEGNEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGFree Waterscalar*VisualNEGNEGNEGNEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Odorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGFree Waterscalar*VisualNEGNEGNEGNEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2							
Emulsified Waterscalar*Visual>0.2NEGNEGFree Waterscalar*VisualNEGNEGNEGFLUID PROPERTIESmethodlimit/basecurrenthistory1history2							
Free Water         scalar         *Visual         NEG         NEG         NEG           FLUID PROPERTIES         method         limit/base         current         history1         history2							
	FLUID PROPERT	IES	method	limit/base		history1	history2
	Visc @ 40°C	cSt	ASTM D445	220	212		

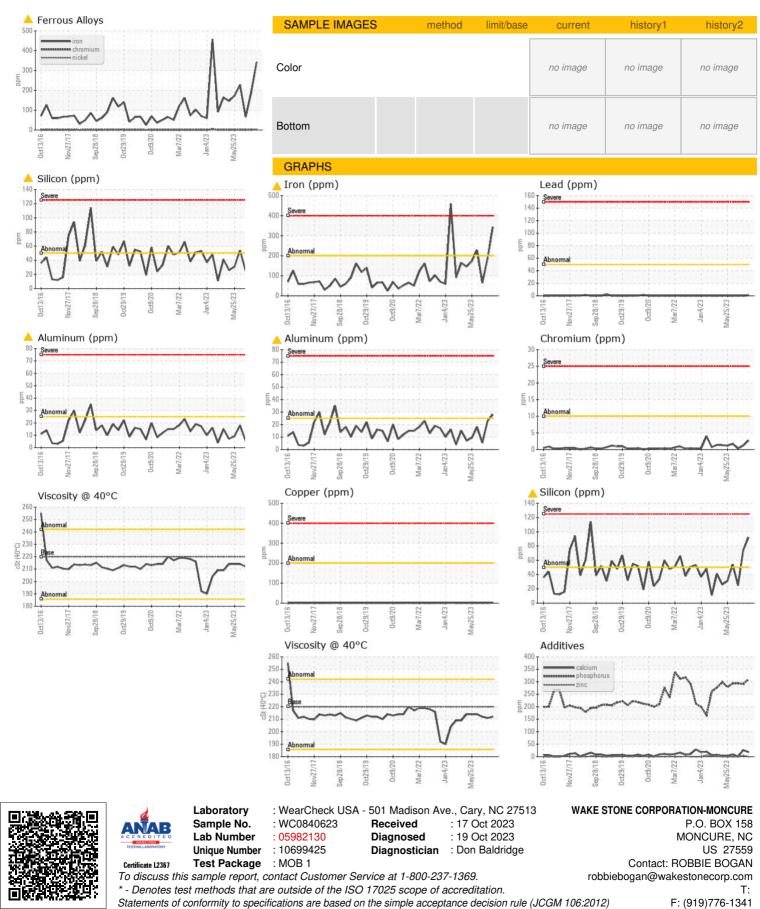
Report Id: WAKMON [WUSCAR] 05982130 (Generated: 10/20/2023 08:38:41) Rev: 1

D440 ZZU

Contact/Location: ROBBIE BOGAN - WAKMON



# **OIL ANALYSIS REPORT**



Contact/Location: ROBBIE BOGAN - WAKMON