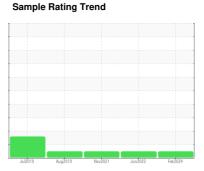


# **OIL ANALYSIS REPORT**

TEREX D16

Component **Diesel Engine** 

PETRO CANADA DURON HP 15W40 (8 GAL)





## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

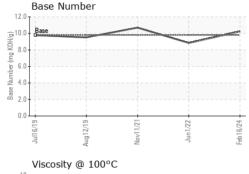
## **Fluid Condition**

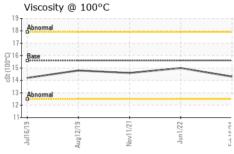
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Continue	JN HP 15W4U (8	GAL)	Jul2019	Aug2019	Nov2021 Jun2022	Feb 2024	
Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   6735   4169   2609	Sample Number		Client Info		PCA0118525	PCA0016904	PCA001692
Dil Age	Sample Date		Client Info		16 Feb 2024	01 Jun 2022	11 Nov 2021
Changed   Changed   Changed   NORMAL   NORMAL	Machine Age	hrs	Client Info		6735	4169	2609
NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   minit/base   current   history1   history1   history2   Nature   WC Method   >5   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0	Oil Age	hrs	Client Info		515	250	0
NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   minit/base   current   history1   history1   history2   Nature   WC Method   >5   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0	-		Client Info		Changed	Changed	Changed
Variety   Vari	Sample Status						
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         Imit/base         current         history1         history1           WEAR METALS         method         limit/base         current         history1         history1           iron         ppm         ASTM D5185m         >100         43         42         25           Chromium         ppm         ASTM D5185m         >20         1         2         1           Vickel         ppm         ASTM D5185m         >4         0         0         0           Siliver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >40         3         3         4           Copper         ppm         ASTM D5185m         >40         3         3         4           Copper         ppm         ASTM D5185m         >40         3         3         4           Copper         ppm         ASTM D5185m         >15         3         6         <1	CONTAMINATI	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >100         43         42         25           Chromium         ppm         ASTM D5185m         >20         1         2         1           Nickel         ppm         ASTM D5185m         0         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0         0           Aluminum         ppm         ASTM D5185m         >3         0         0         0         0           Aluminum         ppm         ASTM D5185m         >20         3         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1         1         2         1 <td< td=""><td>Water</td><td></td><td>WC Method</td><td>&gt;0.2</td><th>NEG</th><td>NEG</td><td>NEG</td></td<>	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	43	42	25
Description	Chromium	ppm	ASTM D5185m	>20	1	2	1
Description	Nickel	ppm	ASTM D5185m	>4	0	0	0
Silver	Titanium	ppm	ASTM D5185m		0	0	0
Aluminum	Silver		ASTM D5185m	>3	0		0
Lead	Aluminum		ASTM D5185m	>20	3	2	1
Copper	Lead						4
Trin							
Antimony							
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         5         4         20           Barium         ppm         ASTM D5185m         3         0         0           Molybdenum         ppm         ASTM D5185m         61         63         60           Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         900         1023         970           Calcium         ppm         ASTM D5185m         1062         1185         1417           Phosphorus         ppm         ASTM D5185m         997         1108         1124           Zinc         ppm         ASTM D5185m         3236         3179         3744           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >20         2         1				710			
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         5         4         20           Barium         ppm         ASTM D5185m         3         0         0           Molybdenum         ppm         ASTM D5185m         61         63         60           Manganese         ppm         ASTM D5185m         900         1023         970           Calcium         ppm         ASTM D5185m         900         1023         970           Calcium         ppm         ASTM D5185m         997         1108         1124           Zinc         ppm         ASTM D5185m         997         1108         1124           Zinc         ppm         ASTM D5185m         3236         3179         3744           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         >0         1	•						
ADDITIVES							
Soron   ppm   ASTM D5185m   S		РРШ		limit/base	-		
Barium		nnm		mmbasc		•	
Molybdenum         ppm         ASTM D5185m         61         63         60           Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         900         1023         970           Calcium         ppm         ASTM D5185m         900         1023         970           Calcium         ppm         ASTM D5185m         1062         1185         1417           Phosphorus         ppm         ASTM D5185m         997         1108         1124           Zinc         ppm         ASTM D5185m         3236         3179         3744           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         >20         2         <1         2           Potassium         ppm         ASTM D5185m         >20         2         <1         2           Potassium         ppm         ASTM D5185m         >20         2         <1         2           Soot %         *ASTM D7844							
Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         900         1023         970           Calcium         ppm         ASTM D5185m         1062         1185         1417           Phosphorus         ppm         ASTM D5185m         997         1108         1124           Zinc         ppm         ASTM D5185m         1172         1391         1219           Sulfur         ppm         ASTM D5185m         3236         3179         3744           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         >20         2         <1					-		
Magnesium         ppm         ASTM D5185m         900         1023         970           Calcium         ppm         ASTM D5185m         1062         1185         1417           Phosphorus         ppm         ASTM D5185m         997         1108         1124           Zinc         ppm         ASTM D5185m         1172         1391         1219           Sulfur         ppm         ASTM D5185m         3236         3179         3744           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         >20         2         <1	•						
Calcium         ppm         ASTM D5185m         1062         1185         1417           Phosphorus         ppm         ASTM D5185m         997         1108         1124           Zinc         ppm         ASTM D5185m         1172         1391         1219           Sulfur         ppm         ASTM D5185m         3236         3179         3744           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         0         1         2           Potassium         ppm         ASTM D5185m         >20         2         <1	-				-		
Phosphorus         ppm         ASTM D5185m         997         1108         1124           Zinc         ppm         ASTM D5185m         1172         1391         1219           Sulfur         ppm         ASTM D5185m         3236         3179         3744           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         0         1         2           Potassium         ppm         ASTM D5185m         >20         2         <1							
Zinc         ppm         ASTM D5185m         1172         1391         1219           Sulfur         ppm         ASTM D5185m         3236         3179         3744           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         0         1         2           Potassium         ppm         ASTM D5185m         >20         2         <1							
Sulfur         ppm         ASTM D5185m         3236         3179         3744           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         0         1         2           Potassium         ppm         ASTM D5185m         >20         2         <1	•						
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         0         1         2           Potassium         ppm         ASTM D5185m         >20         2         <1	-						
Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         0         1         2           Potassium         ppm         ASTM D5185m         >20         2         <1         2           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.7         1.4         1.2           Nitration         Abs/cm         *ASTM D7624         >20         8.0         7.4         7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.3         20.2         19.8           FLUID DEGRADATION method         limit/base         current         history1         history1           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.6         14.3         14.2				P 25 //			
Sodium         ppm         ASTM D5185m         0         1         2           Potassium         ppm         ASTM D5185m         >20         2         <1         2           INFRA-RED         method         limit/base         current         history1         history1           Soot %         %         *ASTM D7844         >3         0.7         1.4         1.2           Nitration         Abs/cm         *ASTM D7624         >20         8.0         7.4         7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.3         20.2         19.8           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.6         14.3         14.2							
Potassium         ppm         ASTM D5185m         >20         2         <1         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.7         1.4         1.2           Nitration         Abs/cm         *ASTM D7624         >20         8.0         7.4         7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.3         20.2         19.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.6         14.3         14.2				>25			
INFRA-RED							
Soot %         %         *ASTM D7844         >3         0.7         1.4         1.2           Nitration         Abs/cm         *ASTM D7624         >20         8.0         7.4         7           Sulfation         Abs/.1mm         *ASTM D7415         >30         20.3         20.2         19.8           FLUID DEGRADATION method limit/base current history1         history1         history1           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.6         14.3         14.2		ppm					
Nitration         Abs/cm         *ASTM D7624 > 20         8.0         7.4         7           Sulfation         Abs/.1mm         *ASTM D7415 > 30         20.3         20.2         19.8           FLUID DEGRADATION method limit/base current         bistory1         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 > 25         16.6         14.3         14.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.3         20.2         19.8           FLUID DEGRADATION method limit/base current history1         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.6         14.3         14.2	Soot %	%	*ASTM D7844	>3			1.2
FLUID DEGRADATION method limit/base current history1 history:  Oxidation Abs/.1mm *ASTM D7414 >25 16.6 14.3 14.2	Nitration	Abs/cm	*ASTM D7624	>20	8.0	7.4	7
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.3	20.2	19.8
	FLUID DEGRAD	OATION	method	limit/base	current	history1	history2
Base Number (BN)   mg KOH/g   ASTM D2896   9.8   10.24   8.84   10.7	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.6	14.3	14.2
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	10.24	8.84	10.7



# **OIL ANALYSIS REPORT**

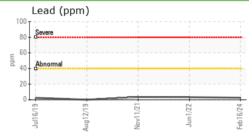


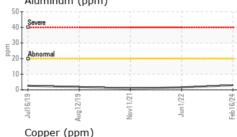


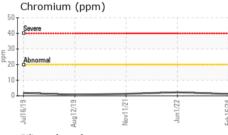
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

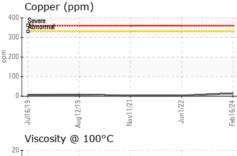
FLUID FROF	ENTIES	method			HISTOLYT	HISTOLYZ
Visc @ 100°C	cSt	ASTM D445	15.6	14.3	15.0	14.6

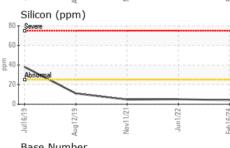
250 T	ppm)			
Severe	į	į	į	
150				
100 Abnorma	1		1	
50				
0				
Jul16/19	2/19	1/21	1/22	Feb16/24
Jill I	Aug12/19	Nov11,	Jun1/2	
Alumi	num (ppm	)		
50				

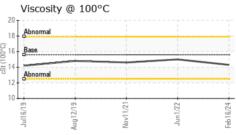


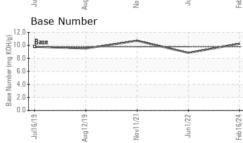














Laboratory Sample No. Lab Number : 06094385

Unique Number : 10887238

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0118525

Received **Tested** Diagnosed

: 20 Feb 2024 : 21 Feb 2024 : 21 Feb 2024 - Wes Davis

SCRAP METAL SERVICES (SMS Mill Services LLC) 1500 COMMERCIAL AVE

MINGO JUNCTION, OH US 43938

Test Package : MOB 2 Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

Contact: FRANK NALLY fnally@scrapmetalservices.com T:

\* - 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)

F: