

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend



## PETERBILT J PETE Component

#### **Diesel Engine** Elui SHELL ROTELLA T 15W40 (11 GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### 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 INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0090842	PCA0090832	PCA0090596
Sample Date		Client Info		07 Oct 2023	05 Jun 2023	01 Apr 2023
Machine Age	mls	Client Info		853858	849115	844120
Oil Age	mls	Client Info		4743	4995	4281
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	<b>\</b> 5	<10	<10	<10
Glycol		WC Method	20	NEG	NEG	NEG
	-		11 1. 0			
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	4	2	3
Chromium	ppm	ASTM D5185m	>6	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>30	<1	<1	<1
Lead	ppm	ASTM D5185m	>10	2	0	0
Copper	ppm	ASTM D5185m	>150	2	2	4
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 316	current 142	history1 167	history2 171
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 316 0.0	current 142 0	history1 167 0	history2 171 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 316 0.0 1.2	current 142 0 9	history1 167 0 10	history2 171 0 <1
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 316 0.0 1.2	current 142 0 9 <1	history1 167 0 10 0	history2 171 0 <1 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 316 0.0 1.2 24	current 142 0 9 <1 101	history1 167 0 10 0 123	history2 171 0 <1 <1 17
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 316 0.0 1.2 24 2292	current           142           0           9           <1           101           1774	history1 167 0 10 0 123 2025	history2 171 0 <1 <1 17 1782
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 316 0.0 1.2 24 2292 1064	current           142           0           9           <1           101           1774           918	history1 167 0 10 0 123 2025 899	history2 171 0 <1 <1 17 1782 811
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 316 0.0 1.2 24 2292 1064 1160	current           142           0           9           <1           101           1774           918           983	history1 167 0 10 0 123 2025 899 1061	history2 171 0 <1 <1 17 1782 811 1003
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 316 0.0 1.2 24 2292 1064 1160 4996	current           142           0           9           <1           101           1774           918           983           2897	history1 167 0 10 0 123 2025 899 1061 3615	history2 171 0 <1 <1 17 1782 811 1003 3170
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 316 0.0 1.2 24 2292 1064 1160 4996 limit/base	ourrent           142           0           9           <1           101           1774           918           983           2897           ourrent	history1 167 0 10 0 123 2025 899 1061 3615 history1	history2           171           0           <1           <1           17           1782           811           1003           3170           history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20	current           142           0           9           <1           101           1774           918           983           2897           current           3	history1 167 0 10 0 123 2025 899 1061 3615 history1 3	history2         171         0         <1         17         1782         811         1003         3170         history2         5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20	current           142           0           9           <1           101           1774           918           983           2897           current           3           3	history1         167         0         10         0         123         2025         899         1061         3615         history1         3         3         3	history2         171         0         <1         <1         17         1782         811         1003         3170         history2         5         2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20 >20	current           142           0           9           <1           101           1774           918           983           2897           current           3           3           7	history1         167         0         10         0         123         2025         899         1061         3615         history1         3         3         3         3         3         3         3         3         3         3	history2         171         0         <1         <1         17         1782         811         1003         3170         history2         5         2         5         2         5         2         5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20 s20	ourrent         142         0         9         <1         101         1774         918         983         2897         current         3         3         7         current	history1         167         0         10         0         123         2025         899         1061         3615         history1         3         3         3         3         3         3         3         3         3         3         3         3         3         3	history2         171         0         <1         <1         17         1782         811         1003         3170         history2         5         2         5         2         5         2         5         2         5         2         5         6         7         7         7         7         8         9         8         10003         1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method           ASTM D5185m	limit/base 316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20 limit/base >3	current         142         0         9         <1         101         1774         918         983         2897         current         3         3         7         current         0.1	history1         167         0         10         0         123         2025         899         1061         3615         history1         3         3         3         3         0         0.1	history2         171         0         <1         <1         17         1782         811         1003         3170         history2         5         2         5         2         5         2         5         2         5         0.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	method           ASTM D5185m	limit/base 316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20 limit/base >3 >20	current         142         0         9         <1         101         1774         918         983         2897         current         3         3         7         current         0.1         6.1	history1         167         0         10         0         123         2025         899         1061         3615         history1         3         3         3         3         0.1         5.9	history2         171         0         <1         <1         17         1782         811         1003         3170         history2         5         2         5         2         5         2         5         2         5         0.1         6.0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	limit/base 316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20 limit/base >3 >20 >30	current           142           0           9           <1           101           1774           918           983           2897           current           3           3           7           current           0.1           6.1           19.0	history1         167         0         10         0         123         2025         899         1061         3615         history1         3         3         3         3         0.1         5.9         20.0	history2           171           0           <1           <1           17           1782           811           1003           3170           history2           5           2           5           2           5           0.1           6.0           18.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7624           *ASTM D7415	limit/base 316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20 limit/base >3 >20 s30	current         142         0         9         <1         101         1774         918         983         2897         current         3         3         7         current         0.1         6.1         19.0         current	history1         167         0         10         0         123         2025         899         1061         3615         history1         3         3         3         3         0.1         5.9         20.0         history1	history2         171         0         <1         <1         17         1782         811         1003         3170         history2         5         2         5         2         5         0.1         6.0         18.2         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7415           Method	limit/base       316       0.0       1.2       24       2292       1064       1160       4996       limit/base       >20       limit/base       >20       limit/base       >3       >20       limit/base       >3       >20       limit/base       >20	current         142         0         9         <1         101         1774         918         983         2897         current         3         3         7         current         0.1         6.1         19.0         current	history1         167         0         10         0         123         2025         899         1061         3615         history1         3         3         3         3         3         2025         899         1061         3615         history1         0.1         5.9         20.0         history1         15.6	history2         171         0         <1         <1         17         1782         811         1003         3170         history2         5         2         5         2         5         0.1         6.0         18.2         history2         15.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation Base Number (BN)	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D71841 ASTM D7414 ASTM D7844 ASTM D7414 ASTM D7414 ASTM D7846	limit/base 316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20 limit/base >3 >20 >30 limit/base >25 10 1	current         142         0         9         <1         101         1774         918         983         2897         current         3         3         7         current         0.1         6.1         19.0         current         15.0         9.29	history1         167         0         10         0         123         2025         899         1061         3615         history1         3         3         3         history1         0.1         5.9         20.0         history1         15.6         10.27	history2         171         0         <1         <1         17         1782         811         1003         3170         history2         5         2         5         2         5         0.1         6.0         18.2         history2         15.3         9.90



# **OIL ANALYSIS REPORT**







Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

Submitted By: JOHN LANG

Page 2 of 2

F: (781)337-4150