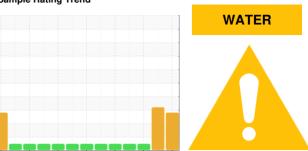


# **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

# **ALMEDA PIPELINE PUMP 1 820PM18101**

Natural Gas Engine

**MOBIL PEGASUS 805 (--- GAL)** 

## **DIAGNOSIS**

### Recommendation

The oil is near the end of it's useful service life. recommend schedule an oil change. Resample at the next service interval to monitor.

All component wear rates are normal.

## Contamination

There is a light concentration of water present in the

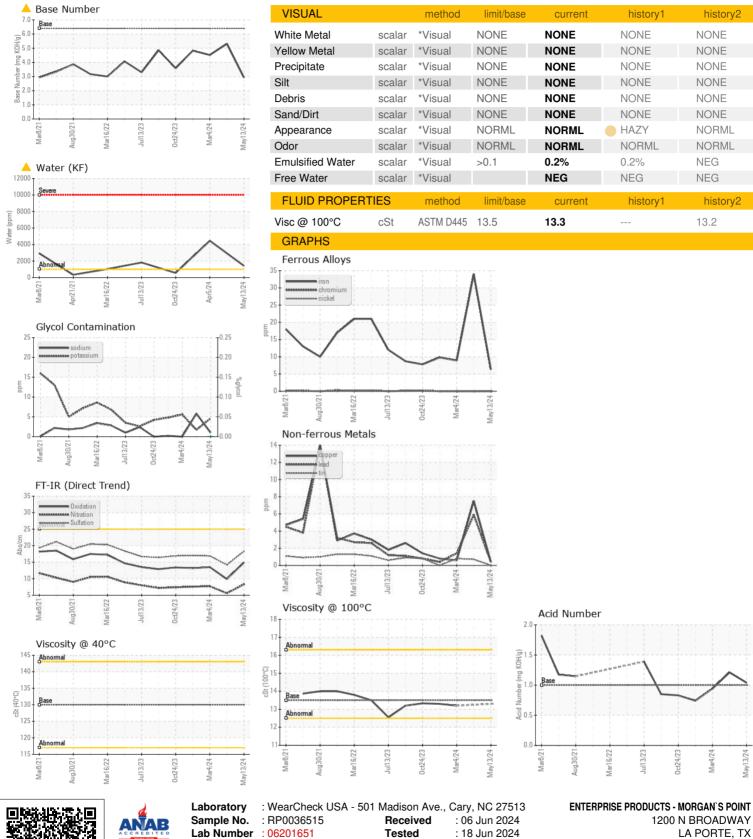
### Fluid Condition

The BN level is low. The AN level is acceptable for this fluid.

SAMPLE INFORMATION         method         limit/base         current         history1         history2           Sample Number         Client Info         RP0036515         RP0036554         RP0036792           Sample Date         Client Info         0         0 5 Apr 2024         04 Mar 202           Machine Age         hrs         Client Info         0         0         0           Oil Age         hrs         Client Info         Filtered         Filtered         Filtered           Sample Status         Client Info         Filtered         Filtered         Filtered           ABNORMAL         ABNORMAL         ABNORMAL         NORMAL           WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         6         34         9           Chromium         ppm         ASTM D5185m         >4         0         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >9         3         2         3           Lead         ppm         ASTM D5185m
Sample Date         Client Info         13 May 2024         05 Apr 2024         04 Mar 202           Machine Age         hrs         Client Info         0         0         0         0           Oil Age         hrs         Client Info         0         0         0         0           Oil Changed         Client Info         Filtered         Filtered         Filtered         Filtered           Sample Status         Method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >50         6         34         9           Chromium         ppm         ASTM D5185m         >4         0         0         0           Chromium         ppm         ASTM D5185m         >2         0         0         0           Chromium         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >9         3         2         3           Caled         ppm         ASTM D5185m         >30         <1
Sample Date         Client Info         13 May 2024         05 Apr 2024         04 Mar 202           Machine Age         hrs         Client Info         0         0         0         0           Oil Age         hrs         Client Info         0         0         0         0           Oil Changed         Client Info         Filtered         Filtered         Filtered         Filtered Filtered           Sample Status         method         Imit/base         current         history1         history1           WEAR METALS         method         limit/base         current         history1         history3           Iron         ppm         ASTM D5185m         >50         6         34         9           Chromium         ppm         ASTM D5185m         >4         0         0         0           Ohromium         ppm         ASTM D5185m         >2         0         0         0           Ohromium         ppm         ASTM D5185m         >2         0         0         0           Ohromium         ppm         ASTM D5185m         >3         0         0         0           Oliver         ppm         ASTM D5185m         >3         0 <th< td=""></th<>
Machine Age         hrs         Client Info         0         0         0           Oil Age         hrs         Client Info         0         0         0           Oil Changed         Client Info         Filtered         Filtered         Filtered         Filtered           Sample Status         Description         ABNORMAL         ABNORMAL         NORMAL           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >50         6         A 34         9           Chromium         ppm         ASTM D5185m         >4         0         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Silver         ppm         ASTM D5185m         >9         3         2         3         2         3           Lead         ppm         ASTM D5185m         >30         <1         6         1         1           Copper         ppm         ASTM D5185m         >35         <1         8
Oil Age         hrs         Client Info         0         0         0         0           Oil Changed Sample Status         Client Info         Filtered         Filtered         Filtered         Filtered         Filtered           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         6         34         9           Chromium         ppm         ASTM D5185m         >4         0         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >9         3         2         3           Aluminum         ppm         ASTM D5185m         >9         3         2         3           Lead         ppm         ASTM D5185m         >9         3         2         3           Lead         ppm         ASTM D5185m         >30         <1         6         1           Copper         ppm         ASTM D5185m         >35         <1         8         <1           Tin         ppm         ASTM D5185m         >4 <t< td=""></t<>
Oil Changed Sample Status         Client Info         Filtered ABNORMAL         Filtered ABNORMAL         Filtered ABNORMAL         Filtered NORMAL           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         6         ▲ 34         9           Chromium         ppm         ASTM D5185m         >4         0         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >9         3         2         3           Lead         ppm         ASTM D5185m         >9         3         2         3           Copper         ppm         ASTM D5185m         >30         <1
MEMORMAL         ABNORMAL         NORMAL           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >50         6         34         9           Chromium         ppm         ASTM D5185m         >4         0         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >9         3         2         3           Lead         ppm         ASTM D5185m         >30         <1
Iron
Chromium         ppm         ASTM D5185m         >4         0         0         0           Nickel         ppm         ASTM D5185m         >2         0         0         0           Titanium         ppm         ASTM D5185m         0         0         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >9         3         2         3           Lead         ppm         ASTM D5185m         >30         <1
Nickel ppm ASTM D5185m >2 0 0 0 0 0  Titanium ppm ASTM D5185m 0 0 0 0  Silver ppm ASTM D5185m >3 0 0 0 0  Aluminum ppm ASTM D5185m >9 3 2 3  Lead ppm ASTM D5185m >30 <1 6 1  Copper ppm ASTM D5185m >35 <1 8 <1  Tin ppm ASTM D5185m >4 0 <1 <1  Vanadium ppm ASTM D5185m >4 0 0 <1 <1  Vanadium ppm ASTM D5185m >4 0 0 0  Cadmium ppm ASTM D5185m >4 0 0 0  Cadmium ppm ASTM D5185m 0 0 0 0  ADDITIVES method limit/base current history1 history3  Boron ppm ASTM D5185m 0 2 0  Molybdenum ppm ASTM D5185m 0 2 0  Molybdenum ppm ASTM D5185m 13 10 10  Manganese ppm ASTM D5185m 13 10 10  Manganese ppm ASTM D5185m 53 49 54  Calcium ppm ASTM D5185m 220 375 332 325  Zinc ppm ASTM D5185m 230 432 385 378  CONTAMINANTS method limit/base current history1 history3  Silicon ppm ASTM D5185m >+100 2 3 2  Sodium ppm ASTM D5185m 10 0 2 3 2  Sodium ppm ASTM D5185m 1 6 0  Potassium ppm ASTM D5185m >+100 2 3 2  Sodium ppm ASTM D5185m 1 6 0  Potassium ppm ASTM D5185m >+100 2 3 2  Sodium ppm ASTM D5185m >-100 2 3 2  Sodium ppm ASTM D5185m >-100 2 3 3 2  Sodium ppm ASTM D5185m >-100 2 3 3 2  Sodium ppm ASTM D5185m >-100 2 3 3 2  Sodium ppm ASTM D5185m >-100 2 3 3 2  Sodium ppm ASTM D5185m >-100 2 3 3 2  Sodium ppm ASTM D5185m >-100 2 3 3 2  Sodium Potassium ppm ASTM D5185m >-100 2 3 3 2  Sodium Potassium ppm ASTM D5185m >-100 2 3 3 2  Sodium Potassium Ppm ASTM D5185m >-100 2 3 3 2  Sodium Potassium Ppm ASTM D5185m >-100 2 3 3 2  Sodium Potassium Ppm ASTM D5185m >-100 2 3 3 2  Sodium Potassium Ppm ASTM D5185m >-100 2 3 3 2  Sodium Potassium Ppm ASTM D5185m
Nickel ppm ASTM D5185m >2 0 0 0 0 0  Titanium ppm ASTM D5185m 0 0 0 0  Silver ppm ASTM D5185m >3 0 0 0 0  Aluminum ppm ASTM D5185m >9 3 2 3  Lead ppm ASTM D5185m >30 <1 6 1  Copper ppm ASTM D5185m >35 <1 8 <1  Tin ppm ASTM D5185m >4 0 <1 <1  Vanadium ppm ASTM D5185m >4 0 0 0  Cadmium ppm ASTM D5185m >4 0 0 0  Cadmium ppm ASTM D5185m 0 0 0 0  ADDITIVES method limit/base current history1 history2  Boron ppm ASTM D5185m 0 0 0 11 7  Barium ppm ASTM D5185m 0 0 0 11 7  Barium ppm ASTM D5185m 0 0 1 10 10  Manganese ppm ASTM D5185m 10 0 10  Manganese ppm ASTM D5185m 53 49 54  Calcium ppm ASTM D5185m 1020 1483 1150 1191  Phosphorus ppm ASTM D5185m 220 375 332 325  Zinc ppm ASTM D5185m 230 432 385 378  CONTAMINANTS method limit/base current history1 history2  Silicon ppm ASTM D5185m >+100 2 3 2  Sodium ppm ASTM D5185m 10 0 2 3 2  Sodium ppm ASTM D5185m >+100 2 3 2  Sodium ppm ASTM D5185m 10 0 2 3 2  Sodium ppm ASTM D5185m >+100 2 3 2  Sodium ppm ASTM D5185m >-20 5 2 6  Water % ASTM D5185m >-20 5 2 6
Description
Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >9         3         2         3           Lead         ppm         ASTM D5185m         >30         <1         6         1           Copper         ppm         ASTM D5185m         >35         <1         8         <1           Tin         ppm         ASTM D5185m         >4         0         <1         <1           Vanadium         ppm         ASTM D5185m         <1         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         1         7           Boron         ppm         ASTM D5185m         80         0         11         7           Barium         ppm         ASTM D5185m         0         2         0           Molybdenum         ppm         ASTM D5185m         13         10         10           Manganese         ppm         ASTM D5185m         53         49         54           Calcium         ppm         ASTM D5185m         1020         1483         1150         1191           Phosphorus<
Aluminum       ppm       ASTM D5185m       >9       3       2       3         Lead       ppm       ASTM D5185m       >30       <1
Lead         ppm         ASTM D5185m         >30         <1         6         1           Copper         ppm         ASTM D5185m         >35         <1         8         <1           Tin         ppm         ASTM D5185m         >4         0         <1         <1           Vanadium         ppm         ASTM D5185m         <1         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         11         7           Barium         ppm         ASTM D5185m         0         2         0           Molybdenum         ppm         ASTM D5185m         13         10         10           Manganese         ppm         ASTM D5185m         <1         <1         <1         <1           Magnesium         ppm         ASTM D5185m         53         49         54           Calcium         ppm         ASTM D5185m         1020         1483         1150         1191           Phosphorus         ppm
Copper         ppm         ASTM D5185m         >35         <1         8         <1           Tin         ppm         ASTM D5185m         >4         0         <1
Tin         ppm         ASTM D5185m         >4         0         <1         <1           Vanadium         ppm         ASTM D5185m         >4         0         <1         <1           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         80         0         11         7           Barium         ppm         ASTM D5185m         0         2         0           Molybdenum         ppm         ASTM D5185m         13         10         10           Manganese         ppm         ASTM D5185m         <1         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1020         1483         1150         1191           Phosphorus         ppm         ASTM D5185m         220         375         332         325           Zinc         ppm         ASTM D5185m         230         432         385         378           CONTAMINANTS         method         limit/base         current         history1         history2
Vanadium         ppm         ASTM D5185m         <1         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         80         0         11         7           Barium         ppm         ASTM D5185m         0         2         0           Molybdenum         ppm         ASTM D5185m         13         10         10           Manganese         ppm         ASTM D5185m         <1         <1         <1           Magnesium         ppm         ASTM D5185m         53         49         54           Calcium         ppm         ASTM D5185m         1020         1483         1150         1191           Phosphorus         ppm         ASTM D5185m         220         375         332         325           Zinc         ppm         ASTM D5185m         >+100         2         3         2           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         80         0         11         7           Barium         ppm         ASTM D5185m         0         2         0           Molybdenum         ppm         ASTM D5185m         13         10         10           Manganese         ppm         ASTM D5185m         <1
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         80         0         11         7           Barium         ppm         ASTM D5185m         0         2         0           Molybdenum         ppm         ASTM D5185m         13         10         10           Manganese         ppm         ASTM D5185m         <1
Boron         ppm         ASTM D5185m         80         0         11         7           Barium         ppm         ASTM D5185m         0         2         0           Molybdenum         ppm         ASTM D5185m         13         10         10           Manganese         ppm         ASTM D5185m         <1         <1         <1         <1           Magnesium         ppm         ASTM D5185m         53         49         54           Calcium         ppm         ASTM D5185m         1020         1483         1150         1191           Phosphorus         ppm         ASTM D5185m         220         375         332         325           Zinc         ppm         ASTM D5185m         230         432         385         378           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         2         3         2           Sodium         ppm         ASTM D5185m         >20         5         2         6           Water         %         ASTM D6304         >0.1         0.142         0.446
Barium         ppm         ASTM D5185m         0         2         0           Molybdenum         ppm         ASTM D5185m         13         10         10           Manganese         ppm         ASTM D5185m         <1
Molybdenum         ppm         ASTM D5185m         13         10         10           Manganese         ppm         ASTM D5185m         <1
Manganese         ppm         ASTM D5185m         <1         <1         <1           Magnesium         ppm         ASTM D5185m         53         49         54           Calcium         ppm         ASTM D5185m         1020         1483         1150         1191           Phosphorus         ppm         ASTM D5185m         220         375         332         325           Zinc         ppm         ASTM D5185m         230         432         385         378           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         2         3         2           Sodium         ppm         ASTM D5185m         1         6         0           Potassium         ppm         ASTM D5185m         >20         5         2         6           Water         %         ASTM D6304         >0.1         0.142         0.446
Magnesium         ppm         ASTM D5185m         53         49         54           Calcium         ppm         ASTM D5185m         1020         1483         1150         1191           Phosphorus         ppm         ASTM D5185m         220         375         332         325           Zinc         ppm         ASTM D5185m         230         432         385         378           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         2         3         2           Sodium         ppm         ASTM D5185m         1         6         0           Potassium         ppm         ASTM D5185m         >20         5         2         6           Water         %         ASTM D6304         >0.1         0.142         0.446
Calcium         ppm         ASTM D5185m         1020         1483         1150         1191           Phosphorus         ppm         ASTM D5185m         220         375         332         325           Zinc         ppm         ASTM D5185m         230         432         385         378           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         2         3         2           Sodium         ppm         ASTM D5185m         1         6         0           Potassium         ppm         ASTM D5185m         >20         5         2         6           Water         %         ASTM D6304         >0.1         0.142         0.446
Phosphorus         ppm         ASTM D5185m         220         375         332         325           Zinc         ppm         ASTM D5185m         230         432         385         378           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         2         3         2           Sodium         ppm         ASTM D5185m         1         6         0           Potassium         ppm         ASTM D5185m         >20         5         2         6           Water         %         ASTM D6304         >0.1         ▲ 0.142         ▲ 0.446
Zinc         ppm         ASTM D5185m         230         432         385         378           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         2         3         2           Sodium         ppm         ASTM D5185m         1         6         0           Potassium         ppm         ASTM D5185m         >20         5         2         6           Water         %         ASTM D6304         >0.1         ▲ 0.142         ▲ 0.446
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >+100         2         3         2           Sodium         ppm         ASTM D5185m         1         6         0           Potassium         ppm         ASTM D5185m         >20         5         2         6           Water         %         ASTM D6304         >0.1         0.142         0.446
Silicon         ppm         ASTM D5185m         >+100         2         3         2           Sodium         ppm         ASTM D5185m         1         6         0           Potassium         ppm         ASTM D5185m         >20         5         2         6           Water         %         ASTM D6304         >0.1         0.142         0.446
Sodium         ppm         ASTM D5185m         1         6         0           Potassium         ppm         ASTM D5185m         >20         5         2         6           Water         %         ASTM D6304         >0.1         ▲ 0.142         ▲ 0.446
Potassium         ppm         ASTM D5185m         >20         5         2         6           Water         %         ASTM D6304         >0.1         ▲ 0.142         ▲ 0.446
Water % ASTM D6304 >0.1 ▲ 0.142 ▲ 0.446
ppm Water ppm ASTM D6304 >1000 🛕 1420 🛕 4460
FIG. 100 Fig
Glycol % *ASTM D2982 <b>0.0</b>
INFRA-RED method limit/base current history1 history2
<b>Soot</b> %
<b>Nitration</b> Abs/cm *ASTM D7624 >20 <b>8.3</b> 5.6 7.7
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3         14.2         16.9
FLUID DEGRADATION method limit/base current history1 history2



## OIL ANALYSIS REPORT







Certificate 12367

Lab Number : 06201651

Unique Number : 11063774

Tested Diagnosed

: 18 Jun 2024

: 18 Jun 2024 - Jonathan Hester Test Package : IND 2 (Additional Tests: FT-IR, Glycol, KV100, TBN)

US 77571 Contact: LONNIE RAMIREZ LRamirez@eprod.com T: (713)575-4112

To discuss this sample report, contact Customer Service at 1-800-237-1369.  $^st$  - 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)