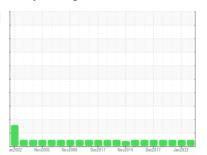


# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL



Machine Id

# **GENERAC NSC EAST SPRINGFIELD**

**Liquid Petroleum Gas** 

SHELL ROTELLA T 15W40 (4 QTS)

#### 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.

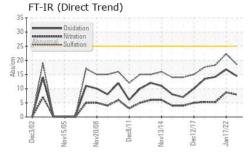
## **Fluid Condition**

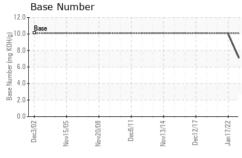
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

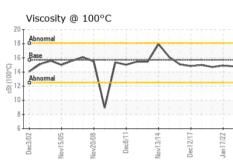
SAMPLE INFORMATION method limit/base current   history1   history2							
Sample Date   Client Info   29 Jan 2024   17 Jan 2022   22 Nov 2019   Machine Age   hrs   Client Info   0   12   0   0   12   0   0   0   12   0   0   0   0   12   0   0   0   0   0   0   0   0   0	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         445         0         372           Oil Age         hrs         Client Info         0         12         0           Oil Changed         Changed         Changed         Changed         Changed         Changed           Sample Status         Description         Image: Changed         <	Sample Number		Client Info		WC0848580	WC0647406	WC0395636
Oil Age         hrs         Client Info         Changed Changed Changed Changed Changed Changed NORMAL         Changed Changed Changed Changed Changed NORMAL         Changed Changed Changed Changed NORMAL         NORMAL NORMAL         NORMAL NORMAL         NORMAL NORMAL         NORMAL NORMAL         NORMAL NORMAL         NORMAL         NORMAL NORMAL         NORMAL         NORMAL         NORMAL NORMAL         NORMAL NORMAL         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL NORMAL         NORMAL	Sample Date		Client Info		29 Jan 2024	17 Jan 2022	22 Nov 2019
Oil Changed Sample Status	Machine Age	hrs	Client Info		445	0	372
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2	Oil Age	hrs	Client Info		0	12	0
Water	Oil Changed		Client Info		Changed	Changed	Changed
Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         0         2         2         2           Chromium         ppm         ASTM D5185m         >10         0         <1	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >120         0         2         2           Chromium         ppm         ASTM D5185m         >10         0         <1         0           Nickel         ppm         ASTM D5185m         >5         0         0         <1           Titanium         ppm         ASTM D5185m         >5         0         <1         0           Aluminum         ppm         ASTM D5185m         >5         0         <1         0           Aluminum         ppm         ASTM D5185m         >40         0         1         <1           Copper         ppm         ASTM D5185m         >40         0         1         <1           Copper         ppm         ASTM D5185m         >10         0         <1         <1           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         1.2         84         97	CONTAMINATIO	N	method	limit/base	current	history1	history2
Iron	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >10         0         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	0	2	2
Titanium	Chromium	ppm	ASTM D5185m	>10	0	<1	0
Silver	Nickel	ppm	ASTM D5185m	>5	0	0	<1
Aluminum         ppm         ASTM D5185m         >20         2         2         2           Lead         ppm         ASTM D5185m         >40         0         1         <1	Titanium	ppm	ASTM D5185m		0	0	<1
Lead         ppm         ASTM D5185m         >40         0         1         <1	Silver	ppm	ASTM D5185m	>5	0	<1	0
Copper         ppm         ASTM D5185m         >300         0         <1	Aluminum	ppm	ASTM D5185m	>20	2	2	2
Tin	Lead	ppm	ASTM D5185m	>40	0	1	
Antimony         ppm         ASTM D5185m          0           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         316         84         97         9           Barium         ppm         ASTM D5185m         0.0         0         0         0           Molybdenum         ppm         ASTM D5185m         0.0         0         0         0           Manganese         ppm         ASTM D5185m         0         <1	Copper	ppm	ASTM D5185m	>300	0	<1	<1
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         316         84         97         9           Barium         ppm         ASTM D5185m         0.0         0         0         0           Molydenum         ppm         ASTM D5185m         1.2         84         59         63           Manganese         ppm         ASTM D5185m         0         <1	Tin	ppm	ASTM D5185m	>10	0	<1	0
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         316         84         97         9           Barium         ppm         ASTM D5185m         0.0         0         0         0           Molybdenum         ppm         ASTM D5185m         1.2         84         59         63           Manganese         ppm         ASTM D5185m         0         -1         -1           Magnesium         ppm         ASTM D5185m         24         131         394         1060           Calcium         ppm         ASTM D5185m         24         131         394         1060           Calcium         ppm         ASTM D5185m         2292         2442         2006         1199           Phosphorus         ppm         ASTM D5185m         1064         1147         1087         1068           Zinc         ppm         ASTM D5185m         4996         4590         3229         2725           CONTAMINANTS         method         limit/base         current         history1 </th <th>Antimony</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th></th> <th></th> <th>0</th>	Antimony	ppm	ASTM D5185m				0
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         316         84         97         9           Barium         ppm         ASTM D5185m         0.0         0         0         0           Molybdenum         ppm         ASTM D5185m         1.2         84         59         63           Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         24         131         394         1060           Calcium         ppm         ASTM D5185m         24         131         394         1060           Calcium         ppm         ASTM D5185m         2292         2442         2006         1199           Phosphorus         ppm         ASTM D5185m         1064         1147         1087         1068           Zinc         ppm         ASTM D5185m         1160         1345         1250         1239           Sulfur         ppm         ASTM D5185m         4996         4590         3229         2725           CONTAMINANTS         method         limit/base	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         0.0         0         0         0           Molybdenum         ppm         ASTM D5185m         1.2         84         59         63           Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         24         131         394         1060           Calcium         ppm         ASTM D5185m         24         131         394         1060           Calcium         ppm         ASTM D5185m         2292         2442         2006         1199           Phosphorus         ppm         ASTM D5185m         1064         1147         1087         1068           Zinc         ppm         ASTM D5185m         1160         1345         1250         1239           Sulfur         ppm         ASTM D5185m         4996         4590         3229         2725           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         18         15         16           Sodium         ppm         ASTM D5185m	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         1.2         84         59         63           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	316	84	97	9
Manganese         ppm         ASTM D5185m         0         <1	Barium	ppm	ASTM D5185m	0.0	0	0	0
Magnesium         ppm         ASTM D5185m         24         131         394         1060           Calcium         ppm         ASTM D5185m         2292         2442         2006         1199           Phosphorus         ppm         ASTM D5185m         1064         1147         1087         1068           Zinc         ppm         ASTM D5185m         1160         1345         1250         1239           Sulfur         ppm         ASTM D5185m         4996         4590         3229         2725           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         18         15         16           Sodium         ppm         ASTM D5185m         20         <1	Molybdenum	ppm	ASTM D5185m	1.2	84	59	63
Calcium         ppm         ASTM D5185m         2292         2442         2006         1199           Phosphorus         ppm         ASTM D5185m         1064         1147         1087         1068           Zinc         ppm         ASTM D5185m         1160         1345         1250         1239           Sulfur         ppm         ASTM D5185m         4996         4590         3229         2725           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         18         15         16           Sodium         ppm         ASTM D5185m         >20         <1         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         1         0           Nitration         Abs/cm         *ASTM D7624         >20         7.9         8.7         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         22.3         18.3           FLUID DEGRADATION         method	Manganese	ppm	ASTM D5185m		0	<1	<1
Phosphorus         ppm         ASTM D5185m         1064         1147         1087         1068           Zinc         ppm         ASTM D5185m         1160         1345         1250         1239           Sulfur         ppm         ASTM D5185m         4996         4590         3229         2725           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         18         15         16           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         <1         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         1         0           Nitration         Abs/cm         *ASTM D7624         >20         7.9         8.7         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         22.3         18.3           FLUID DEGRADATION         method         limi	Magnesium	ppm	ASTM D5185m	24	131	394	1060
Zinc         ppm         ASTM D5185m         1160         1345         1250         1239           Sulfur         ppm         ASTM D5185m         4996         4590         3229         2725           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         18         15         16           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         <1         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         1         0           Nitration         Abs/cm         *ASTM D7624         >20         7.9         8.7         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         22.3         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414	Calcium	ppm	ASTM D5185m	2292	2442	2006	1199
Sulfur         ppm         ASTM D5185m         4996         4590         3229         2725           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         18         15         16           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         <1         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         1         0           Nitration         Abs/cm         *ASTM D7624         >20         7.9         8.7         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         22.3         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.4         16.8         14.2	Phosphorus	ppm	ASTM D5185m	1064	1147	1087	1068
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         18         15         16           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         <1         1         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0         1         0           Nitration         Abs/cm         *ASTM D7624         >20         7.9         8.7         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         22.3         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.4         16.8         14.2	Zinc	ppm	ASTM D5185m	1160	1345	1250	1239
Silicon         ppm         ASTM D5185m         >25         18         15         16           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         <1	Sulfur	ppm	ASTM D5185m	4996	4590	3229	2725
Sodium         ppm         ASTM D5185m         2         2         2         2         2         Potassium         ppm         ASTM D5185m         >20         <1	CONTAMINANTS	3	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         <1	Silicon	ppm	ASTM D5185m	>25	18	15	16
INFRA-RED	Sodium	ppm	ASTM D5185m		2	2	2
Soot %         %         *ASTM D7844         0         1         0           Nitration         Abs/cm         *ASTM D7624         >20         7.9         8.7         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         22.3         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.4         16.8         14.2	Potassium	ppm	ASTM D5185m	>20	<1	1	0
Nitration         Abs/cm         *ASTM D7624         >20         7.9         8.7         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         22.3         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.4         16.8         14.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         22.3         18.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.4         16.8         14.2	Soot %	%	*ASTM D7844		0	1	0
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm 'ASTM D7414 >25 14.4 16.8 14.2	Nitration	Abs/cm	*ASTM D7624	>20	7.9	8.7	5.2
Oxidation Abs/.1mm *ASTM D7414 >25 <b>14.4</b> 16.8 14.2	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.5	22.3	18.3
	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 10.1 7.1 10.0	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.4	16.8	14.2
	Base Number (BN)	mg KOH/g	ASTM D2896	10.1	7.1	10.0	



## **OIL ANALYSIS REPORT**



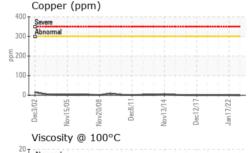


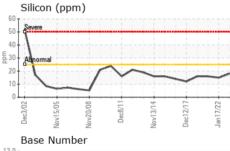


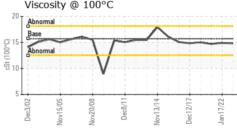
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

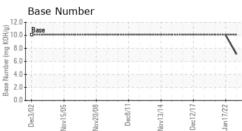
FLUID PROPER	HES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.7	14.8	14.9	14.7

GRAPHS					
Iron (ppm)					Lead (ppm)
Severe					80 - Severe
Abnormal					60 - Abnomal
Dec3/02	Nov20/08	Nov13/14	Dec12/17-	Jan17/22	Dec3/02 Nov15/05 Nov20/08
Aluminum (ppm)					Chromium (ppm)
40 Severe					25 20 <b>Severe</b>
20 Abnormal					E 15 10 + Abnormal
10					5+4













Laboratory Sample No.

Lab Number : 06146952 Unique Number : 10977030

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0848580

Received **Tested** Diagnosed

: 12 Apr 2024 : 15 Apr 2024

: 15 Apr 2024 - Sean Felton

CLIMAX, NC US 27233 Contact: TERRY SHEPPARD

PIEDMONT GENERATOR

7560 NC HWY 22 NORTH

Test Package : MOB 1 ( Additional Tests: TBN ) Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

terry1pg@bellsouth.net; bill3pg@bellsouth.net T: (336)685-4859 F: (336)685-5297

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) Report Id: PIEJUL [WUSCAR] 06146952 (Generated: 04/25/2024 14:24:16) Rev: 1

Contact/Location: TERRY SHEPPARD - PIEJUL