

# **PROBLEM SUMMARY**

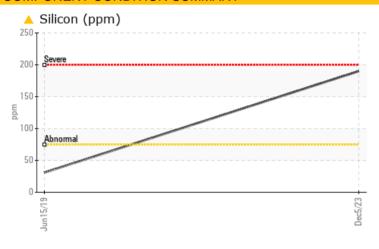
Sample Rating Trend

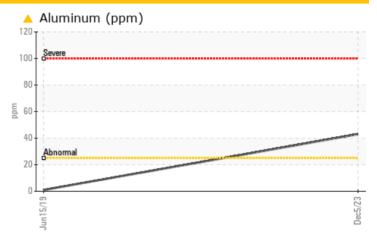
DIRT



**CHEVRON RPM SYNTHETIC GEAR 75W90 (3 mls)** 







## 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.

# PROBLEMATIC TEST RESULTS Sample Status ABNORMAL ---

 Sample Status
 ABNORMAL
 ABNORMAL
 -- 

 Aluminum
 ppm
 ASTM D5185m
 >25
 43
 1
 -- 

 Silicon
 ppm
 ASTM D5185m
 >75
 490
 31
 --

Customer Id: NWWCHA Sample No.: PCA0107511 Lab Number: 06028212 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:

Don Baldridge +1 don.b505@comcast.net

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

# RECOMMENDED ACTIONS

| Action            | Status | Date | Done By | Description   |
|-------------------|--------|------|---------|---|
| Check Dirt Access |        |      | ?       | We advise that you check all areas where dirt can enter the system. |

# HISTORICAL DIAGNOSIS

15 Jun 2019 Diag: Wes Davis







# **OIL ANALYSIS REPORT**

PORT





DT627
Component
Front Axle

## **CHEVRON RPM SYNTHETIC GEAR 75W90 (3 mls)**

## 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

All component wear rates are normal.

## Contamination

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

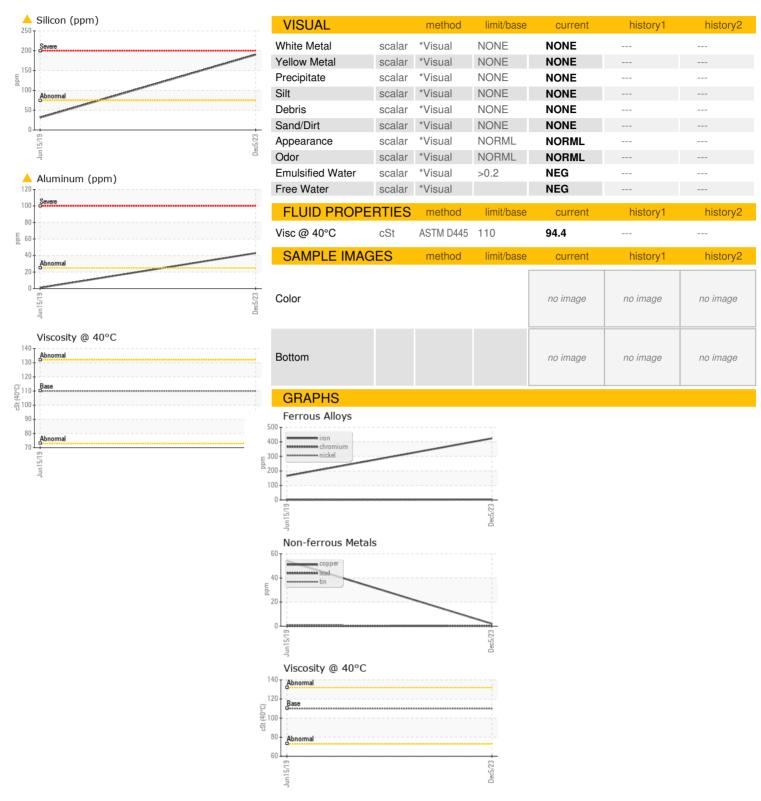
## **Fluid Condition**

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

| SAMPLE INFORMATION         method         limit/base         current         history1         history2           Sample Number         Client Info         PCA0107511         PCAI-616433   | (3 mis)       |        |             | Jun 2019   | Dec2023     |                   |          |
|---|---------------|--------|-------------|------------|-------------|-------------------|----------|
| Sample Date         Client Info         05 Dec 2023         15 Jun 2019            Machine Age         mls         Client Info         227166         75789            Oil Age         mls         Client Info         0         0            Oil Changed         Client Info         Changed          Changed            Sample Status         BNORMAL         ABNORMAL             CONTAMINATION         method         limit/base         current         history1         history2           WEAR METALS         method         method         1 millity<   | SAMPLE INFORM | MATION | method      | limit/base | current     | history1          | history2 |
| Machine Age         mls         Client Info         227166         75789            Oil Age         mls         Client Info         0         0            Oil Changed         Changed              Sample Status         Emergency         ABNORMAL            CONTAMINATION         method         limit/base         current         history1         history2           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         424         166            Chromium         ppm         ASTM D5185m         >10         3         1            Nickel         ppm         ASTM D5185m         >10         41         0            Silver         ppm         ASTM D5185m         >10         0         0            Aluminum         ppm         ASTM D5185m         >25         0         0            Lead         ppm         ASTM D5185m         >50         2         454            Tin   | Sample Number |        | Client Info |            | PCA0107511  | PCAI-616433       |          |
| Oil Age         mls         Client Info         0         0   | Sample Date   |        | Client Info |            | 05 Dec 2023 | 15 Jun 2019       |          |
| Oil Changed Sample Status         Client Info         Changed ABNORMAL ABNORMAL         Changed ABNORMAL            CONTAMINATION         method Iimit/base         current         history1         history2           Water         WC Method         >0.2         NEG         NEG            WEAR METALS         method Iimit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         424         166            Chromium         ppm         ASTM D5185m         >10         3         1            Nickel         ppm         ASTM D5185m         >10         <1  | Machine Age   | mls    | Client Info |            | 227166      | 75789             |          |
| CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.2         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         424         166            Chromium         ppm         ASTM D5185m         >10         3         1            Nickel         ppm         ASTM D5185m         >10         <1         0            Silver         ppm         ASTM D5185m         0         0            Silver         ppm         ASTM D5185m         0         0            Silver         ppm         ASTM D5185m         >25         433         1            Aluminum         ppm         ASTM D5185m         >25         0         0            Copper         ppm         ASTM D5185m         >50         2         45            Tin         ppm         ASTM D5185m         <1         0            Cadmium </td <td>Oil Age</td> <td>mls</td> <td>Client Info</td> <td></td> <th>0</th> <td>0</td> <td></td>                                | Oil Age       | mls    | Client Info |            | 0           | 0                 |          |
| CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.2         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         424         166            Chromium         ppm         ASTM D5185m         >10         3         1            Nickel         ppm         ASTM D5185m         >10         <1         0            Silver         ppm         ASTM D5185m         >10         <1         0            Aluminum         ppm         ASTM D5185m         >225         433         1            Aluminum         ppm         ASTM D5185m         >25         0         0            Aluminum         ppm         ASTM D5185m         >50         2         54            Lead         ppm         ASTM D5185m         >50         2         54            Approper         ASTM D5185m         >10         0         1 <t< td=""><td>Oil Changed</td><td></td><td>Client Info</td><td></td><th>Changed</th><td>Changed</td><td></td></t<> | Oil Changed   |        | Client Info |            | Changed     | Changed           |          |
| Water         WC Method         >0.2         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         424         166            Chromium         ppm         ASTM D5185m         >10         3         1            Nickel         ppm         ASTM D5185m         >10         41         0            Titanium         ppm         ASTM D5185m         0         0             Aluminum         ppm         ASTM D5185m         >25         43         1            Aluminum         ppm         ASTM D5185m         >25         0         0            Lead         ppm         ASTM D5185m         >50         2         54            Lead         ppm         ASTM D5185m         >10         1            Copper         ppm         ASTM D5185m         >10         1            Antimony         ppm         ASTM D5185m         >1          0 <tr< td=""><td>Sample Status</td><td></td><td></td><td></td><th>ABNORMAL</th><td>ABNORMAL</td><td></td></tr<>   | Sample Status |        |             |            | ABNORMAL    | ABNORMAL          |          |
| WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         424         166            Chromium         ppm         ASTM D5185m         >10         3         1            Nickel         ppm         ASTM D5185m         >10         <1         0            Titanium         ppm         ASTM D5185m         3         0            Silver         ppm         ASTM D5185m         >25         43         1            Aluminum         ppm         ASTM D5185m         >25         0         0            Aluminum         ppm         ASTM D5185m         >50         2         4         54            Aluminum         ppm         ASTM D5185m         >50         2         54            Lead         ppm         ASTM D5185m         >10         0         1            Copper         ppm         ASTM D5185m         >1         0         1            Tin         ppm         ASTM D5185m         >1         1<   | CONTAMINATI   | ON     | method      | limit/base | current     | history1          | history2 |
| Iron  | Water         |        | WC Method   | >0.2       | NEG         | NEG               |          |
| Chromium         ppm         ASTM D5185m         >10         3         1            Nickel         ppm         ASTM D5185m         >10         <1   | WEAR METALS   | 3      | method      | limit/base | current     | history1          | history2 |
| Nickel         ppm         ASTM D5185m         >10         <1         0            Titanium         ppm         ASTM D5185m         3         0            Silver         ppm         ASTM D5185m         0         0            Aluminum         ppm         ASTM D5185m         >25         43         1            Lead         ppm         ASTM D5185m         >50         2         54            Copper         ppm         ASTM D5185m         >10         0         1            Antimony         ppm         ASTM D5185m         >10         0         1            Antimony         ppm         ASTM D5185m         >1         0            Vanadium         ppm         ASTM D5185m         o         0            Cadmium         ppm         ASTM D5185m         176         191            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         176         191            Barium         ppm  | Iron          | ppm    | ASTM D5185m | >500       | 424         | 166               |          |
| Titanium         ppm         ASTM D5185m         3         0            Silver         ppm         ASTM D5185m         0         0            Aluminum         ppm         ASTM D5185m         >25         43         1            Lead         ppm         ASTM D5185m         >25         0         0            Copper         ppm         ASTM D5185m         >50         2         54            Tin         ppm         ASTM D5185m         >10         0         1            Antimony         ppm         ASTM D5185m         >5          0            Antimony         ppm         ASTM D5185m         >1         0         1            Antimony         ppm         ASTM D5185m         >1         0         1            Antimony         ppm         ASTM D5185m         >1         0         0            Antimony         ppm         ASTM D5185m         176         191             Antimony         ppm         ASTM D5185m         176         191   | Chromium      | ppm    | ASTM D5185m | >10        | 3           | 1                 |          |
| Silver         ppm         ASTM D5185m         0         0            Aluminum         ppm         ASTM D5185m         >25         43         1            Lead         ppm         ASTM D5185m         >25         0         0            Copper         ppm         ASTM D5185m         >50         2         54            Tin         ppm         ASTM D5185m         >10         0         1            Antimony         ppm         ASTM D5185m         >5          0            Antimony         ppm         ASTM D5185m         >5          0            Vanadium         ppm         ASTM D5185m         >1         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         3            Barium         ppm         ASTM D5185m         7         32            Molybdenum         ppm   | Nickel        | ppm    | ASTM D5185m | >10        | <1          | 0                 |          |
| Aluminum         ppm         ASTM D5185m         >25         ▲ 43         1            Lead         ppm         ASTM D5185m         >25         0         0            Copper         ppm         ASTM D5185m         >50         2         ▲ 54            Tin         ppm         ASTM D5185m         >10         0         1            Antimony         ppm         ASTM D5185m         >5          0            Antimony         ppm         ASTM D5185m         0         0            Vanadium         ppm         ASTM D5185m         0         0            Cadmium         ppm         ASTM D5185m         176         191            Cadmium         ppm         ASTM D5185m         0         3            Barium         ppm         ASTM D5185m         8         0            Molybdenum         ppm         ASTM D5185m         7         32            Magnesium         ppm         ASTM D5185m         121         7            Calcium         ppm         ASTM D5185m  | Titanium      | ppm    | ASTM D5185m |            | 3           | 0                 |          |
| Lead         ppm         ASTM D5185m         >25         0         0            Copper         ppm         ASTM D5185m         >50         2         ▲ 54            Tin         ppm         ASTM D5185m         >10         0         1            Antimony         ppm         ASTM D5185m         >5          0            Vanadium         ppm         ASTM D5185m         <1   | Silver        | ppm    | ASTM D5185m |            | 0           | 0                 |          |
| Copper         ppm         ASTM D5185m         >50         2         ▲ 54            Tin         ppm         ASTM D5185m         >10         0         1            Antimony         ppm         ASTM D5185m         >5          0            Vanadium         ppm         ASTM D5185m         <1   | Aluminum      | ppm    | ASTM D5185m | >25        | <b>43</b>   | 1                 |          |
| Tin         ppm         ASTM D5185m         >10         0         1            Antimony         ppm         ASTM D5185m         >5          0            Vanadium         ppm         ASTM D5185m         <1         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         176         191            Barium         ppm         ASTM D5185m         0         3            Molybdenum         ppm         ASTM D5185m         8         0            Manganese         ppm         ASTM D5185m         7         32            Magnesium         ppm         ASTM D5185m         73         1            Calcium         ppm         ASTM D5185m         1276         1285            Zinc         ppm         ASTM D5185m         102         15            Zulfur         ppm         ASTM D5185m          0   | Lead          | ppm    | ASTM D5185m | >25        | 0           | 0                 |          |
| Antimony         ppm         ASTM D5185m         >5          0            Vanadium         ppm         ASTM D5185m         <1   | Copper        | ppm    | ASTM D5185m | >50        | 2           | <u></u> 4 54 ≤ 54 |          |
| Vanadium         ppm         ASTM D5185m         <1         0            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         176         191            Barium         ppm         ASTM D5185m         0         3            Molybdenum         ppm         ASTM D5185m         7         32            Manganese         ppm         ASTM D5185m         73         1            Magnesium         ppm         ASTM D5185m         121         7            Calcium         ppm         ASTM D5185m         1276         1285            Zinc         ppm         ASTM D5185m         102         15            Sulfur         ppm         ASTM D5185m             Lithium         ppm         ASTM D5185m             CONTAMINANTS         method         limit/base         current         history1         history2           S  | Tin           | ppm    | ASTM D5185m | >10        | 0           | 1                 |          |
| Cadmium         ppm         ASTM D5185m         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         176         191            Barium         ppm         ASTM D5185m         0         3            Molybdenum         ppm         ASTM D5185m         8         0            Manganese         ppm         ASTM D5185m         7         32            Magnesium         ppm         ASTM D5185m         121         7            Calcium         ppm         ASTM D5185m         1276         1285            Zinc         ppm         ASTM D5185m         102         15            Sulfur         ppm         ASTM D5185m         21398             Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         75         190         31 <t< td=""><td>Antimony</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;5</td><th></th><td>0</td><td></td></t<>   | Antimony      | ppm    | ASTM D5185m | >5         |             | 0                 |          |
| ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         176         191            Barium         ppm         ASTM D5185m         0         3            Molybdenum         ppm         ASTM D5185m         8         0            Manganese         ppm         ASTM D5185m         7         32            Magnesium         ppm         ASTM D5185m         121         7            Calcium         ppm         ASTM D5185m         1276         1285            Zinc         ppm         ASTM D5185m         102         15            Sulfur         ppm         ASTM D5185m         21398             Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         190         31            Sodium         ppm         ASTM D5185m         10         <   | Vanadium      | ppm    | ASTM D5185m |            | <1          | 0                 |          |
| Boron         ppm         ASTM D5185m         176         191            Barium         ppm         ASTM D5185m         0         3            Molybdenum         ppm         ASTM D5185m         8         0            Manganese         ppm         ASTM D5185m         7         32            Magnesium         ppm         ASTM D5185m         121         7            Calcium         ppm         ASTM D5185m         1276         1285            Phosphorus         ppm         ASTM D5185m         102         15            Zinc         ppm         ASTM D5185m         21398             Sulfur         ppm         ASTM D5185m          0            Lithium         ppm         ASTM D5185m         >75         190         31            Sodium         ppm         ASTM D5185m         10         6   | Cadmium       | ppm    | ASTM D5185m |            | 0           | 0                 |          |
| Barium         ppm         ASTM D5185m         0         3            Molybdenum         ppm         ASTM D5185m         8         0            Manganese         ppm         ASTM D5185m         7         32            Magnesium         ppm         ASTM D5185m         73         1            Calcium         ppm         ASTM D5185m         121         7            Phosphorus         ppm         ASTM D5185m         1276         1285            Zinc         ppm         ASTM D5185m         102         15            Sulfur         ppm         ASTM D5185m         21398             Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         190         31            Sodium         ppm         ASTM D5185m         10         6   | ADDITIVES     |        | method      | limit/base | current     | history1          | history2 |
| Molybdenum         ppm         ASTM D5185m         8         0            Manganese         ppm         ASTM D5185m         7         32            Magnesium         ppm         ASTM D5185m         73         1            Calcium         ppm         ASTM D5185m         121         7            Phosphorus         ppm         ASTM D5185m         1276         1285            Zinc         ppm         ASTM D5185m         102         15            Sulfur         ppm         ASTM D5185m         21398             Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         190         31            Sodium         ppm         ASTM D5185m         10         6   | Boron         | ppm    | ASTM D5185m |            | 176         | 191               |          |
| Manganese         ppm         ASTM D5185m         7         32            Magnesium         ppm         ASTM D5185m         73         1            Calcium         ppm         ASTM D5185m         121         7            Phosphorus         ppm         ASTM D5185m         1276         1285            Zinc         ppm         ASTM D5185m         102         15            Sulfur         ppm         ASTM D5185m         21398             Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         190         31            Sodium         ppm         ASTM D5185m         10         6   | Barium        | ppm    | ASTM D5185m |            | 0           | 3                 |          |
| Magnesium         ppm         ASTM D5185m         73         1            Calcium         ppm         ASTM D5185m         121         7            Phosphorus         ppm         ASTM D5185m         1276         1285            Zinc         ppm         ASTM D5185m         102         15            Sulfur         ppm         ASTM D5185m         21398             Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         190         31            Sodium         ppm         ASTM D5185m         10         6   | Molybdenum    | ppm    | ASTM D5185m |            | 8           | 0                 |          |
| Calcium         ppm         ASTM D5185m         121         7            Phosphorus         ppm         ASTM D5185m         1276         1285            Zinc         ppm         ASTM D5185m         102         15            Sulfur         ppm         ASTM D5185m         21398             Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         190         31            Sodium         ppm         ASTM D5185m         10         6   | Manganese     | ppm    | ASTM D5185m |            | 7           | 32                |          |
| Phosphorus         ppm         ASTM D5185m         1276         1285            Zinc         ppm         ASTM D5185m         102         15            Sulfur         ppm         ASTM D5185m         21398             Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         190         31            Sodium         ppm         ASTM D5185m         10         6  | Magnesium     | ppm    | ASTM D5185m |            | 73          | 1                 |          |
| Zinc         ppm         ASTM D5185m         102         15            Sulfur         ppm         ASTM D5185m         21398             Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         190         31            Sodium         ppm         ASTM D5185m         10         6  | Calcium       | ppm    | ASTM D5185m |            | 121         | 7                 |          |
| Sulfur         ppm         ASTM D5185m         21398             Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         ▲ 190         31            Sodium         ppm         ASTM D5185m         10         6   | Phosphorus    | ppm    | ASTM D5185m |            | 1276        | 1285              |          |
| Lithium         ppm         ASTM D5185m          0            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         ▲ 190         31            Sodium         ppm         ASTM D5185m         10         6  | Zinc          | ppm    | ASTM D5185m |            | 102         | 15                |          |
| CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         ▲ 190         31            Sodium         ppm         ASTM D5185m         10         6  | Sulfur        | ppm    | ASTM D5185m |            | 21398       |                   |          |
| Silicon         ppm         ASTM D5185m         >75         ▲ 190         31            Sodium         ppm         ASTM D5185m         10         6   | Lithium       | ppm    | ASTM D5185m |            |             | 0                 |          |
| Sodium         ppm         ASTM D5185m         10         6   | CONTAMINAN    | TS     | method      | limit/base | current     | history1          | history2 |
| Sodium         ppm         ASTM D5185m         10         6   | Silicon       | ppm    | ASTM D5185m | >75        | <u> </u>    | 31                |          |
|   | Sodium        |        | ASTM D5185m |            | 10          | 6                 |          |
|   | Potassium     |        |             | >20        |             | 6                 |          |



## **OIL ANALYSIS REPORT**







Laboratory Sample No. Lab Number

**Unique Number** 

: PCA0107511 : 06028212 : 10778003 Test Package : FLEET

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 07 Dec 2023 Received Diagnosed : 10 Dec 2023 Diagnostician : Don Baldridge

NW WHITE & CO - CHARLESTON DIVISION

1940 HANAHAN RD CHARLESTON, SC US 29406

Contact: TRIVON BAZZLE

tbazzle@nwwhite.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: