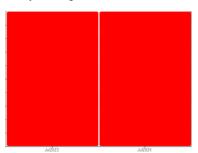


# **PROBLEM SUMMARY**

Sample Rating Trend



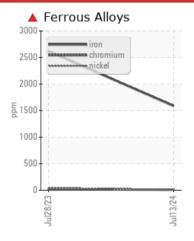


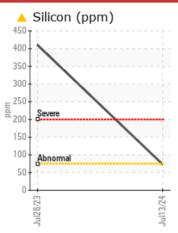
Machine Id 427192 Component

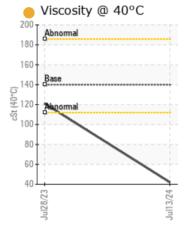
2 Differential

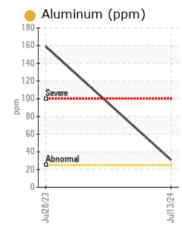
GEAR OIL LS 80W90 (--- GAL)

# **COMPONENT CONDITION SUMMARY**









## RECOMMENDATION

We advise that you check all areas where dirt can enter the system. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. ( Customer Sample Comment: 2nd Axle / Tag )

PROBLEMATIC TEST RESULTS									
Sample Status				SEVERE	SEVERE				
Iron	ppm	ASTM D5185m	>500	<b>1587</b>	▲ 2618				
Chromium	ppm	ASTM D5185m	>10	<u> </u>	<u> </u>				
Nickel	ppm	ASTM D5185m	>10	<u> </u>	<b>4</b> 5				
Silicon	ppm	ASTM D5185m	>75	<b>A</b> 73	<b>4</b> 10				

Customer Id: GFL983 Sample No.: GFL0128776 Lab Number: 06240768 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:

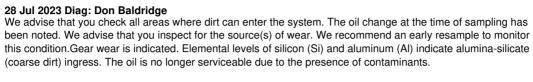
Don Baldridge +1 don.b505@comcast.net

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

RECOMMENDED ACTIONS							
Action	Status	Date	Done By	Description			
Inspect Wear Source			?	We advise that you inspect for the source(s) of wear.			
Resample			?	We recommend an early resample to monitor this condition.			
Check Dirt Access			?	We advise that you check all areas where dirt can enter the system.			

# HISTORICAL DIAGNOSIS

WEAR

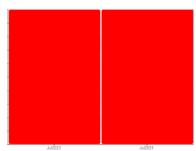






# **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id
427192
Component
2 Differential
Fluid

GEAR OIL LS 80W90 (--- GAL)

## DIAGNOSIS

#### ▲ Recommendation

We advise that you check all areas where dirt can enter the system. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. ( Customer Sample Comment: 2nd Axle / Tag )

### ▲ Wear

Gear wear is indicated.

#### Contamination

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

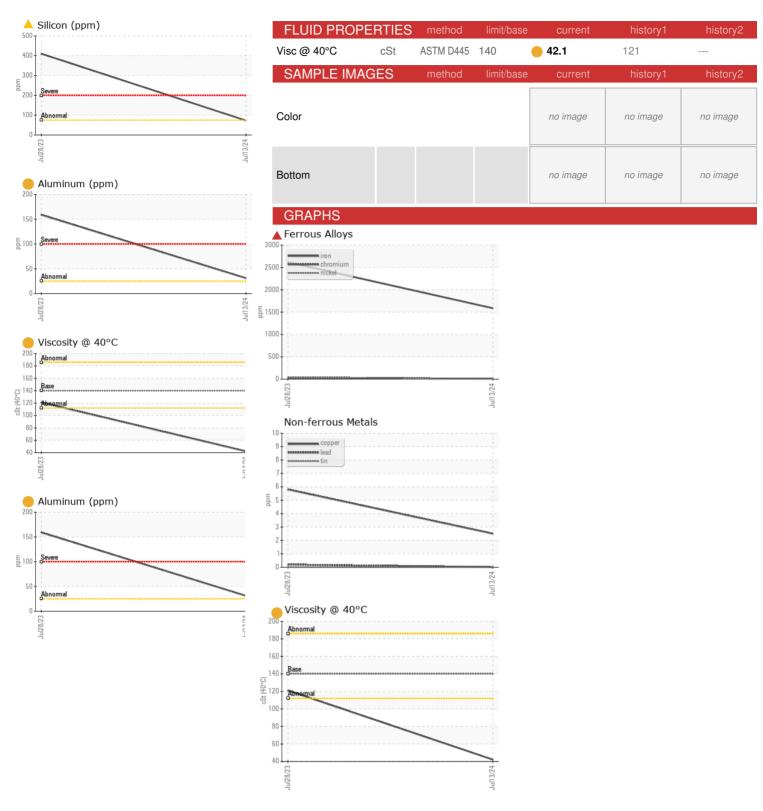
#### Fluid Condition

The oil viscosity is lower than normal. Confirm oil type.

Water				Jul2023	Jul2024		
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0128776	GFI 0089436	
Machine Age         mls         Client Info         355324         329996							
Oil Age         mls         Client Info         25328         329996            Oil Changed         Client Info         Not Changed            Sample Status         SEVERE         SEVERE            CONTAMINATION         method         Imilitibase         current         history1         history2           WEAR METALS         method         limilitibase         current         history1         history2           Iron         ppm         ASTM 55185m         >500         ▲ 1587         ▲ 2618            Chromium         ppm         ASTM 55185m         >10         ▲ 10         ▲ 19            Silver         ppm         ASTM 55185m         >10         ▲ 10         ▲ 19            Silver         ppm         ASTM 55185m         >10         0         0            Silver         ppm         ASTM 55185m         >25         31         ● 159            Aluminum         ppm         ASTM 55185m         >0         0            Capper         ppm         ASTM 55185m         >10         0            Tin         ppm         ASTM 55185m		mls					
Cilichanged   Cilich Info   SEVERE							
SEVERE	•	0					
Water         WC Method         >.2         NEG         NEG            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         1587         2618            Chromium         ppm         ASTM D5185m         >10         10         45            Nickel         ppm         ASTM D5185m         >10         10         45            Silver         ppm         ASTM D5185m         >10         0         0            Aluminum         ppm         ASTM D5185m         >25         31         159            Aluminum         ppm         ASTM D5185m         >25         0         <1	Sample Status					Ü	
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >500         ▲ 1587         ▲ 2618	CONTAMINAT	ION	method	limit/base	current	history1	history2
Irron	Water		WC Method	>.2	NEG	NEG	
Chromium         ppm         ASTM D5185m         >10         ▲ 10         ▲ 19            Nickel         ppm         ASTM D5185m         >10         ▲ 10         ▲ 45            Titanium         ppm         ASTM D5185m         >0         0         0            Silver         ppm         ASTM D5185m         >25         31         ● 159            Aluminum         ppm         ASTM D5185m         >25         0         <1            Lead         ppm         ASTM D5185m         >10         0         0            Lead         ppm         ASTM D5185m         >10         0         0            Lead         ppm         ASTM D5185m         >10         0         0            Vanadium         ppm         ASTM D5185m         0         0         <1            Cadmium         ppm         ASTM D5185m         10         0         <1            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         150         6 <th>WEAR METAL</th> <th>S</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185m         >10         ▲ 10         ▲ 19            Nickel         ppm         ASTM D5185m         >10         ▲ 10         ▲ 45            Titanium         ppm         ASTM D5185m         <1         4            Silver         ppm         ASTM D5185m         <1         4            Aluminum         ppm         ASTM D5185m         >25         31         ●159            Aluminum         ppm         ASTM D5185m         >25         0         <1            Lead         ppm         ASTM D5185m         >10         0         0            Lead         ppm         ASTM D5185m         >10         0         0            Copper         ppm         ASTM D5185m         >10         0         0            Vanadium         ppm         ASTM D5185m         0         0         <1            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         150         6         28	Iron	ppm	ASTM D5185m	>500	<b>1587</b>	<b>2618</b>	
Nickel	Chromium	• •	ASTM D5185m	>10	<u> 10</u>	<u> </u>	
Titanium	Nickel			>10	<u> 10</u>	<b>4</b> 5	
Silver	Titanium	• • • • • • • • • • • • • • • • • • • •			_	4	
Astronomic   As	Silver				0	0	
Lead         ppm         ASTM D5185m         >25         0         <1	Aluminum	• • • • • • • • • • • • • • • • • • • •		>25			
Copper         ppm         ASTM D5185m         >100         2         6            Tin         ppm         ASTM D5185m         >10         0            Vanadium         ppm         ASTM D5185m         0         <1            Cadmium         ppm         ASTM D5185m         0         <1            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         150         6         28            Barium         ppm         ASTM D5185m         0         0            Molybdenum         ppm         ASTM D5185m         16         29            Manganese         ppm         ASTM D5185m         10         3         12            Manganesium         ppm         ASTM D5185m         70         49         303            Phosphorus         ppm         ASTM D5185m         2000         512         420            Zinc         ppm         ASTM D5185m         20         10         95            Sulfur	Lead		ASTM D5185m	>25	0	<1	
Tin	Copper			>100			
Vanadium         ppm         ASTM D5185m         0         <1							
Cadmium         ppm         ASTM D5185m         0         <1	Vanadium	• •					
Boron         ppm         ASTM D5185m         150         6         28            Barium         ppm         ASTM D5185m         0         0            Molybdenum         ppm         ASTM D5185m         3         6            Manganese         ppm         ASTM D5185m         10         3         12            Magnesium         ppm         ASTM D5185m         70         49         303            Calcium         ppm         ASTM D5185m         2000         512         420            Phosphorus         ppm         ASTM D5185m         2000         512         420            Zinc         ppm         ASTM D5185m         20000         19129         17615            Sulfur         ppm         ASTM D5185m         20000         19129         17615            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         2         15            Sodium         ppm         ASTM D5185m         >20         2 <th>Cadmium</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	Cadmium						
Barium         ppm         ASTM D5185m         0         0            Molybdenum         ppm         ASTM D5185m         3         6            Manganese         ppm         ASTM D5185m         16         29            Magnesium         ppm         ASTM D5185m         10         3         12            Calcium         ppm         ASTM D5185m         70         49         303            Phosphorus         ppm         ASTM D5185m         2000         512         420            Zinc         ppm         ASTM D5185m         50         10         95            Sulfur         ppm         ASTM D5185m         20000         19129         17615            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         73         410            Sodium         ppm         ASTM D5185m         2         4            Potassium         ppm         ASTM D5185m         >20         2         15       <	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         3         6            Manganese         ppm         ASTM D5185m         16         29            Magnesium         ppm         ASTM D5185m         10         3         12            Calcium         ppm         ASTM D5185m         70         49         303            Phosphorus         ppm         ASTM D5185m         2000         512         420            Zinc         ppm         ASTM D5185m         50         10         95            Sulfur         ppm         ASTM D5185m         20000         19129         17615            Sulfur         ppm         ASTM D5185m         20000         19129         17615            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         A 73         A 410            Sodium         ppm         ASTM D5185m         >20         2         15            VISUAL         method         limit/base         current	Boron	ppm	ASTM D5185m	150	6	28	
Manganese         ppm         ASTM D5185m         16         29            Magnesium         ppm         ASTM D5185m         10         3         12            Calcium         ppm         ASTM D5185m         70         49         303            Phosphorus         ppm         ASTM D5185m         2000         512         420            Zinc         ppm         ASTM D5185m         50         10         95            Sulfur         ppm         ASTM D5185m         20000         19129         17615            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         473         410            Sodium         ppm         ASTM D5185m         20         2         15            VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE	Barium	ppm	ASTM D5185m		0	0	
Magnesium         ppm         ASTM D5185m         10         3         12            Calcium         ppm         ASTM D5185m         70         49         303            Phosphorus         ppm         ASTM D5185m         2000         512         420            Zinc         ppm         ASTM D5185m         50         10         95            Sulfur         ppm         ASTM D5185m         20000         19129         17615            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         ▲ 73         ▲ 410            Sodium         ppm         ASTM D5185m         >20         2         15            VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE            Yellow Metal         scalar         *Visual         NONE         NONE         NONE            Yellow Metal         scalar         *Visu	Molybdenum	ppm	ASTM D5185m		3	6	
Calcium         ppm         ASTM D5185m         70         49         303            Phosphorus         ppm         ASTM D5185m         2000         512         420            Zinc         ppm         ASTM D5185m         50         10         95            Sulfur         ppm         ASTM D5185m         20000         19129         17615            CONTAMINANTS         method         limit/base         current         history1         history2           Solium         ppm         ASTM D5185m         >75         73         410            Sodium         ppm         ASTM D5185m         2         4            Yolium         ppm         ASTM D5185m         >20         2         15            VISUAL         method         limit/base         current         history1         history2           VISUAL         method         limit/base         current         history1         history2           VISUAL         NONE         NONE         NONE         NONE            VISUAL         NONE	Manganese	ppm	ASTM D5185m		16	29	
Phosphorus         ppm         ASTM D5185m         2000         512         420            Zinc         ppm         ASTM D5185m         50         10         95            Sulfur         ppm         ASTM D5185m         20000         19129         17615            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         ^ 73         ^ 410            Sodium         ppm         ASTM D5185m         2         4            Potassium         ppm         ASTM D5185m         >20         2         15            VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE            Yellow Metal         scalar         *Visual         NONE         NONE         NONE            Precipitate         scalar         *Visual         NONE         NONE         NONE            Silt         scalar         *Visual	Magnesium	ppm	ASTM D5185m	10	3	12	
Zinc         ppm         ASTM D5185m         50         10         95            Sulfur         ppm         ASTM D5185m         20000         19129         17615            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         ▲ 73         ▲ 410            Sodium         ppm         ASTM D5185m         2         4            Potassium         ppm         ASTM D5185m         20         2         15            VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE         NONE           Precipitate         scalar         *Visual         NONE         NONE         NONE           Silt         scalar         *Visual         NONE         NONE         NONE           Debris         scalar         *Visual         NONE         NONE         NONE	Calcium	• •	ASTM D5185m	70	49	303	
Zinc         ppm         ASTM D5185m         50         10         95            Sulfur         ppm         ASTM D5185m         20000         19129         17615            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         73         ▲ 410            Sodium         ppm         ASTM D5185m         2         4            Potassium         ppm         ASTM D5185m         >20         2         15            VISUAL         method         limit/base         current         history1         history2           VISUAL         NONE         NONE         NONE            Yellow Metal         scalar         *Visual         NONE         NO	Phosphorus		ASTM D5185m	2000	512	420	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >75         ▲ 73         ▲ 410            Sodium         ppm         ASTM D5185m         2         4            Potassium         ppm         ASTM D5185m         >20         2         15            VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE         NONE           Precipitate         scalar         *Visual         NONE         NONE         NONE           Silt         scalar         *Visual         NONE         NONE         NONE           Debris         scalar         *Visual         NONE         NONE         NONE           Sand/Dirt         scalar         *Visual         NORML         NORML         NORML           Appearance         scalar         *Visual         NORML         NORML         NORML           Codor         sca	Zinc	• •	ASTM D5185m	50	10	95	
Silicon         ppm         ASTM D5185m         >75         ▲ 73         ▲ 410            Sodium         ppm         ASTM D5185m         2         4            Potassium         ppm         ASTM D5185m         >20         2         15            VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE            Yellow Metal         scalar         *Visual         NONE         NONE         NONE            Precipitate         scalar         *Visual         NONE         NONE         NONE            Silt         scalar         *Visual         NONE         NONE         NONE            Debris         scalar         *Visual         NONE         NONE         NONE            Sand/Dirt         scalar         *Visual         NORM         NORML         NORML         NORML           Appearance         scalar         *Visual         NORML         NORML         NORML         NORML           Codor         scalar         *Visual <th>Sulfur</th> <th>ppm</th> <th>ASTM D5185m</th> <th>20000</th> <th>19129</th> <th>17615</th> <th></th>	Sulfur	ppm	ASTM D5185m	20000	19129	17615	
Sodium         ppm         ASTM D5185m         2         4            Potassium         ppm         ASTM D5185m         >20         2         15            VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE           Yellow Metal         scalar         *Visual         NONE         NONE         NONE           Precipitate         scalar         *Visual         NONE         NONE         NONE           Silt         scalar         *Visual         NONE         NONE         NONE           Debris         scalar         *Visual         NONE         NONE         NONE           Sand/Dirt         scalar         *Visual         NORML         NORML         NORML           Appearance         scalar         *Visual         NORML         NORML         NORML           Odor         scalar         *Visual         >.2         NEG         NEG	CONTAMINAN	TS	method	limit/base	current	history1	history2
VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         *Visual         NONE         NONE         NONE            Yellow Metal         scalar         *Visual         NONE         NONE         NONE            Precipitate         scalar         *Visual         NONE         NONE         NONE            Silt         scalar         *Visual         NONE         NONE         NONE            Debris         scalar         *Visual         NONE         NONE         NONE            Sand/Dirt         scalar         *Visual         NONE         NONE         NONE            Appearance         scalar         *Visual         NORML         NORML         NORML         NORML            Odor         scalar         *Visual         >.2         NEG         NEG	Silicon	ppm	ASTM D5185m	>75	<b>^</b> 73	<b>4</b> 10	
VISUAL method limit/base current history1 history2  White Metal scalar *Visual NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE Silt scalar *Visual NONE MODER NONE Debris scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE Appearance scalar *Visual NORML NORML NORML Appearance scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual >.2 NEG NEG	Sodium	ppm	ASTM D5185m		2	4	
White Metal         scalar         *Visual         NONE         NONE         NONE            Yellow Metal         scalar         *Visual         NONE         NONE         NONE            Precipitate         scalar         *Visual         NONE         NONE         NONE            Silt         scalar         *Visual         NONE         MODER         NONE            Debris         scalar         *Visual         NONE         NONE         NONE            Sand/Dirt         scalar         *Visual         NORML         NORML         NORML         NORML           Appearance         scalar         *Visual         NORML         NORML         NORML            Odor         scalar         *Visual         >.2         NEG         NEG	Potassium	ppm	ASTM D5185m	>20	2	15	
Yellow Metal         scalar         *Visual         NONE         NONE         NONE            Precipitate         scalar         *Visual         NONE         NONE         NONE            Silt         scalar         *Visual         NONE         MODER         NONE            Debris         scalar         *Visual         NONE         NONE         NONE            Sand/Dirt         scalar         *Visual         NONE         NONE         NONE            Appearance         scalar         *Visual         NORML         NORML         NORML         NORML           Odor         scalar         *Visual         >.2         NEG         NEG	VISUAL		method	limit/base	current	history1	history2
Precipitate         scalar         *Visual         NONE         NONE         NONE            Silt         scalar         *Visual         NONE         MODER         NONE            Debris         scalar         *Visual         NONE         NONE         NONE            Sand/Dirt         scalar         *Visual         NONE         NONE         NONE            Appearance         scalar         *Visual         NORML         NORML         NORML            Odor         scalar         *Visual         NORML         NORML         NORML            Emulsified Water         scalar         *Visual         >.2         NEG         NEG	White Metal	scalar	*Visual	NONE	NONE	NONE	
Silt scalar *Visual NONE MODER NONE Debris scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual >.2 NEG NEG	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Debris scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual >.2 NEG NEG	Precipitate	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt scalar *Visual NONE NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual >.2 NEG NEG	Silt	scalar	*Visual	NONE	MODER	NONE	
Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual >.2 NEG NEG	Debris	scalar	*Visual	NONE	NONE	NONE	
Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual >.2 NEG NEG	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Emulsified Water scalar *Visual >.2 NEG NEG	Appearance	scalar	*Visual	NORML	NORML	NORML	
	Odor	scalar	*Visual	NORML	NORML	NORML	
Free Water scalar *Visual NEG NEG	Emulsified Water	scalar	*Visual	>.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	



# **OIL ANALYSIS REPORT**





Certificate 12367

Laboratory

Sample No. : GFL0128776 Lab Number : 06240768 Unique Number : 11129602

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 18 Jul 2024 **Tested** : 19 Jul 2024 Diagnosed : 22 Jul 2024 - Don Baldridge

16011 West Belfort Street Sugar Land, TX US 77498

Contact: Adrian Martinez adrianmartinez@gflenv.com

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.

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

GFL Environmental - 983 - Sugar Land Hauling

T:

F: