Non-Registered Site Treatability Test Report Addendum I

TVA Gallatin Fossil Plant
Summer County, Tennessee

Tennessee Valley Authority

Revision 0

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		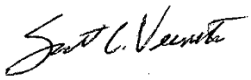	
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Revision History

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1. Introduction

The purpose of this report addendum is to provide results of United States Environmental Protection Agency (EPA) Methods 1315 and 1316 leaching tests for Direct Soil Treatment and In-Situ Stabilization (ISS), which are technologies being considered to address upgradient areas at the Non-Registered Site (NRS) to augment the planned Field Demonstration of a permeable reactive barrier (PRB) at the downgradient boundary of the NRS. These tests were conducted in accordance with recommendations provided in NRS Treatability Test Report, TVA Gallatin Fossil Plant, Summer County, Tennessee (Treatability Test Report, AECOM, 2021). Soil for these trials was obtained from the area and at the depth of the screened interval of well GAF-441U, which is located in an area with low pH and target metals above the groundwater protection standards (GWPS). Groundwater for these trials was obtained from well GAF-440U (a nearby area with neutral pH and target metals below the GWPS).

Sections 2 and 3 provide a discussion of results for Direct Soil Treatment and ISS, respectively. Conclusions and recommended next steps are provided in Section 4. Appendix A provides details of the sample preparation and testing procedures. Appendix B provides tables of the analytical laboratory results. Appendix C provides the laboratory reports.

2. Direct Soil Treatment Results

To assess the potential effectiveness of direct soil treatment for immobilizing metals in the upgradient area, AECOM performed leachability testing of soil, groundwater, and remedial amendments using EPA Test Methods 1315 and 1316.

2.1 EPA Method 1316 Results for Direct Soil Treatment

To conduct the 1316 tests, site soil and site groundwater were blended in various liquid to solid (L/S) ratios. For these trials, one set of samples was mixed for 24 hours and a second set was mixed for 48 hours. A sample of the water from each mixture was then extracted and tested for pH and metals.

Table 1 provides a qualitative summary of the 1316 leaching results. Data tables are provided in Appendix B. For the Control (soil with no remedial amendments), the pH of the leachate consistently decreased with decreased L/S ratio. When the pH dropped to approximately 4, target metals began to be detected in the leachate at concentrations above the GWPS. At the lowest L/S ratio, the pH was approximately 3 and the GWPS was exceeded for all four target metals (beryllium [Be], cadmium [Cd], lithium [Li] and nickel [Ni]). In some of the lower L/S ratio trials, the GWPS for arsenic (As) was also exceeded (maximum dissolved result of 19.6 micrograms per liter (µg/L), compared to the GWPS of 10.0 µg/L). These results indicate that the saturated soil at the GAF-441U location has the capability of lowering the groundwater pH and creating conditions where the GWPS may be exceeded. The aggressive mixing and low L/S ratio in some trials is likely to exaggerate natural conditions. However, this extreme mixing and low L/S ratio testing provides a useful tool for comparing treated and untreated samples.

The treated samples were High Calcium Fines (HiCalFines) at a dose of 0.5 percent, Dolomitic Fines (DoloFines) at a dose of 0.5 percent and DoloFines at a dose of 1.0 percent. These reagents and doses were selected based on previous studies with site soil and site groundwater and with sand and site groundwater, as described in the Treatability Test Report (AECOM, 2021). The primary measures of effectiveness for the amendments are achieving the GWPS for target metals while maintaining GWPS compliance for all other metals. All three remedial amendment trials achieved the GWPS (in dissolved samples) for all metals through all L/S ratios for both the 24- and 48-hour contact times. Total metals exceeded the GWPS in a few instances, but the matching dissolved metals samples were below the GWPS. Because the target metals results were very low (below detection limits for Be, Cd, and Li and maximum of 2.64 µg/L for Ni, compared to a GWPS of 100 µg/L), all three performed equally for target metals treatment. No trends toward higher metals were observed with changes in L/S or contact time.

A secondary indicator to consider in selecting a reagent and dose is pH, as trends in pH can provide an indication of the longevity of treatment. While low pH has been associated with target metals concentrations above GWPS, high pH (over 10 or 11, for example) can also increase the solubility of certain metals. Therefore, extreme values of pH, should be avoided, if possible.

A comparison of pH for the Control and treated samples is provided in **Figure 1**. Ideally, the treated samples would remain above pH of 4 (the point where metals typically exceed the GWPS). All the amendments maintained a pH above 4 through the tested L/S ratios. DoloFines at a 1 percent dose showed some elevated pH (9 and 10) in the longer-term contact time (48 hours) at L/S ratios 1 and 2 but dropped to near neutral at a L/S ratio of 0.5. This may indicate that the 1.0 percent DoloFines dose is near the ideal of treating the acidic material without overshooting the pH. HiCalFines (0.5 percent) and DoloFines (0.5 percent) showed pH was in the range of 5 to 6 for the low L/S ratios, suggesting that a higher dose of reagent may be appropriate.

2.2 EPA Method 1315 Results for Direct Soil Treatment

For the 1315 tests, the Control and test samples are placed in a vessel filled with site groundwater (bathwater) at an approximate ratio of 9 milliliters water per cubic centimeter of test sample. The bathwater is periodically sampled over a 63-day period. No forced mixing is conducted. Changes in water chemistry are caused by diffusion of constituents from the test material.

As shown in **Table 2** and in more detail in **Appendix B**, neither the Control sample nor any of the test samples showed metals concentrations above the GWPS at any time interval. These results suggest that groundwater flowing around an area of low pH (the Control) or an area where the saturated soil has been treated is not significantly impacted in a 63-day timeframe. Results may be different if the time period is extended to a year or multiple years. The 1315 test does not simulate the downgradient flow of groundwater.

As shown in **Figure 2**, there is an early indication of some pH drop in the bathwater for the Control, but the pH returns to near natural (6.93) at day 63. With the HiCalFines and DoloFines amendments bathwater pH changes stay within a relative tight range (6.42 to 7.46). In the shorter time periods, there is some indication of higher pH with the DoloFines 1.0 percent but by day 63, the DoloFines 1.0 percent pH is similar to the other treated samples.

The 1315 tests indicate that metals are not diffusing out of the Control or the test samples to a significant degree in a 63-day time period.

3. In-Situ Stabilization Results

To assess the potential applicability of ISS to upgradient area treatment, Type V Portland cement was used to create a Lean mix (3 percent cement by weight) and a Rich mix (6 percent cement). The samples were cured for 28 days. These cured mixes were then tested to evaluate permeability, unconfined compressive strength, and metals leachability.

3.1 EPA Method 1316 Results for ISS

For the EPA Method 1316 testing, the cured samples were crushed prior to blending with site groundwater to create the various L/S ratios.

Table 3 provides a qualitative summary of the 1316 testing for the ISS samples. The full results are provided in Appendix B. Both the Lean and Rich mixes met all the GWPS for the target metals in all the L/S trials. Both the Lean mix and Rich mix exceeded the Chromium (Cr) GWPS of 100 µg/L for several L/S ratios and contact times. The maximum dissolved phase Cr result was 330 µg/L for the Lean mix, L/S of 1, 24-hour contact time. For total metal analysis, the highest Cr was 504 µg/L with L/S of 0.5 and 24-hour contact time. Due to limited water volume, it was not always possible to run both total and dissolved metals analyses on all trials. Dissolved molybdenum exceeded the GWPS of 100 µg/L in two trials (Lean mix, L/S 1, 24-hour contact time, and Lean mix, L/S 1, 48-hour contact time at a maximum dissolved result of 167 µg/L). Both total and dissolved As concentrations were below the GWPS of 10 µg/L in all trials for both the Lean and Rich mixes. As was frequently detected, with a maximum dissolved phase concentration of 6.51 µg/L and a maximum total concentration of 9.71 µg/L. While As results were below the GWPS, As results for the Lean and Rich mixes were slightly higher than the control and higher than the DoloFines and HiCalFines trials.

Figure 3 depicts the pH as a function of L/S ratio. Note that the Control is the same Control (soil with no amendment) used for the Direct Soil Treatment comparisons. Compared to the Control, the Lean and Rich mixes produced leachates with much higher pH. The Rich mix showed a pH in the range of 11 to 12 throughout the different L/S mixtures. A slight pH increase was observed at the lower L/S ratios for the Rich mix. For the Lean mix, the pH range was 10 to 11 with a similar increase at the lower L/S ratios.

3.2 EPA Method 1315 Results for ISS

For these trials, the Lean and Rich mixes were blended and allowed 28 days to cure. The ISS material was removed from the forms and the cylinders placed in the bathwater. After the 1315 trials were started, the permeability and unconfined strength result were received. For both the Lean and Rich mixes, the permeability goals were not met. For the lean mix the permeability was 1.90x10-04 centimeters per second (cm/sec) verses a goal of <1.0x10-5 cm/sec. For the rich mix the permeability was 1.00x10-3 cm/sec verses a goal of <1.0x10-6 cm/sec. Due to the permeability failures, the ISS samples were considered unacceptable for a full-scale application and the 1315 laboratory testing was suspended at day 14. The day 28 bathwater was available at the end of the test and was tested for pH only. Probable causes for the poor permeability results and corrective actions are discussed in Section 4.

For both the Lean and Rich mixes, the GWPS was met for the target metals through the end of the test at day 14. Additional metals were only tested at the end of the testing on day 14. GWPS were met for all other metals at day 14. Cr was present in the bathwater at day 14 (50.8 µg/L dissolved for Lean mix and 6.49 µg/L dissolved for Rich mix). While the Cr results are below the GWPS, they are higher than the Control (<2 µg/L at day 63) and the DoloFines and HiCalFines trials (all <2.0 µg/L at day 63). As levels were very low (<1.0 µg/L) in both the Lean and Rich mixes at day 14.

As shown in **Figure 4**, pH for both the Lean and Rich mixes remained between 7 and 8 with a possible slight upward trend with increased time. The pH of both Lean and Rich mixes was higher than the Control.

4. Recommended Next Steps

The following sections describe activities recommended to further evaluate direct soil treatment and ISS in the upgradient area at the NRS.

4.1 Direct Soil Treatment

Development of a Field Demonstration Work Plan for use of DoloFines would be the next step in developing a source area treatment for saturated soils. The recommendation is based on the following:

- GWPS for target metals were met in all 1316 trials. Further, no trends towards higher levels of target metals were observed as the L/S ratio was decreased.
- GWPS for all other metals were also met in all 1316 trials.
- 1315 trials showed no significant diffusion of metals out of the treated soil matrix over the 63-day testing period.
- In addition to the testing discussed in this Report, DoloFines and HiCalFines consistently demonstrated an ability to treat the target metals without mobilizing other metals in previous soil treatment and PRB trials (AECOM, 2021).
- Both the DoloFines and HiCalFines amendments met the goals for metals treatment, and both are viable amendments for the field demonstration of direct soil treatment. DoloFines are preferred because it appeared to provide the best neutralization of acidic material in laboratory testing, while not causing an excessively high pH. In previous trials, DoloFines were selected for the PRB due to slightly better performance (slightly better Ni treatment and slightly more impacted groundwater treated per gram of amendment [AECOM, 2021]).
- Use of DoloFines for saturated soil presents some advantages compared to ISS. ISS will cause a much higher pH, which could cause other metals to be more soluble, and may introduce additional metals to solution, such as Cr, which was detected above the GWPS in the ISS trials. ISS, by design, will reduce permeability of saturated soils to the point where changes in groundwater flow would have to be addressed in the design.

The 1.0 percent dose of DoloFines used in the treatability laboratory tests did not cause any adverse effects, although some limited indication of overshooting the target pH range was observed in the 1316 trials. Because conditions will vary in the field, the DoloFines dose might be adjusted (within a set range, 0.5 percent to 2 percent, for example) for each area and depth interval treated. Dose adjustment would be estimated by running a modified 1316 test (0.5 L/S, 24-hour contact only, for example) to determine the dose and then collecting an in-situ sample after blending to confirm pH neutralization. The modified 1316 test could be conducted on-site or sent off-site for rapid turn-around.

For direct soil treatment, the proposed next steps are to conduct a focused field investigation to define an appropriate area for pilot testing and to develop field demonstration design parameters and to prepare a Field Demonstration Work Plan for pilot testing. Pilot testing would be conducted to determine if the successful bench-scale studies can be repeated in the field. A decision to further develop the source area treatment option has not been made at this time.

4.2 In-Situ Stabilization

As discussed in Section 4.1, Direct Soil Treatment by DoloFines has advantages over ISS for treatment of saturated soil. However, there may be other applications to consider for ISS, such as treatment of soil above the seasonal low water table. ISS could be used to prevent surface water infiltration or to directly immobilize acid generating materials. ISS may also have applications downgradient as part of a funnel and gate arrangement for the PRB.

In prior testing, the ISS blends with Type V cement did not meet the permeability and unconfined strength goals established in the NRS Treatability Test Work Plan (AECOM, 2019). Additionally, the 1316 and 1315 testing indicate a possible issue with Cr levels exceeding the GWPS. Additional treatability testing is recommended before a demonstration test of ISS is undertaken. Recommended steps are as follows:

1. Evaluate the source of Cr in the leachate samples and take corrective action. A potential cause for Cr in leachate is the presence of Cr in the cement, possibly in the more mobile hexavalent form. Laboratory analysis of different cements (Type I/II and V) may provide an indication of the Cr source. It may be necessary to evaluate other additives to the cement mix to better bind the Cr. Success in resolving the Cr issue can be determined by conducting a limited number of 1316 trials (3 or 4).
2. Future trials should be conducted with the specific types of soil that ISS treatment is targeting. This would require obtaining additional site soil from specific locations and depths. Obtaining additional soil could be done during the focused field investigation referenced in Section 4.1, while step 1 above is conducted.
3. Once the Cr issue is resolved, it is recommended to conduct a series of tests to confirm that permeability and unconfined strength requirements are met with the selected cement before proceeding to additional trials. Previously, AECOM used Type I/II cement and met the permeability and unconfined strength requirements (Treatability Test Report, AECOM 2021). The Type V cement was later used in those trials. Unfortunately, the Type V cement resulted in significant macropores which lead to the permeability failure. While it may be possible to optimize the water content and mixing to make the Type V cement viable, a considerable effort would be required, and the theoretical advantage of using Type V cement is not considered commensurate to the practical challenges that working with this material for ISS presents. In future trials, returning to the use of Type I/II cement is recommended. Sulfate resistance testing is recommended for the cured samples.
4. When an ISS blend that meets the Cr leaching, permeability and unconfined strength requirement is developed, the 1316 and 1315 trials can be repeated. Based on results of prior testing, the 1316 and 1315 testing can be streamlined to focus on the higher L/S ratios for the 1316 test and longer soaking times for the 1315 test.

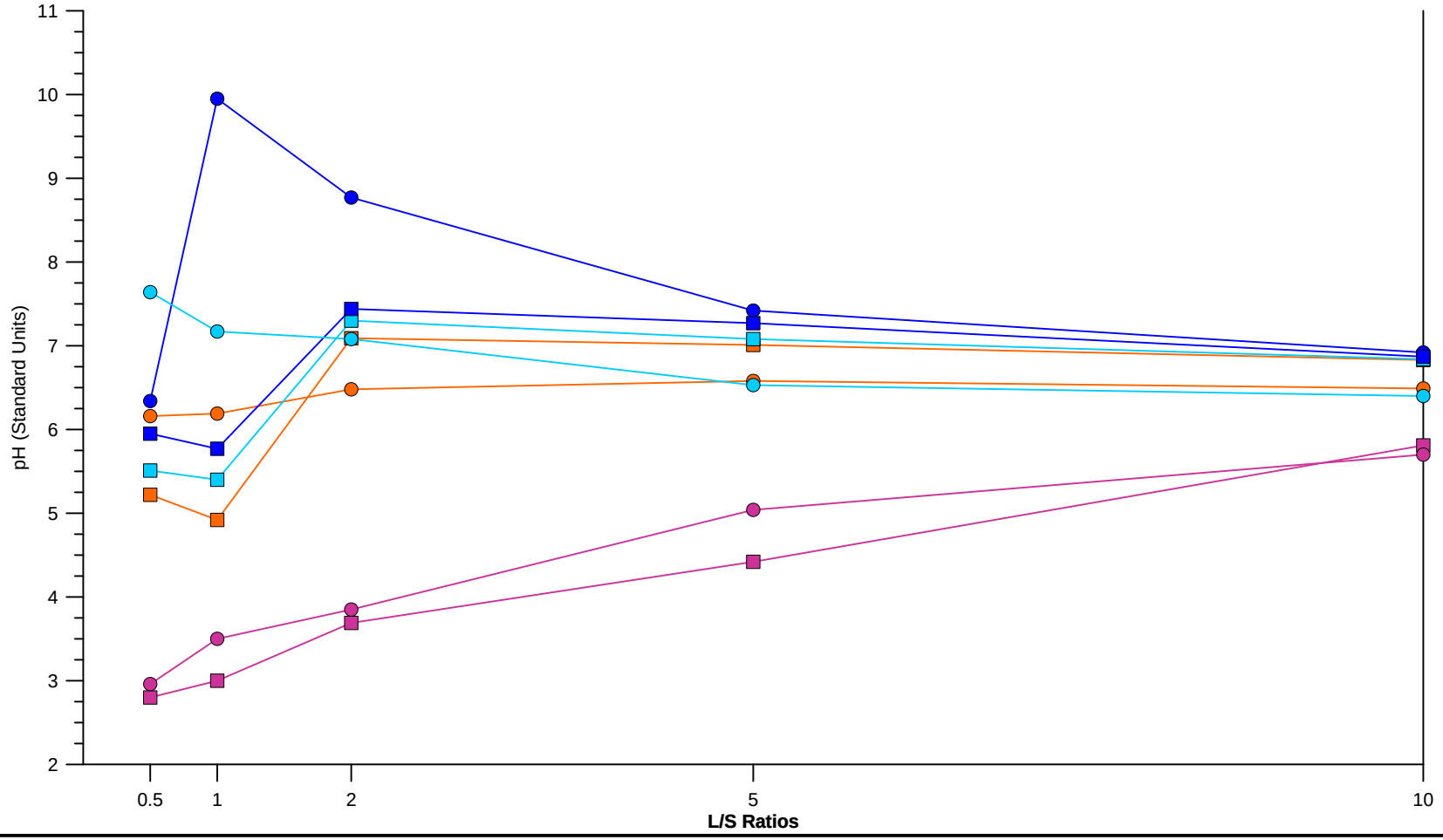
As presented above, several steps and more testing are necessary to develop a viable ISS blend for upgradient area soil treatment. The time required for this testing is approximately 6 months, with 3 months of that time waiting on final 1315 results. While the timeframe would be shorter if the 1315 testing was not repeated or if the soak time was shortened, it is recommended that application of ISS material be conducted only after a full set of 1315 data has been obtained. At this time a decision to further develop an ISS option has not been made. If further ISS trials are conducted, those results will be reported in a second addendum to the Treatability Test Report.

5. References

AECOM, 2019. NRS Treatability Test Work Plan, TVA Gallatin Fossil Plant, Revision 0. September 27, 2019.

AECOM. 2021. Non-Registered Site Treatability Test Report, TVA Gallatin Fossil Plant, Revision 0. February 4, 2021.

Figures



LEGEND

Symbol Key

- pH results at 24 hours
- pH results at 48 hours

Color Key

DOLO 0.5
DOLO 1.0
HiCal
Control

AECOM

Figure 1

1316 Direct Soil Treatment

DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:
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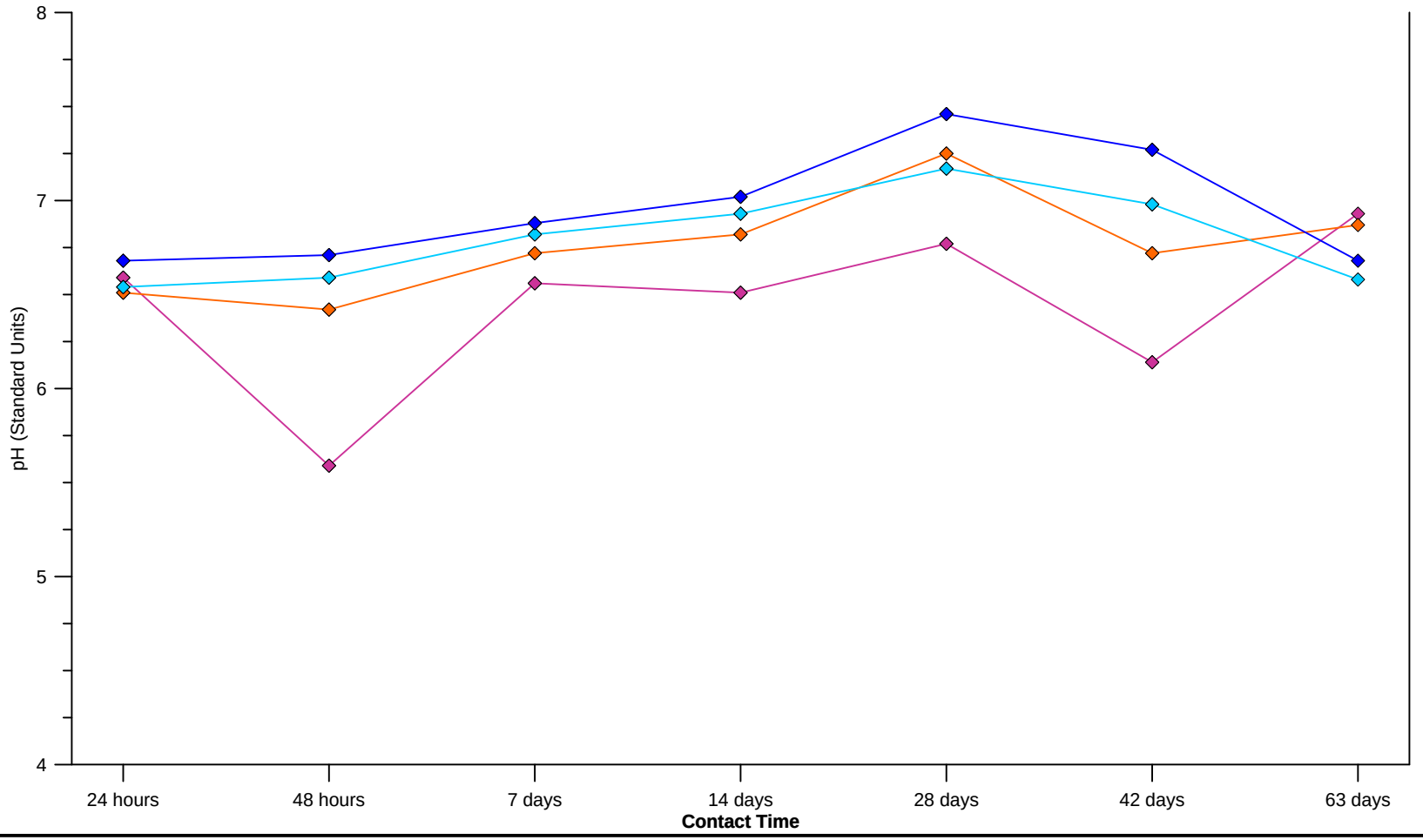
GALLATIN FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY

DATE:	DEPT:
3/26/2021	FOSSIL AND HYDRO ENGINEERING



LEGEND

Symbol Key

◆ pH results for indicated test

Color Key

DOLO 0.5
DOLO 1.0
HiCal
Control

AECOM

Figure 2

1315 Direct Soil Treatment

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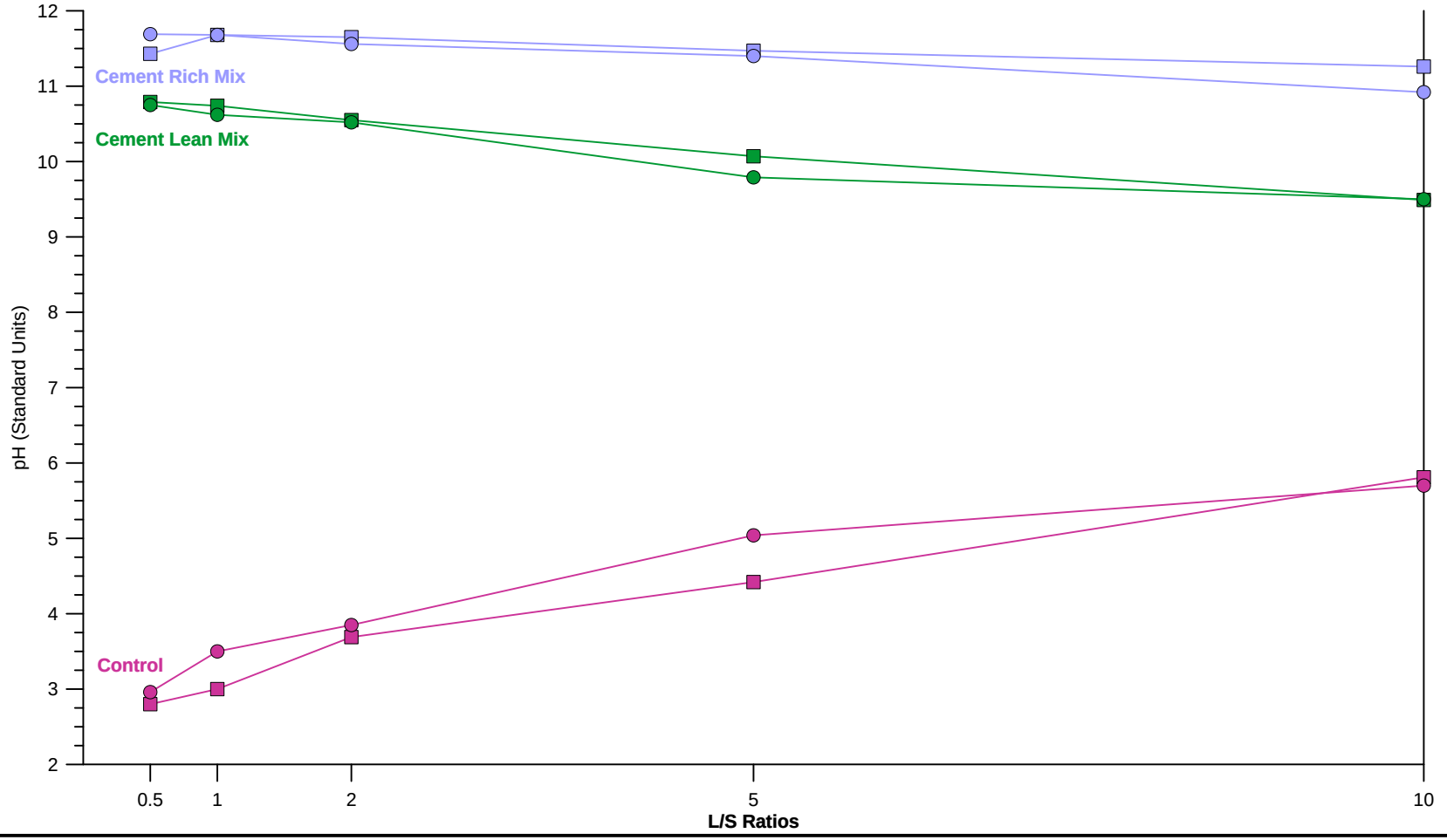

LEGEND

- pH results at 24 hours
- pH results at 48 hours

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Figure 3

1316 In-Situ Stabilization

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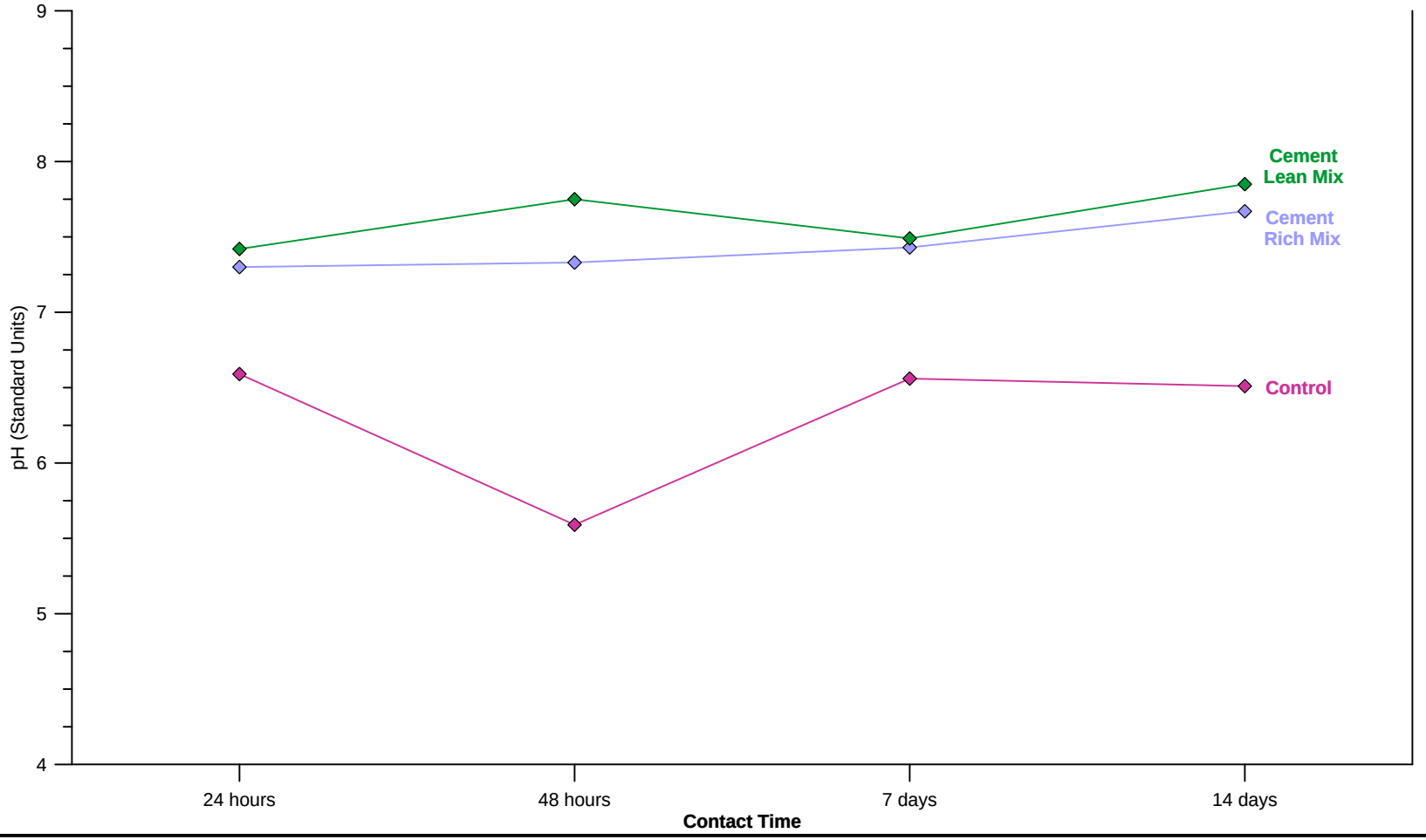

LEGEND

◆ pH results for indicated test

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Figure 4

1315 In-Situ Stabilization

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TENNESSEE VALLEY AUTHORITY

DATE:	DEPT:
3/26/2021	FOSSIL AND HYDRO ENGINEERING

Tables

Table 1
Direct Soil Treatment - Qualitative 1316 Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

Soil samples (collected from the depth of well GAF-441U screened interval) and neutral pH Site groundwater (collected from well GAF-440U) mixed at varying liquid to solid ratios

One set of samples mixed for 24 hours; second set mixed for 48 hours.

CONTROL - No Amendment

Stage/Liquid-Solid Ratio	pH -24 hr	pH-48 hr	Target Metals- 24 hrs	Target Metals- 48 hrs	Other Metals - 24 hrs	Other Metals - 48 hrs
T01/10	5.70	5.81	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T02/5	5.04	4.42	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T03/2	3.85	3.69	Be and Ni exceed GWPS	Be and Ni exceed GWPS	below all GWPS	Total As exceeds GWPS
T04/1	3.50	3.0	Be, Cd and Ni exceed GWPS Total Li exceeds GWPS	Be, Cd and Ni exceed GWPS	As exceeds GWPS Total Pb and Total Tl exceed GWPS	Total As exceeds GWPS
T05/0.5	2.96	2.8	Be, Cd, Li & Ni exceed GWPS	Be, Cd, Li & Ni exceed GWPS	As exceeds GWPS Total Pb and Total Tl exceed GWPS	As exceeds GWPS Total Cr, Pb & Tl exceeds GWPS

Observations/Conclusions

24-hour and 48-hour contact time results are similar.

pH decreases with lower liquid to solid ratio.

Target metals appear in leachate above GWPS at approximately pH <4.

In addition to target metals, dissolved As exceeds GWPS in two lowest liquid to solid ratios.

Because low pH and metals leaching was observed in the Control, it provides a good comparison for the HiCal and Dolo Fine Tests

HiCalFines - 0.5% by Weight of Soil

Stage/Liquid-Solid Ratio	pH -24 hr	pH-48 hr	Target Metals- 24 hrs	Target Metals- 48 hrs	Other Metals - 24 hrs	Other Metals - 48 hrs
T01/10	6.49	6.83	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T02/5	6.58	7.01	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T03/2	6.48	7.09	Total Be and Total Li exceed GWPS	Below GWPS	Total As, Cr, Pb & Tl exceed GWPS	Below GWPS
T04/1	6.19	4.92	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T05/0.5	6.16	5.22	Below GWPS	Below GWPS	Below GWPS	Below GWPS

Observations/Conclusions

HiCalFines maintained pH above 4 for all trials.

pH trending down with decreased liquid to solid ratio.

Longer contact time appears to result in lower pH, but metals goals are still met.

Goals for target metals were met without mobilizing other metals.

DoloFines - 0.5% by Weight of Soil

Stage/Liquid-Solid Ratio	pH -24 hr	pH-48 hr	Target Metals- 24 hrs	Target Metals- 48 hrs	Other Metals - 24 hrs	Other Metals - 48 hrs
T01/10	6.40	6.84	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T02/5	6.53	7.08	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T03/2	7.08	7.30	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T04/1	7.17	5.40	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T05/0.5	7.64	5.51	Below GWPS	Below GWPS	Below GWPS	Below GWPS

Observations/Conclusions

Similar results as HiCalFines, slightly higher pH at lowest liquid to solid ratio.

DoloFines - 1.0% by Weight of Soil

Stage/Liquid-Solid Ratio	pH -24 hr	pH-48 hr	Target Metals- 24 hrs	Target Metals- 48 hrs	Other Metals - 24 hrs	Other Metals - 48 hrs
T01/10	6.92	6.87	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T02/5	7.42	7.27	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T03/2	8.77	7.44	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T04/1	9.95	5.77	Below GWPS	Below GWPS	Total As and total Pb exceed GWPS	Below GWPS
T05/0.5	6.34	5.95	Below GWPS	Below GWPS	Below GWPS	Below GWPS

Observations/Conclusions

Similar results as HiCalFines and 0.5% DoloFines.

pH appears higher with increased DoloFines dose at liquid to solid ratio of 2 and 1 but similar at liquid to solid ratio of 0.5.

Notes:

GWPS = Groundwater protection standard

Be = Beryllium
Cd = Cadmium
Li = Lithium
Ni = Nickel
Pb = Lead
Tl = Thallium

Cases where one or more analytes exceed the GWPS for dissolved metals are shown in red

Cases where one or more analytes exceed the GWPS for total metals, but not dissolved metals, are shown in blue

Table 2
Direct Soil Treatment - 1315 Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

Soil samples (collected from the depth of well GAF-441U screened interval) and neutral pH Site groundwater (collected from well GAF-440U) mixed at varying liquid to solid ratios
Samples are placed in bath of site groundwater, collected from well GAF-440U, and the water bath is tested at set time intervals

Control - No Amendment

Contact Time	pH	Total Be	Dissolved Be	Total Cd	Dissolved Cd	Total Li	Dissolved Li	Total Ni	Dissolved Ni	Other Metals
2 hours	7.65	0.000264 J	<0.0010	0.000321 J	0.000230 J	<0.0050	<0.0050	0.0144 B	0.0143 B	NT
24 hours	6.59	<0.0010	<0.0010	0.000299 J	0.000275 J	<0.0050	<0.0050	0.0234 B	0.0230 B	NT
48 hours	5.59	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.0121 B	0.0117 B	NT
7 days	6.56	<0.0010	<0.0010	0.000344 J	0.000364 J	<0.0050	<0.0050	0.0128	0.0129	NT
14 days	6.51	<0.0010	<0.0010	0.000326J	0.000340 J	<0.0050	<0.0050	0.00706	0.00626	below GWPS
28 days	6.77	<0.0010	<0.0010	0.000440 J	0.000476 J	<0.0050	<0.0050	0.00801	0.00760	NT
42 days	6.14	<0.0010	<0.0010	0.000466 J	0.000396 J	<0.0050	<0.0050	0.00476	0.00488	NT
63 days										

Observations:
Minimal metals detected; no obvious increasing trend over time.
Possible downward trend in pH over time.

Hi Cal Fines 0.5% by Weight of Soil

Contact Time	pH	Total Be	Dissolved Be	Total Cd	Dissolved Cd	Total Li	Dissolved Li	Total Ni	Dissolved Ni	Other Metals
2 hours	7.39	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00548 B	0.00474 B	NT
24 hours	6.51	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00397 B	0.00349 B	NT
48 hours	6.42	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00379 B	0.00372 B	NT
7 days	6.72	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00223	0.00269	NT
14 days	6.82	<0.0010	<0.0010	<0.00100	<0.0010	<0.0050	<0.0050	0.00104	0.000816 J	below GWPS
28 days	7.25	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.000808J	0.000573 J	NT
42 days	6.72	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00111	0.00113	NT
63 days										

Observations:
No obvious trend; metal concentrations low for all time periods.

DoloFines 0.5% by Weight of Soil

Contact Time	pH	Total Be	Dissolved Be	Total Cd	Dissolved Cd	Total Li	Dissolved Li	Total Ni	Dissolved Ni	Other Metals
2 hours	7.23	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00534 B	0.00501 B	NT
24 hours	6.54	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00457 B	0.00430 B	NT
48 hours	6.59	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00431 B	0.00418 B	NT
7 days	6.82	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00301	0.00302	NT
14 days	6.93	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00269	0.0026	below GWPS
28 days	7.17	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00251	0.00225	NT
42 days	6.98	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00232	0.00216	NT
63 days										

Observations:
No obvious trend; metal concentrations low for all time periods.

DoloFines 1.0% by Weight of Soil

Contact Time	pH	Total Be	Dissolved Be	Total Cd	Dissolved Cd	Total Li	Dissolved Li	Total Ni	Dissolved Ni	Other Metals
2 hours	7.01	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00575 B	0.00486 B	NT
24 hours	6.68	0.000319 J	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00424	0.00459	NT
48 hours	6.71	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00403	0.00383	NT
7 days	6.88	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00271	0.00249	NT
14 days	7.02	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00228	0.00175	below GWPS
28 days	7.46	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00141	0.00118	NT
42 days	7.27	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	0.00190	0.00134	NT
63 days										

Observations:
No obvious trend; metal concentrations low for all time periods.
pH at day 42 higher compared to Control and both low dose DoloFines and HiCalFines.

Notes:
Results are presented in milligrams per liter (mg/L)
B = Analyte detected in laboratory blank sample analysis
Be = Beryllium
Cd = Cadmium
GWPS = Groundwater protection standard
J = Estimated value below laboratory quantitation limit
Li = Lithium
Ni = Nickel
NT = Not tested for these analytes

Table 3
In-Situ Stabilization - Qualitative 1316 Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

Lean Mix (3% Type V cement by weight) and Rich Mix (6% Type V cement by weight) and neutral pH Site groundwater (collected from well GAF-440U) mixed at varying liquid to solid ratios
One set of samples mixed for 24 hours; second set mixed for 48 hours.

These results can be compared to the same Control used for the Direct Soil Mixing.

Lean Mix						
Stage/Liquid-Solid Ratio	**pH -24 hr**	**pH-48 hr**	**Target Metals- 24 hrs**	**Target Metals- 48 hrs**	**Other Metals - 24 hrs**	**Other Metals - 48 hrs**
T01/10	9.5	9.49	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T02/5	10.07	9.79	Below GWPS	Below GWPS	Cr exceeds GWPS	Below GWPS
T03/2	10.52	10.55	Below GWPS	Below GWPS	Cr exceeds GWPS	Cr exceeds GWPS
T04/1	10.62	10.74	Below GWPS	Below GWPS	Cr and Mo exceeds GWPS	Cr and Mo exceeds GWPS
T05/0.5	10.75	10.79	Below GWPS	Below GWPS	Total Cr exceeds GWPS (0.540 v 0.100 mg/L GWPS) and Total Mo exceeds GWPS; dissolved not tested	Total Cr exceeds GWPS (0.430 v 0.100 GWPS) and Total Mo exceeds GWPS; dissolved not tested
Observations/Conclusions 24-hour vs 48-hour contact time had little effect. pH remained high (above 9) through the trials. Minimal leaching of target metals (below GWPS). Cr leaching above GWPS in several trials, more than observed in Control. Possible causes are higher pH and presence of Cr in cement.						

Rich Mix						
Stage/Liquid-Solid Ratio	**pH -24 hr**	**pH-48 hr**	**Target Metals- 24 hrs**	**Target Metals- 48 hrs**	**Other Metals - 24 hrs**	**Other Metals - 48 hrs**
T01/10	10.92	11.26	Below GWPS	Below GWPS	Cr exceeds GWPS	Cr exceeds GWPS
T02/5	11.4	11.47	Below GWPS	Below GWPS	Cr exceeds GWPS; only dissolved tested	Cr exceeds GWPS; only dissolved tested
T03/2	11.56	11.65	Below GWPS	Below GWPS	Cr exceeds GWPS	Cr exceeds GWPS
T04/1	11.68	11.68	Below GWPS	Below GWPS	Below GWPS	Below GWPS
T05/0.5	11.69	11.43	Below GWPS	Below GWPS	Below GWPS	Total Cr exceeds GWPS; dissolved not tested
Observations/Conclusions Similar to lean mix but subtle difference discussed below. pH remained high and was higher than Lean mix, due to increased amount of Portland cement. Minimal leaching of target metals (below GWPS). As with lean mix, rich mix shows leaching of Cr.						

Notes:
Cases where one or more analytes exceed the GWPS for dissolved metals are shown in red
Cases where one or more analytes exceed the GWPS for total metals, but not dissolved metals, are shown in blue
GWPS = Groundwater protection standard
As = Arsenic
Be = Beryllium
Cd = Cadmium
Cr = Chromium
Mo = Molybdenum
Li = Lithium
Ni = Nickel
Pb = Lead
Tl = Thallium

Table 4
In-Situ Stabilization - 1315 Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

Lean Mix (3% Type V cement by weight) and Rich Mix (6% Type V cement by weight) and neutral pH Site groundwater (collected from well GAF-440U) mixed at varying liquid to solid ratios
Samples are placed in bath of site groundwater, collected from well GAF-440U, and the water bath is tested at set time intervals

These results can be compared to the same Control used for the Direct Soil Mixing.

Lean Mix

Contact Time	pH	Total Be	Dissovled Be	Total Cd	Dissolved Cd	Total Li	Dissovled Li	Total Ni	Dissolved Ni	Other Metals
2 hours	8.15	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	0.00458	0.00451	NT
24 hours	7.42	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	0.00386	0.00354	NT
48 hours	7.75	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	0.00515	0.00431	NT
7 days	7.49	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	0.00292	0.00235	NT
14 days	7.85	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	0.00270	0.00104	Below GWPS Dissolved Cr 0.0508
28 days	7.95	test ended - not sampled								

Observations:
Metal concentrations remained low for sampled time periods.
pH lacks trend, and higher compared to Control.
Dissolved Cr is below GWPS but higher than Control (Control Cr was <0.002 mg/L)

Rich Mix

Contact Time	pH	Total Be	Dissovled Be	Total Cd	Dissolved Cd	Total Li	Dissovled Li	Total Ni	Dissolved Ni	Other Metals
2 hours	7.76	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	0.00443	0.00422	NT
24 hours	7.30	<0.00100	<0.00100	<0.00100	<0.00100	0.00388 J	0.00366 J	0.00325	0.00306	NT
48 hours	7.33	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	0.00532	0.00490	NT
7 days	7.43	<0.00100	<0.00100	<0.00100	<0.00100	0.00417 J	0.00416 J	0.00348	0.00305	NT
14 days	7.67	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	0.00243	0.00222	Below GWPS. Dissolved Cr 0.00649
28 days	7.50	test ended - not sampled								

Observations:
No obvious trend; metal concentrations low for all time periods.
pH not obviously trending downward, and higher compared to Control.

Notes:
Results are presented in milligrams per liter (mg/L)
B = Analyte detected in laboratory blank sample analysis
Be = Beryllium
Cd = Cadmium
GWPS = Groundwater protection standard
J = Estimated value below laboratory quantitation limit
Li = Lithium
Ni = Nickel
NT = Not tested for these analytes

Appendix A Treatability Laboratory Procedures for EPA Methods 1315 and 1316

Method 1315 and 1316 Procedures

Direct Soil Leaching Preparation

For the direct soil leaching tests, three amendments, plus a control, were tested separately by EPA methods 1315 and 1316. The three amendments were 0.5% Hi-Cal Fines, 0.5% Dolo Fines and 1% Dolo Fines on a weight by weight basis.

Soil for the trials was obtained from the area and at the depth of the screened interval of well GAF-441U and is referred to as the "GAF-441U soil." The GAF-441U soil was homogenized thoroughly in a plastic bowl with a plastic spoon. The appropriate amount of each amendment was weighed out. Each amendment was added to the soil in three increments to ensure adequate homogenization. Then, once all of the amendment was added, the soil mixtures were stirred for an additional five minutes.

In-Situ Stabilization (ISS) Leaching Preparation

GAF-441U soil was blended with two different dosage levels, 3% and 6%, of Type V cement and water. The Type V cement was mixed at a ratio of 1:1 with water collected from well GAF-440UP. The cement and water mixtures were added to the soil in three increments to ensure adequate homogenization. After all of the cement was added, the mixtures were stirred for an additional five minutes.

The mixes were added to cylinder molds and compacted in five layers using a compactor with twenty-five blows per layer. The molds were covered and left undisturbed for 28 days.

1315 Direct Soil

The amended mixtures were added to cylinder molds and compacted in five layers using a compactor with twenty-five blows per layer. GAF-440U water was added to larger high-density polyethylene (HDPE) containers. The molds containing the mixes were gently lowered into the water as to not disturb the compacted material.

In pre-determined time intervals by the method, the molds were gently pulled out of the water. Weights were taken of both the water remaining in the container and the molds to determine how much water was absorbed into the molds. The leachate water was measured for pH, oxidation-reduction potential (ORP) and conductivity. An aliquot of the leachate in a polypropylene centrifuge vial was centrifuged and decanted into a pre-preserved HDPE container, provided by Eurofins, for the analysis of total metals. The remaining leachate was filtered through a polypropylene disposable filtration unit containing a polyethersulfone 0.45µm filter. The filtrate was poured into a pre-preserved HDPE container for dissolved metals bottles. Sample splits were refrigerated immediately until they were shipped to Eurofins for analysis.

1315 ISS

After 28 days of curing, the direct soil 1315 leaching procedure was followed on the undisturbed molds.

1316 Direct Soil

For each amendment mixture, five different masses of mix were weighed directly into amber glass bottles, in order to achieve five liquid to solid (L/S) ratios of 10, 5, 2, 1 and 0.5. Each L/S ratio was set up

in duplicate in order to sample at both the mid-point and endpoint without altering the L/S ratio. Various volumes of GAF-440U water were measured with HDPE graduated cylinders and added into the amber glass bottles. The bottles were tightly capped and sealed with tape.

The bottles were placed in an end-over-end tumbler and turned on at 28 revolutions per minute (RPMs). At 24 hours of tumbling, the mid-point sample bottles were removed. The endpoint samples were removed after 48 hours of tumbling. The samples were allowed to settle for 30 minutes and pH, ORP and conductivity measurements were performed. A split of each sample was decanted into polypropylene centrifuge vials and centrifuged for 30 minutes. The decant was poured into the total metals and anion bottles. The remaining sample aliquot was filtered through a polypropylene disposable filtration unit containing a polyethersulfone 0.45µm filter. The filtrate was poured into the dissolved metals bottles. Sample splits were refrigerated immediately until they were shipped to Eurofins for analysis.

1316 ISS

After 28 days of curing, the sample was broken up with a mortar and pestle. The direct soil 1316 leaching procedure was followed.

Anaerobic

The Plas Labs model 855 series anaerobic chamber is available to perform this work. The following steps may be done in the chamber:

- soil homogenization
- soil/amendment weighing
- curing, if applicable
- breaking up cured molds

Bottles will be opened in the chamber and the chamber will be immediately purged 5 times with nitrogen gas to remove the oxygen that was in the bottles. When the chamber is purged, the atmosphere will be replenished with a 95% nitrogen/ 5% hydrogen (H_2) balance gas. For the addition of the groundwater, we suggest adding the ORP indicator dye resazurin to monitor the oxygenation of the environment.

Once the bottles are filled with soil and water, they will be capped and removed from the anaerobic chamber. Tumbling will be performed in normal atmospheric conditions (outside of the anaerobic chamber). Any leakages after tumbling will be noted to monitor for potential introduction of oxygen.

pH/ORP/conductivity will be measured in the anaerobic chamber. Total splits will be placed into centrifuge vials, centrifuged outside of the chamber, and pour into the preserved bottles back in the chamber. The dissolved metals fraction will be filtered in the chamber as well.

Appendix B Method 1315 and 1316 Analytical Results Tables

Table B-1
Direct Soil Treatment
Method 1315 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		11/23/2020		11/23/2020		11/23/2020		11/23/2020		11/23/2020		11/23/2020		11/23/2020		11/23/2020		11/24/2020	
		Sample ID		GAF-1315-CONTROL-T2-D		GAF-1315-CONTROL-T2-T		GAF-1315-DOLO 0.5-T2-D		GAF-1315-DOLO 0.5-T2-T		GAF-1315-DOLO 1.0-T2-D		GAF-1315-DOLO 1.0-T2-T		GAF-1315-HICAL 0.5-T2-D		GAF-1315-HICAL 0.5-T2-T		GAF-1315-CONTROL-T24-D	
		Lab Sample ID		180-114256-2		180-114256-1		180-114256-14		180-114256-13		180-114256-20		180-114256-19		180-114256-8		180-114256-7		180-114256-4	
		Sample Type		N		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																					
Laboratory pH	--	SU	--	7.65		7.65		7.23		7.23		7.01		7.01		7.39		7.39		6.59	
Anions																					
Chloride	16887-00-6	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
General Chemistry																					
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Metals, Dissolved																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cadmium	7440-43-9	ug/L	5 (a,b)	0.23 J		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		0.275 J	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		N/A		< 5 U		N/A		< 5 U		N/A		< 5 U		N/A		< 5 U	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Nickel	7440-02-0	ug/L	100 (a)	14.3		N/A		5.01		N/A		4.86		N/A		4.74		N/A		23	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Metals, Total																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Beryllium	7440-41-7	ug/L	4 (a,b)	N/A		0.264 J		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cadmium	7440-43-9	ug/L	5 (a,b)	N/A		0.321 J		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lithium	7439-93-2	ug/L	40 (b)	N/A		< 5 U		N/A		< 5 U		N/A		< 5 U		N/A		< 5 U		N/A	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Nickel	7440-02-0	ug/L	100 (a)	N/A		14.4		N/A		5.34		N/A		5.75		N/A		5.48		N/A	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	

Table B-1
Direct Soil Treatment
Method 1315 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		11/24/2020		11/24/2020		11/24/2020		11/24/2020		11/24/2020		11/24/2020		11/24/2020		11/25/2020		11/25/2020	
		Sample ID		GAF-1315-CONTROL-T24-T		GAF-1315-DOLO 0.5-T24-D		GAF-1315-DOLO 0.5-T24-T		GAF-1315-DOLO 1.0-T24-D		GAF-1315-DOLO 1.0-T24-T		GAF-1315-HICAL 0.5-T24-D		GAF-1315-HICAL 0.5-T24-T		GAF-1315-CONTROL-T48-D		GAF-1315-CONTROL-T48-T	
		Lab Sample ID		180-114256-3		180-114256-16		180-114256-15		180-114256-22		180-114256-21		180-114256-10		180-114256-9		180-114256-6		180-114256-5	
		Sample Type		N		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																					
Laboratory pH	--	SU	--	6.59		6.54		6.54		6.68		6.68		6.51		6.51		5.59		5.59	
Anions																					
Chloride	16887-00-6	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
General Chemistry																					
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Metals, Dissolved																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Beryllium	7440-41-7	ug/L	4 (a,b)	N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cadmium	7440-43-9	ug/L	5 (a,b)	N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lithium	7439-93-2	ug/L	40 (b)	N/A		< 5 U		N/A		< 5 U		N/A		< 5 U		N/A		< 5 U		N/A	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Nickel	7440-02-0	ug/L	100 (a)	N/A		4.3		N/A		4.59		N/A		3.49		N/A		11.7		N/A	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Metals, Total																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		N/A		< 1 U		N/A		0.319 J		N/A		< 1 U		N/A		< 1 U	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cadmium	7440-43-9	ug/L	5 (a,b)	0.299 J		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		N/A		< 5 U		N/A		< 5 U		N/A		< 5 U		N/A		< 5 U	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Nickel	7440-02-0	ug/L	100 (a)	23.4		N/A		4.57		N/A		4.24		N/A		3.97		N/A		12.1	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	

Table B-1
Direct Soil Treatment
Method 1315 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		11/25/2020		11/25/2020		11/25/2020		11/25/2020		11/25/2020		11/25/2020		11/30/2020		11/30/2020		11/30/2020	
		Sample ID		GAF-1315-DOLO 0.5-T48-D		GAF-1315-DOLO 0.5-T48-T		GAF-1315-DOLO 1.0-T48-D		GAF-1315-DOLO 1.0-T48-T		GAF-1315-HICAL 0.5-T48-D		GAF-1315-HICAL 0.5-T48-T		GAF-1315-CONTROL-T7DAY-D		GAF-1315-CONTROL-T7DAY-T		GAF-1315-DOLO 0.5-T7DAY-D	
		Lab Sample ID		180-114256-18		180-114256-17		180-114256-24		180-114256-23		180-114256-12		180-114256-11		180-114256-26		180-114256-25		180-114256-30	
		Sample Type		N		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																					
Laboratory pH	--	SU	--	6.59		6.59		6.71		6.71		6.42		6.42		6.56		6.56		6.82	
Anions																					
Chloride	16887-00-6	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
General Chemistry																					
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Metals, Dissolved																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		0.364 J		N/A		< 1 U	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		N/A		< 5 U		N/A		< 5 U		N/A		< 5 U		N/A		< 5 U	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Nickel	7440-02-0	ug/L	100 (a)	4.18		N/A		3.83		N/A		3.72		N/A		12.9		N/A		3.02	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Metals, Total																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Beryllium	7440-41-7	ug/L	4 (a,b)	N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cadmium	7440-43-9	ug/L	5 (a,b)	N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		N/A		0.344 J		N/A	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Lithium	7439-93-2	ug/L	40 (b)	N/A		< 5 U		N/A		< 5 U		N/A		< 5 U		N/A		< 5 U		N/A	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Nickel	7440-02-0	ug/L	100 (a)	N/A		4.31		N/A		4.03		N/A		3.79		N/A		12.8		N/A	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	

Table B-1
Direct Soil Treatment
Method 1315 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		11/30/2020		11/30/2020		11/30/2020		11/30/2020		11/30/2020		12/7/2020		12/7/2020		12/7/2020		12/7/2020	
		Sample ID		GAF-1315-DOLO 0.5-T7DAY-T		GAF-1315-DOLO 1.0-T7DAY-D		GAF-1315-DOLO 1.0-T7DAY-T		GAF-1315-HICAL 0.5-T7DAY-D		GAF-1315-HICAL 0.5-T7DAY-T		GAF-GW-1315-CONTROL-T14		GAF-GW-1315-DOLO 0.5-T14		GAF-GW-1315-DOLO 1.0-T14		GAF-GW-1315-HI CAL 0.5-T14	
		Lab Sample ID		180-114256-29		180-114256-32		180-114256-31		180-114256-28		180-114256-27		180-115017-21		180-115017-23		180-115017-24		180-115017-22	
		Sample Type		N		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																					
Laboratory pH	--	SU	--	6.82		6.88		6.88		6.72		6.72		6.51		6.93		7.02		6.82	
Anions																					
Chloride	16887-00-6	MG/L	NE	N/A		N/A		N/A		N/A		N/A		42.1		42.6		41.3		41.1	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A		N/A		N/A		N/A		0.212		0.203		0.192		0.215	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A		N/A		N/A		N/A		752		677		642		534	
General Chemistry																					
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A		N/A		N/A		N/A		< 5 U		< 5 U		< 5 U		< 5 U	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A		N/A		N/A		N/A		< 5 U		< 5 U		< 5 U		< 5 U	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A		N/A		N/A		N/A		312		397		345		381	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A		N/A		N/A		N/A		312		397		345		381	
Metals, Dissolved																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		13.7 J		< 30 U		< 30 U		< 30 U	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		0.781 J		0.628 J		1.43 J		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		< 1 U		0.318 J		0.355 J		0.346 J	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		21		18.3		20.7		21.8	
Beryllium	7440-41-7	ug/L	4 (a,b)	N/A		< 1 U		N/A		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		1930		1750		1740		1800	
Cadmium	7440-43-9	ug/L	5 (a,b)	N/A		< 1 U		N/A		< 1 U		N/A		0.34 J		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		294000		279000		267000		283000	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		< 2 U		< 2 U		< 2 U		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		11.3		8.17		5.14		3.13	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		< 2 U		< 2 U		< 2 U		0.74 J	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		< 50 U		< 50 U		< 50 U		< 50 U	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	N/A		< 5 U		N/A		< 5 U		N/A		< 5 U		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		33500		54300		46900		25400	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		7450		2620		2180		1600	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		< 5 U		0.618 J		1.24 J		1.16 J	
Nickel	7440-02-0	ug/L	100 (a)	N/A		2.49		N/A		2.69		N/A		6.26		2.6		1.75		0.816 J	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		5940 J	FG	4340		4730		4790	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		< 5 U		< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		91900		90400		88600		92500	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		0.789 J		0.185 J		0.228 J		0.177 J	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		3.72 J		< 5 U		< 5 U		< 5 U	
Metals, Total																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		458		77.8		236		48.7	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		0.858 J		0.603 J		1.56 J		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		0.335 J		0.475 J		0.484 J		0.465 J	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		24.1		19.2		22.4		23.1	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		N/A		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		1900		1690		1740		1820	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		N/A		< 1 U		N/A		< 1 U		0.326 J		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		303000		295000		278000		293000	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		< 2 U		< 2 U		< 2 U		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		11.9		9.51		6.15		3.49	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		< 2 U		< 2 U		< 2 U		< 2 U	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		559		330		405		154	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		0.19 J		< 1 U		0.136 J		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		N/A		< 5 U		N/A		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		34200		55500		46700		25800	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		7770		3110		2570		2010	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		< 5 U		< 5 U		1.2 J		1.19 J	
Nickel	7440-02-0	ug/L	100 (a)	3.01		N/A		2.71		N/A		2.23		7.06		2.69		2.28		1.04	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		5260 J	FG	4410		4750		4790	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		< 5 U		< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		94800		92000		88500		93500	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		0.856 J		0.173 J		0.234 J		0.195 J	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		4.32 J		3.83 J		< 5 U		< 5 U	

Table B-1
Direct Soil Treatment
Method 1315 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/21/2020		12/21/2020		12/21/2020		12/21/2020		1/4/2021		1/4/2021		1/4/2021		1/4/2021		1/25/2021	
		Sample ID		GAF-GW-1315-Control-t28		GAF-GW-1315-Dolo 0.5-t28		GAF-GW-1315-Dolo 1.0-t28		GAF-GW-1315-Hi Cal 0.5-t28		GAF-GW-1315-Control-t42		GAF-GW-1315-Dolo 0.5-t42		GAF-GW-1315-Dolo 1.0-t42		GAF-GW-1315-Hi Cal 0.5-t42		GAF-GW-1315-CONTROL-T63	
		Lab Sample ID		180-115551-21		180-115551-23		180-115551-24		180-115551-22		180-115551-25		180-115551-27		180-115551-28		180-115551-26		180-116485-1	
		Sample Type		N		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																					
Laboratory pH	--	SU	--	6.77		7.17		7.46		7.25		6.14		6.98		7.27		6.72		6.93	
Anions																					
Chloride	16887-00-6	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		41.9	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.228	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		770	
General Chemistry																					
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		262	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		262	
Metals, Dissolved																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 30 U	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		19.8	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1540	
Cadmium	7440-43-9	ug/L	5 (a,b)	0.476 J		< 1 U		< 1 U		< 1 U		0.396 J		< 1 U		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		246000	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		5.74	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2 U	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 50 U	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		30800	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		5050	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.161 J	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Nickel	7440-02-0	ug/L	100 (a)	7.6		2.25		1.18		0.573 J		4.88		2.16		1.9		1.13		2.13	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		5320	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		96300	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.757 J	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Metals, Total																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		273	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		21.5	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1520	
Cadmium	7440-43-9	ug/L	5 (a,b)	0.44 J		< 1 U		< 1 U		< 1 U		0.466 J		< 1 U		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		268000	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		7.30	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2 U	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		530	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.169 J	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		31900	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		5900	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.198 J	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Nickel	7440-02-0	ug/L	100 (a)	8.01		2.51		1.41		0.808 J		4.76		2.32		1.34		1.11		2.72	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		5490	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		98000	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.846 J	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		4.1 J	

Table B-1
Direct Soil Treatment
Method 1315 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		1/25/2021		1/25/2021		1/25/2021	
		Sample ID		GAF-GW-1315-DOLO 0.5-T63		GAF-GW-1315-DOLO 1.0-T63		GAF-GW-1315-HI CAL 0.5-T63	
		Lab Sample ID		180-116485-3		180-116485-4		180-116485-2	
		Sample Type		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH									
Laboratory pH	--	SU	--	6.58		6.68		6.87	
Anions									
Chloride	16887-00-6	MG/L	NE	46.3		44.6		46.2	
Fluoride	16984-48-8	MG/L	4 (a,b)	0.190		0.195		0.215	
Sulfate	14808-79-8	MG/L	NE	810		746 F1		628	
General Chemistry									
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	< 5 U		< 5 U		< 5 U	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	< 5 U		< 5 U		< 5 U	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	496		269		367	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	496		269		367	
Metals, Dissolved									
Aluminum	7429-90-5	ug/L	NE	< 30 U		17.4 J		< 30 U	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		0.482 J		0.396 J	
Arsenic	7440-38-2	ug/L	10 (a,b)	< 1 U		< 1 U		< 1 U	
Barium	7440-39-3	ug/L	2000 (a,b)	18.1		13.1		22.0	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	1480		1300		1430	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	318000		210000		294000	
Chromium	7440-47-3	ug/L	100 (a,b)	< 2 U		< 2 U		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	3.49		0.758		2.02	
Copper	7440-50-8	ug/L	NE	< 2 U		< 2 U		< 2 U	
Iron	7439-89-6	ug/L	NE	< 50 U		< 50 U		< 50 U	
Lead	7439-92-1	ug/L	15 (a,b)	< 1 U		< 1 U		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	64100		47500		24600	
Manganese	7439-96-5	ug/L	NE	3090		595		2010	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		< 0.2 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	< 5 U		1.4 J		1.10 J	
Nickel	7440-02-0	ug/L	100 (a)	1.35		0.736 J		0.922 J	
Potassium	7440-09-7	ug/L	NE	7520		6250		6030	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	95700		92300		92700	
Thallium	7440-28-0	ug/L	2 (a,b)	0.261 J		0.197 J		0.197 J	
Vanadium	7440-62-2	ug/L	NE	< 1 U		< 1 U		< 1 U	
Zinc	7440-66-6	ug/L	NE	< 5 U		< 5 U		< 5 U	
Metals, Total									
Aluminum	7429-90-5	ug/L	NE	422		241		344	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		0.486 J		0.457 J	
Arsenic	7440-38-2	ug/L	10 (a,b)	0.454 J		0.549 J		0.444 J	
Barium	7440-39-3	ug/L	2000 (a,b)	19.8		14.4		25.4	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	1470		1330		1480	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	319000		214000		307000	
Chromium	7440-47-3	ug/L	100 (a,b)	< 2 U		< 2 U		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	4.76		1.90		3.86	
Copper	7440-50-8	ug/L	NE	< 2 U		< 2 U		< 2 U	
Iron	7439-89-6	ug/L	NE	854		821		1050	
Lead	7439-92-1	ug/L	15 (a,b)	0.302 J		0.186 J		0.245 J	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	62700		43900		24400	
Manganese	7439-96-5	ug/L	NE	3290		1010		2700	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		< 0.2 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	< 5 U		1.39 J		1.16 J	
Nickel	7440-02-0	ug/L	100 (a)	1.75		1.09		1.44	
Potassium	7440-09-7	ug/L	NE	7550		6010		6120	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U		0.574 J	
Sodium	7440-23-5	ug/L	NE	94700		86500		92600	
Thallium	7440-28-0	ug/L	2 (a,b)	0.273 J		0.181 J		0.211 J	
Vanadium	7440-62-2	ug/L	NE	1.06		< 1 U		< 1 U	
Zinc	7440-66-6	ug/L	NE	3.56 J		< 5 U		4.39 J	

Table B-1
Direct Soil Treatment
Method 1315 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

Notes and Acronymns

< - analyte not detected at the reporting quantitation limit shown

MG/L - miligrams per liter

F1 - MS and/or MSD recovery exceeds control limits. (Lab Qualifier)

N - primary sample

N/A - not analyzed

NE - not established at the Non-Registered Site

ug/L - micrograms per liter

(a) - Default published GWPS based on TN MCLs from Tennessee solid waste regulations, Appendix III (TN Rule 0400-11-01-.04). Site-specific GWPS may be developed under TN Rules (Alternate Concentration Limits, ACLs) with TDEC Approval.

(b) - Default published GWPS from CCR Rule, Appendix IV (40 CFR 257.95) based on Primary MCLs for public drinking water supplies (https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations) and default values for parameters without primary MCLs. Site-specific GWPSs may be developed under the CCR Rule if background is above the default GWPS/MCL.

(c) TDEC approved an Alternate Source Demonstration for cobalt at the NRS; no alternate GWPS established.

Qualifier Definitions

U	The analyte was analyzed for but not detected. The associated numerical value is at or below the reporting limit.
U*	This result should be considered “not detected” because it was detected in a rinsate blank or laboratory blank at a similar level.
UR	Unreliable reporting limit; analyte may or may not be present in sample.
R	Unreliable positive result; analyte may or may not be present in sample.
R*	This result has been rejected following data user review.
J	Quantitation is approximate due to limitations identified during data validation.
UJ	This analyte was not detected, but the reporting or detection limit may or may not be higher due to a bias identified during data validation.

Reason Code Definitions

BE	Equipment blank contamination. The result should be considered “not-detected.”
BF	Field blank contamination. The result should be considered “not-detected.”
BL	Laboratory blank contamination. The result should be considered “not-detected.”
BN	Negative laboratory blank contamination.
C	Initial and/or continuing calibration issue, indeterminate bias.
C+	Initial and/or continuing calibration issue. The result may be biased high.
C-	Initial and/or continuing calibration issue. The result may be biased low.
DQ	Data user qualification.
FD	Field duplicate imprecision.
FG	Total versus Dissolved Imprecision.
H	Holding time exceeded.
I	Internal standard recovery outside of acceptance limits.
L	LCS and LCSD recoveries outside of acceptance limits, indeterminate bias.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits, indeterminate bias.
M+	MS and/or MSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.
MP	MS/MSD imprecision.
P	Post-digestion spike recoveries outside of acceptance limits, indeterminate bias.
P+	Post-digestion spike recovery outside of acceptance limits. The result may be biased high.
P-	Post-digestion spike recovery outside of acceptance limits. The result may be biased low.
Q	Chemical preservation issue.
R	RL standards outside of acceptance limits, indeterminate bias.
R+	RL standard(s) outside of acceptance limits. The result may be biased high.
R-	RL standard(s) outside of acceptance limits. The result may be biased low.
S	Radium-226+228 flagged due to reporting protocol for combined results.
SD	Serial dilution imprecision.
T	Temperature preservation issue.
X	Percent solids < 50%.
Y+	Chemical yield outside of acceptance limits. The result may be biased high.
Y-	Chemical yield outside of acceptance limits. The result may be biased low.
Z	ICP/MS interference.
ZZ	Other.

Table B-2
Direct Soil Treatment
Method 1316 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/2/2020		12/2/2020		12/2/2020		12/2/2020		12/2/2020		12/2/2020		12/2/2020		12/2/2020	
		Sample ID		GAF-GW-1316-CONTROL-T1-		GAF-GW-1316-CONTROL-T2-		GAF-GW-1316-CONTROL-T3-		GAF-GW-1316-CONTROL-T4-		GAF-GW-1316-CONTROL-T5-		GAF-GW-1316-DOLO 0.5-T1-		GAF-GW-1316-DOLO 0.5-T2-		GAF-GW-1316-DOLO 0.5-T3-	
		Lab Sample ID		180-114632-1		180-114632-2		180-114632-3		180-114632-4		180-114632-5		180-114632-11		180-114632-12		180-114632-13	
		Sample Type		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																			
Laboratory pH	--	SU	--	5.70		5.04		3.85		3.50		2.96		6.40		6.53		7.08	
Anions																			
Chloride	16887-00-6	MG/L	NE	N/A		40.5		N/A		N/A		N/A		N/A		41.2		N/A	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		0.316		N/A		N/A		N/A		N/A		0.139		N/A	
Sulfate	14808-79-8	MG/L	NE	N/A		1610		N/A		N/A		N/A		N/A		1570		N/A	
General Chemistry																			
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		< 5 U		N/A		N/A		N/A		N/A		< 5 U		N/A	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		< 5 U		N/A		N/A		N/A		N/A		< 5 U		N/A	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		66.6		N/A		N/A		N/A		N/A		359		N/A	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		66.6		N/A		N/A		N/A		N/A		359		N/A	
Metals, Dissolved																			
Aluminum	7429-90-5	ug/L	NE	25.7 J		1380		59500		125000		206000		< 30 U		1370		42.6	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		< 2 U		< 20 U		< 20 U		< 20 U		< 2 U		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	< 1 U		0.592 J		6.91		13.7		19.6		< 1 U		0.425 J		< 1 U	
Barium	7440-39-3	ug/L	2000 (a,b)	7.7 J		11.2		16.8 J		17 J		< 100 U		6.31 J		7.97 J		5.88 J	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		0.499 J		11.7		33.5		63.9		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	1630		1580		1430		2200 J	FG	1920		1480		1360		389	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		1.14		3.7		7.15		9.78		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	246000		242000		347000		372000		396000 J	FG	303000		371000		480000	
Chromium	7440-47-3	ug/L	100 (a,b)	3.43		4.17		5.04 J	FG	5.61		9.56		< 2 U		< 2 U		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	19		157		469		979		1400		7.98		2.14		0.479 J	
Copper	7440-50-8	ug/L	NE	0.796 J		0.839 J		11.5		35.5		77.7		< 2 U		< 2 U		< 2 U	
Iron	7439-89-6	ug/L	NE	< 50 U		< 50 U		96.4		2300		14800		< 50 U		1440		< 50 U	
Lead	7439-92-1	ug/L	15 (a,b)	< 1 U		< 1 U		< 1 U		0.136 J		0.242 J		< 1 U		0.566 J		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		4.47 J		17.4		36.3		46.1		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	26500		31100		53800		63500		90100		71300		150000		147000	
Manganese	7439-96-5	ug/L	NE	7190		13000		29600		59000 J	FG	76900 J	FG	6190		3090		45.7 J	FG
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.25 U		< 0.2 U		< 0.25 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		0.656 J		8.1	
Nickel	7440-02-0	ug/L	100 (a)	11.9		79.9		249		392		493		2.64		1.14		< 1 U	
Potassium	7440-09-7	ug/L	NE	4830		3780		3760		3690		7040		4860		3810		2920	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		< 5 U		< 5 U		< 50 U		< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	86600		87700		88400		83000		73200		94400		90600		87200	
Thallium	7440-28-0	ug/L	2 (a,b)	0.454 J		0.747 J		0.72 J		1.23		1.71		0.213 J		0.462 J		0.297 J	
Vanadium	7440-62-2	ug/L	NE	< 1 U		< 1 U		< 1 U		< 1 U		1.08		< 1 U		3.09		< 1 U	
Zinc	7440-66-6	ug/L	NE	5.47		127		636		1090		1570		< 5 U		< 5 U		< 5 U	
Metals, Total																			
Aluminum	7429-90-5	ug/L	NE	776		N/A		58800		228000		218000		1090		N/A		1420	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		N/A		< 20 U		< 10 U		< 10 U		< 2 U		N/A		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	0.672 J		N/A		7.47		50.2		50.4		0.408 J		N/A		0.755 J	
Barium	7440-39-3	ug/L	2000 (a,b)	9.36 J		N/A		22.6 J		119		91.6		9.13 J		N/A		7.23 J	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		N/A		11.9		40.9		66.3		< 1 U		N/A		< 1 U	
Boron	7440-42-8	ug/L	NE	1630		N/A		1460		1670 J	FG	2110		1450		N/A		349	
Cadmium	7440-43-9	ug/L	5 (a,b)	0.242 J		N/A		3.77		6.99		9.99		< 1 U		N/A		< 1 U	
Calcium	7440-70-2	ug/L	NE	248000		N/A		339000		407000		333000 J	FG	305000		N/A		462000	
Chromium	7440-47-3	ug/L	100 (a,b)	< 2 U		N/A		2.22 J	FG	48.3		54.8		< 2 U		N/A		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	23.5		N/A		465		927		1340		8.65		N/A		0.629	
Copper	7440-50-8	ug/L	NE	< 2 U		N/A		12		75		107		0.801 J		N/A		0.76 J	
Iron	7439-89-6	ug/L	NE	1170		N/A		1750		118000		132000		1250		N/A		1550	
Lead	7439-92-1	ug/L	15 (a,b)	0.634 J		N/A		0.605 J		36.8		30.3		0.5 J		N/A		0.648 J	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		N/A		17.9		56.4		64.6		< 5 U		N/A		< 5 U	
Magnesium	7439-95-4	ug/L	NE	27000		N/A		52400		85500		82400		72100		N/A		144000	
Manganese	7439-96-5	ug/L	NE	7500		N/A		29300		52300 J	FG	68000 J	FG	6330		N/A		29.6 J	FG
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		N/A		< 0.2 U		0.306		0.717		< 0.2 U		N/A		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	< 5 U		N/A		< 5 U		7.46 J		7.99 J		< 5 U		N/A		8.42	
Nickel	7440-02-0	ug/L	100 (a)	14.6		N/A		245		430		523		3.38		N/A		0.78 J	
Potassium	7440-09-7	ug/L	NE	6410		N/A		4130		9530		10900		5210		N/A		2800	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		N/A		< 5 U		< 25 U		< 25 U		< 5 U		N/A		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	0.399 J		N/A		< 1 U		< 5 U		< 5 U		< 1 U		N/A		< 1 U	
Sodium	7440-23-5	ug/L	NE	86000		N/A		85300		98100		73600		93700		N/A		84200	
Thallium	7440-28-0	ug/L	2 (a,b)	0.624 J		N/A		0.853 J		2.86 J		3.48 J		0.265 J		N/A		0.39 J	
Vanadium	7440-62-2	ug/L	NE	1.76		N/A		2.24		123		123		2.58		N/A		2.89	
Zinc	7440-66-6	ug/L	NE	5.94		N/A		641		1420		1690		< 5 U		N/A		< 5 U	

Table B-2
Direct Soil Treatment
Method 1316 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/2/2020		12/2/2020		12/2/2020		12/2/2020		12/2/2020		12/2/2020		12/2/2020		12/2/2020	
		Sample ID		GAF-GW-1316-DOLO 0.5-T4-		GAF-GW-1316-DOLO 0.5-T5-		GAF-GW-1316-DOLO 1.0-T1-		GAF-GW-1316-DOLO 1.0-T2-		GAF-GW-1316-DOLO 1.0-T3-		GAF-GW-1316-DOLO 1.0-T4-		GAF-GW-1316-DOLO 1.0-T5-		GAF-GW-1316-HI-CAL-T1-MID	
		Lab Sample ID		180-114632-14		180-114632-15		180-114632-16		180-114632-17		180-114632-18		180-114632-19		180-114632-20		180-114632-6	
		Sample Type		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																			
Laboratory pH	--	SU	--	7.17		7.64		6.92		7.42		8.77		9.95		6.34		6.49	
Anions																			
Chloride	16887-00-6	MG/L	NE	N/A		N/A		N/A		41.2		N/A		N/A		N/A		N/A	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A		N/A		0.478		N/A		N/A		N/A		N/A	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A		N/A		1010		N/A		N/A		N/A		N/A	
General Chemistry																			
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A		N/A		< 5 U		N/A		N/A		N/A		N/A	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A		N/A		< 5 U		N/A		N/A		N/A		N/A	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A		N/A		5.57		N/A		N/A		N/A		N/A	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A		N/A		5.57		N/A		N/A		N/A		N/A	
Metals, Dissolved																			
Aluminum	7429-90-5	ug/L	NE	21.1 J		30.2		41.8		42		59 J		189		152		< 30 U	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		< 2 U		< 2 U		< 2 U		< 5 U		< 2 U		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		0.943 J		2.8		0.577 J		< 1 U	
Barium	7440-39-3	ug/L	2000 (a,b)	7.92 J		5.71 J		5.16 J		4.66 J		8.9 J		4.82 J		7.2 J		16.8	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 2.5 U		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	208		230		1170		855		483		185		1090		1580	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 2.5 U		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	566000		541000 J	FG	111000		223000		601000		706000		737000		387000	
Chromium	7440-47-3	ug/L	100 (a,b)	< 2 U		1.84 J		< 2 U		< 2 U		< 5 U		< 2 U		< 2 U		1.54 J	
Cobalt	7440-48-4	ug/L	NE (c)	1.06		2.16		0.237 J		0.35 J		2.04		6.43		2.7		2.41	
Copper	7440-50-8	ug/L	NE	0.836 J		< 2 U		< 2 U		< 2 U		< 5 U		1.95 J		< 2 U		< 2 U	
Iron	7439-89-6	ug/L	NE	390		456		< 50 U		< 50 U		< 125 U		< 50 U		52.9		< 50 U	
Lead	7439-92-1	ug/L	15 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 2.5 U		< 1 U		< 1 U		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U		< 5 U		< 12.5 U		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	244000 J	FG	180000 J	FG	143000		189000		6380		1610		23500		31900	
Manganese	7439-96-5	ug/L	NE	318 R	FG	810		38.5		160		< 12.5 U		< 5 U		239		3370	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.25 U		< 0.25 U		< 0.2 U		< 0.25 U		< 0.5 U		< 0.2 U		< 0.25 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	3.91 J		2.97 J		6.43		4.15 J		31.9		56.7		22.7 J	FG	< 5 U	
Nickel	7440-02-0	ug/L	100 (a)	0.372 J		0.733 J		< 1 U		< 1 U		< 2.5 U		< 1 U		0.499 J		1.09	
Potassium	7440-09-7	ug/L	NE	3010		3050		3580		3140		2670		2230		4810		8220	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		< 5 U		< 5 U		< 12.5 U		< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U		< 1 U		< 1 U		< 2.5 U		< 1 U		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	76600		70200		99500		95200		80000		63800		60500		94600	
Thallium	7440-28-0	ug/L	2 (a,b)	0.267 J		0.226 J		0.182 J		0.15 J		< 2.5 U		< 1 U		0.173 J		0.237 J	
Vanadium	7440-62-2	ug/L	NE	< 1 U		< 1 U		< 1 U		< 1 U		< 2.5 U		2.07		< 1 U		< 1 U	
Zinc	7440-66-6	ug/L	NE	< 5 U		3.62 J		< 5 U		< 5 U		< 12.5 U		< 5 U		5.37		< 5 U	
Metals, Total																			
Aluminum	7429-90-5	ug/L	NE	3540		4670		912		N/A		9270		63700		4760		225	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		< 2 U		< 2 U		N/A		1.08 J		3.95 J		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	1.84		2.46		0.435 J		N/A		4.91		30.9		1.98		< 1 U	
Barium	7440-39-3	ug/L	2000 (a,b)	14.9		14.7		7.47 J		N/A		27		137		19.6		15.7	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U		N/A		0.269 J		2.65 J		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	210		743		1100		N/A		467		1750		2340		1610	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 5 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	585000		461000 J	FG	109000		N/A		626000		902000		690000		401000	
Chromium	7440-47-3	ug/L	100 (a,b)	2.77		4.11		2.76		N/A		8.32		52.7		3.52		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	2.2		1.91		0.438 J		N/A		3.92		49.1		24.1		4.8	
Copper	7440-50-8	ug/L	NE	1.72 J		2.34		0.644 J		N/A		5.2		38.8		1.95 J		< 2 U	
Iron	7439-89-6	ug/L	NE	3480		6360		2060		N/A		13200		109000		5830		153	
Lead	7439-92-1	ug/L	15 (a,b)	1.35		2		0.587 J		N/A		4.27		30.5		1.98		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U		N/A		3.56 J		22.4 J		5.2		< 5 U	
Magnesium	7439-95-4	ug/L	NE	186000 J	FG	117000 J	FG	139000		N/A		9080		40800		48900		32900	
Manganese	7439-96-5	ug/L	NE	131 R	FG	931		50.6		N/A		93.9		2710		10000		4660	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.5 U		< 0.5 U		< 0.2 U		N/A		< 0.25 U		0.175 J		< 0.25 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	16.2		1.68 J		6.01		N/A		35.4		37.8		7.37 J	FG	< 5 U	
Nickel	7440-02-0	ug/L	100 (a)	1.52		2.69		0.594 J		N/A		4.29		41.3		18.9		1.83	
Potassium	7440-09-7	ug/L	NE	3260		4120		3440		N/A		3520		11700		7020		11700	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		< 5 U		N/A		< 5 U		< 25 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 5 U		< 1 U		0.752 J	
Sodium	7440-23-5	ug/L	NE	71900		81600		96100		N/A		80200		74400		62100		94300	
Thallium	7440-28-0	ug/L	2 (a,b)	0.283 J		0.389 J		0.25 J		N/A		0.272 J		1.81 J		0.463 J		0.219 J	
Vanadium	7440-62-2	ug/L	NE	7.08		10.1		4.16		N/A		19.7		147		9.45		< 1 U	
Zinc	7440-66-6	ug/L	NE	4.46 J		7.95		< 5 U		N/A		16.3		141		8.26		< 5 U	

Table B-2
Direct Soil Treatment
Method 1316 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/2/2020		12/2/2020		12/2/2020		12/2/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020	
		Sample ID		GAF-GW-1316-HI-CAL-T2-MID		GAF-GW-1316-HI-CAL-T3-MID		GAF-GW-1316-HI-CAL-T4-MID		GAF-GW-1316-HI-CAL-T5-MID		GAF-GW-1316-CONTROL-T1-		GAF-GW-1316-CONTROL-T2-		GAF-GW-1316-CONTROL-T3-		GAF-GW-1316-CONTROL-T4-	
		Lab Sample ID		180-114632-7		180-114632-8		180-114632-9		180-114632-10		180-115017-1		180-115017-2		180-115017-3		180-115017-4	
		Sample Type		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																			
Laboratory pH	--	SU	--	6.58		6.48		6.19		6.16		5.81		4.42		3.69		3.00	
Anions																			
Chloride	16887-00-6	MG/L	NE	40.4		N/A		N/A		N/A		N/A		41.6		N/A		N/A	
Fluoride	16984-48-8	MG/L	4 (a,b)	0.166		N/A		N/A		N/A		N/A		0.304		N/A		N/A	
Sulfate	14808-79-8	MG/L	NE	1460		N/A		N/A		N/A		N/A		877		N/A		N/A	
General Chemistry																			
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	< 5 U		N/A		N/A		N/A		N/A		< 5 U		N/A		N/A	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	< 5 U		N/A		N/A		N/A		N/A		< 5 U		N/A		N/A	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	188		N/A		N/A		N/A		N/A		67.5		N/A		N/A	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	188		N/A		N/A		N/A		N/A		67.5		N/A		N/A	
Metals, Dissolved																			
Aluminum	7429-90-5	ug/L	NE	16.7 J		17.6 J		30.7		290		16.2 J		3070		68700		106000	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	< 1 U		< 1 U		< 1 U		1.13		< 1 U		0.894 J		6.27		8.53	
Barium	7440-39-3	ug/L	2000 (a,b)	7.53 J		4.79 J		5.32 J		4.33 J		10.8		13.3		17.4		14.6	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		1.01		14.1		29.4	
Boron	7440-42-8	ug/L	NE	1060		514		210		315 J	FG	1740		1820		2290		2930 J	FG
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		1.37		4.03		6.84 J	FG
Calcium	7440-70-2	ug/L	NE	459000		659000		616000		613000		296000		256000		459000		402000	
Chromium	7440-47-3	ug/L	100 (a,b)	3.97		2.09		4.17 J	FG	< 2 U		< 2 U		< 2 U		2.06		5.19	
Cobalt	7440-48-4	ug/L	NE (c)	0.545		0.416 J		0.145 J		1.16		5.35		180		510		958 J	FG
Copper	7440-50-8	ug/L	NE	< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		0.848 J		10.1		30.2	
Iron	7439-89-6	ug/L	NE	< 50 U		< 50 U		< 50 U		< 50 U		< 50 U		< 50 U		105		2170	
Lead	7439-92-1	ug/L	15 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		0.13 J	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		4.14 J		18.8		33.1	
Magnesium	7439-95-4	ug/L	NE	34600		36200		18600		3920 R	FG	29200		34000		60800		59600	
Manganese	7439-96-5	ug/L	NE	668		645		80.5		5.39		5660		13400		30300		57600 J	FG
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		< 0.2 U		< 0.5 U		< 0.25 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	< 5 U		0.782 J		2.31 J		28.3		< 5 U		< 5 U		< 5 U		< 5 U	
Nickel	7440-02-0	ug/L	100 (a)	0.358 J		< 1 U		< 1 U		< 1 U		2.48		86.9		279		370 J	FG
Potassium	7440-09-7	ug/L	NE	3370		3340		2660		7330 R	FG	3750		4090		5180		4760	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		< 5 U		1.78 J		< 5 U		< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	89100		79400		72500		68800 J	FG	98300		93200		97800		77900	
Thallium	7440-28-0	ug/L	2 (a,b)	0.176 J		< 1 U		< 1 U		0.148 J		0.453 J		0.624 J		0.976 J		1.13	
Vanadium	7440-62-2	ug/L	NE	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Zinc	7440-66-6	ug/L	NE	< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		148		699		965	
Metals, Total																			
Aluminum	7429-90-5	ug/L	NE	N/A		192000		1530		613		6740		N/A		74700		128000	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		< 20 U		< 2 U		< 2 U		1.2 J		N/A		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		77.8		0.67 J		1.95		4.01		N/A		11		12.1	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		411		8.02 J		2.74 J		39.8		N/A		39.7		28.2	
Beryllium	7440-41-7	ug/L	4 (a,b)	N/A		8.05 J		< 1 U		< 1 U		0.524 J		N/A		13.5		31.5	
Boron	7440-42-8	ug/L	NE	N/A		1260		209		195 J	FG	1720		N/A		2720		1840 J	FG
Cadmium	7440-43-9	ug/L	5 (a,b)	N/A		< 10 U		< 1 U		< 1 U		0.316 J		N/A		3.99		5.44 J	FG
Calcium	7440-70-2	ug/L	NE	N/A		759000		664000		693000		298000		N/A		446000		415000	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		175		< 2 UJ	FG	< 2 U		5.9		N/A		8.8		8.46	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		52.2		0.423 J		1.63		16.5		N/A		505		713 J	FG
Copper	7440-50-8	ug/L	NE	N/A		102		0.688 J		1.04 J		4.17		N/A		15.3		34.2	
Iron	7439-89-6	ug/L	NE	N/A		311000		1580		154		14100		N/A		18700		10200	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		93.8		0.596 J		< 1 U		3.7		N/A		5.13		4.8	
Lithium	7439-93-2	ug/L	40 (b)	N/A		71.4		< 5 U		< 5 U		< 5 U		N/A		20.3		32.1	
Magnesium	7439-95-4	ug/L	NE	N/A		47700		19500		1410 R	FG	29700		N/A		59100		64400	
Manganese	7439-96-5	ug/L	NE	N/A		3000		103		2.21 J		7100		N/A		29600		42000 J	FG
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		0.488		< 0.2 U		< 0.25 U		< 0.2 U		N/A		< 0.2 U		0.146 J	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		14.6 J		2.24 J		47.8		0.888 J		N/A		1.34 J		2.13 J	
Nickel	7440-02-0	ug/L	100 (a)	N/A		94.9		0.82 J		< 1 U		11.3		N/A		280		302 J	FG
Potassium	7440-09-7	ug/L	NE	N/A		17500		2770		1870 R	FG	4560		N/A		6670		4640	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		< 50 U		< 5 U		2.84 J		< 5 U		N/A		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	N/A		< 10 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	N/A		83500		70700		49700 J	FG	98800		N/A		94900		86900	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		3.99 J		< 1 U		< 1 U		0.727 J		N/A		1.2		0.97 J	
Vanadium	7440-62-2	ug/L	NE	N/A		463		3.16		< 1 U		17.8		N/A		18.1		9.42	
Zinc	7440-66-6	ug/L	NE	N/A		330		< 5 U		< 5 U		23.8		N/A		706		1030	

Table B-2
Direct Soil Treatment
Method 1316 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/4/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020	
		Sample ID		GAF-GW-1316-CONTROL-T5-		GAF-GW-1316-DOLO 0.5-T1-		GAF-GW-1316-DOLO 0.5-T2-		GAF-GW-1316-DOLO 0.5-T3-		GAF-GW-1316-DOLO 0.5-T4-		GAF-GW-1316-DOLO 0.5-T5-		GAF-GW-1316-DOLO 1.0-T1-		GAF-GW-1316-DOLO 1.0-T2-	
		Lab Sample ID		180-115017-5		180-115017-11		180-115017-12		180-115017-13		180-115017-14		180-115017-15		180-115017-16		180-115017-17	
		Sample Type		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																			
Laboratory pH	--	SU	--	2.80		6.84		7.08		7.30		5.40		5.51		6.87		7.27	
Anions																			
Chloride	16887-00-6	MG/L	NE	N/A		N/A		41.4		N/A		N/A		N/A		N/A		40.3	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A		0.160		N/A		N/A		N/A		N/A		0.274	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A		1030		N/A		N/A		N/A		N/A		1110	
General Chemistry																			
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A		< 5 U		N/A		N/A		N/A		N/A		< 5 U	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A		< 5 U		N/A		N/A		N/A		N/A		< 5 U	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A		309		N/A		N/A		N/A		N/A		25.1	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A		309		N/A		N/A		N/A		N/A		25.1	
Metals, Dissolved																			
Aluminum	7429-90-5	ug/L	NE	207000		< 30 U		< 30 U		18.3 J		22.9 J		398		< 30 U		22.7 J	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	14.8		< 1 U		< 1 U		0.426 J		0.423 J		0.6 J		0.421 J		0.465 J	
Barium	7440-39-3	ug/L	2000 (a,b)	15.5		8.44 J		11		9.77 J		9.64 J		10.8		10		8.57 J	
Beryllium	7440-41-7	ug/L	4 (a,b)	66.6		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	1630		1560		1340		494		316		284		875		723	
Cadmium	7440-43-9	ug/L	5 (a,b)	9.36		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	402000 J	FG	279000		372000		468000		594000		586000		308000		243000	
Chromium	7440-47-3	ug/L	100 (a,b)	11.8		2.46		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	1300		0.646		0.901		0.569		0.617		0.727		0.87		0.555	
Copper	7440-50-8	ug/L	NE	72.1		0.691 J		< 2 U		0.642 J		< 2 U		0.688 J		< 2 U		< 2 U	
Iron	7439-89-6	ug/L	NE	5410		< 50 U		< 50 U		< 50 U		< 50 U		451		< 50 U		< 50 U	
Lead	7439-92-1	ug/L	15 (a,b)	0.217 J		< 1 U		< 1 U		< 1 U		< 1 U		0.184 J		< 1 U		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	52.4		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	93800		106000		169000		210000		237000 J	FG	192000		60800		97100	
Manganese	7439-96-5	ug/L	NE	65900 J	FG	703		918		132		83.7		102		1.82 J		9.15	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		0.251		0.156 J		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	< 5 U		1.12 J		1.04 J		2.54 J		4.66 J		6.13		9.57		8.27	
Nickel	7440-02-0	ug/L	100 (a)	463		1.01		< 1 U		< 1 U		< 1 U		0.449 J		< 1 U		< 1 U	
Potassium	7440-09-7	ug/L	NE	6350		4170		4050		5170		3500		3570		4050		3240	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	84500 J	FG	92800		88700		77900		77300		75600		90500		84300	
Thallium	7440-28-0	ug/L	2 (a,b)	1.49		0.211 J		0.175 J		0.237 J		0.179 J		0.226 J		< 1 U		< 1 U	
Vanadium	7440-62-2	ug/L	NE	< 5 U		< 1 U		< 1 U		< 1 U		< 1 U		1.06		< 1 U		< 1 U	
Zinc	7440-66-6	ug/L	NE	1680		3.56 J		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U	
Metals, Total																			
Aluminum	7429-90-5	ug/L	NE	283000		290		N/A		12600		1040		4370		979		N/A	
Antimony	7440-36-0	ug/L	6 (a,b)	2.44 J		< 2 U		N/A		0.958 J		< 2 U		< 2 U		< 2 U		N/A	
Arsenic	7440-38-2	ug/L	10 (a,b)	78.6		0.329 J		N/A		5.93		0.728 J		2.66		0.94 J		N/A	
Barium	7440-39-3	ug/L	2000 (a,b)	311		9.4 J		N/A		37.2		13.2		18		12.8		N/A	
Beryllium	7440-41-7	ug/L	4 (a,b)	64		< 1 U		N/A		0.577 J		< 1 U		0.243 J		< 1 U		N/A	
Boron	7440-42-8	ug/L	NE	2330		1440		N/A		630		1170		601		836		N/A	
Cadmium	7440-43-9	ug/L	5 (a,b)	8.75		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U		N/A	
Calcium	7440-70-2	ug/L	NE	326000 J	FG	294000		N/A		478000		581000		585000		309000		N/A	
Chromium	7440-47-3	ug/L	100 (a,b)	101		< 2 U		N/A		10.3		< 2 U		3.92		2.3		N/A	
Cobalt	7440-48-4	ug/L	NE (c)	1180		1		N/A		3.82		4.73		3.19		1.25		N/A	
Copper	7440-50-8	ug/L	NE	137		1.47 J		N/A		6.81		1.46 J		3.64		1.6 J		N/A	
Iron	7439-89-6	ug/L	NE	244000		324		N/A		20400		1500		8120		1740		N/A	
Lead	7439-92-1	ug/L	15 (a,b)	73.3		< 1 U		N/A		5.35		0.433 J		1.96		0.391 J		N/A	
Lithium	7439-93-2	ug/L	40 (b)	84		< 5 U		N/A		4.67 J		< 5 U		< 5 U		< 5 U		N/A	
Magnesium	7439-95-4	ug/L	NE	86500		101000		N/A		219000		201000 J	FG	185000		63900		N/A	
Manganese	7439-96-5	ug/L	NE	58300 J	FG	1200		N/A		264		2780		477		28.7		N/A	
Mercury	7439-97-6	ug/L	2 (a,b)	0.549		0.313		N/A		< 0.2 U		< 0.4 U		< 0.2 U		< 0.2 U		N/A	
Molybdenum	7439-98-7	ug/L	100 (b)	16 J		0.807 J		N/A		4.13 J		3.19 J		6		8.45		N/A	
Nickel	7440-02-0	ug/L	100 (a)	488		0.623 J		N/A		7.05		3.42		3.52		0.632 J		N/A	
Potassium	7440-09-7	ug/L	NE	15400		4040		N/A		4860		5000		8400		4180		N/A	
Selenium	7782-49-2	ug/L	50 (a,b)	< 25 U		< 5 U		N/A		< 5 U		< 5 U		< 5 U		< 5 U		N/A	
Silver	7440-22-4	ug/L	100 (a)	< 5 U		< 1 U		N/A		< 1 U		< 1 U		0.239 J		< 1 U		N/A	
Sodium	7440-23-5	ug/L	NE	74900 J	FG	89600		N/A		81400		71100		73500		91300		N/A	
Thallium	7440-28-0	ug/L	2 (a,b)	5.31		0.185 J		N/A		0.521 J		0.305 J		0.432 J		< 1 U		N/A	
Vanadium	7440-62-2	ug/L	NE	236		< 1 U		N/A		25.3		2.75		9.41		4.62		N/A	
Zinc	7440-66-6	ug/L	NE	1750		< 5 U		N/A		26.4		< 5 U		17.7		< 5 U		N/A	

Table B-2
Direct Soil Treatment
Method 1316 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/4/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020		12/4/2020	
		Sample ID		GAF-GW-1316-DOLO 1.0-T3-		GAF-GW-1316-DOLO 1.0-T4-		GAF-GW-1316-DOLO 1.0-T5-		GAF-GW-1316-HI-CAL-T1-END		GAF-GW-1316-HI-CAL-T2-END		GAF-GW-1316-HI-CAL-T3-END		GAF-GW-1316-HI-CAL-T4-END		GAF-GW-1316-HI-CAL-T5-END	
		Lab Sample ID		180-115017-18		180-115017-19		180-115017-20		180-115017-6		180-115017-7		180-115017-8		180-115017-9		180-115017-10	
		Sample Type		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																			
Laboratory pH	--	SU	--	7.44		5.77		5.95		6.83		7.01		7.09		4.92		5.22	
Anions																			
Chloride	16887-00-6	MG/L	NE	N/A		N/A		N/A		N/A		40.1		N/A		N/A		N/A	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A		N/A		N/A		0.271		N/A		N/A		N/A	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A		N/A		N/A		960		N/A		N/A		N/A	
General Chemistry																			
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A		N/A		N/A		< 5 U		N/A		N/A		N/A	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A		N/A		N/A		< 5 U		N/A		N/A		N/A	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A		N/A		N/A		165		N/A		N/A		N/A	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A		N/A		N/A		165		N/A		N/A		N/A	
Metals, Dissolved																			
Aluminum	7429-90-5	ug/L	NE	24.9 J		109		57.6		18.4 J		66.7		14 J		648		208	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	0.395 J		1.48		0.9 J		< 1 U		< 1 U		< 1 U		1.82		1.22	
Barium	7440-39-3	ug/L	2000 (a,b)	10.2		8 J		9.26 J		8.68 J		7.65 J		9.73 J		5.6 J		8.99 J	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	420		188		263		1650		999		786		460 J	FG	351	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	545000		653000		610000		356000		386000		622000		666000		656000	
Chromium	7440-47-3	ug/L	100 (a,b)	1.64 J		1.55 J		1.94 J		< 2 U		< 2 U		< 2 U		2.22		< 2 U	
Cobalt	7440-48-4	ug/L	NE (c)	0.507		4.29		2.47		0.527		0.336 J		0.412 J		2.85		1.51	
Copper	7440-50-8	ug/L	NE	< 2 U		1.04 J		0.779 J		< 2 U		< 2 U		< 2 U		1.26 J		0.905 J	
Iron	7439-89-6	ug/L	NE	< 50 U		< 50 U		< 50 U		< 50 U		< 50 U		< 50 U		26 J		< 50 U	
Lead	7439-92-1	ug/L	15 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	190000		7500		109000 R	FG	31500		12100		35200		652		2070	
Manganese	7439-96-5	ug/L	NE	61.1		< 5 U		41.7		529		20		510		2.03 J		11.1	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		< 0.4 U		< 0.2 U		0.291		< 0.2 U		< 0.2 U		< 0.2 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	5.57		24.5 J	FG	12.8		0.706 J		6.39		0.849 J		56.2		27.3	
Nickel	7440-02-0	ug/L	100 (a)	< 1 U		< 1 U		0.417 J		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Potassium	7440-09-7	ug/L	NE	3420		2990		3230		4160		3140		3520		2480		3010	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	82400		65300		62800 J	FG	94300		84400		79900		61600		52700	
Thallium	7440-28-0	ug/L	2 (a,b)	< 1 U		< 1 U		0.298 J		< 1 U		< 1 U		< 1 U		< 1 U		0.183 J	
Vanadium	7440-62-2	ug/L	NE	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Zinc	7440-66-6	ug/L	NE	< 5 U		< 5 U		4.2 J		< 5 U		< 5 U		< 5 U		< 5 U		< 5 U	
Metals, Total																			
Aluminum	7429-90-5	ug/L	NE	2020		16200		9540		65.7		N/A		4410		692		4280	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		0.825 J		< 2 U		< 2 U		N/A		< 2 U		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	1.15		8.02		5.05		< 1 U		N/A		1.43		2.12		2.98	
Barium	7440-39-3	ug/L	2000 (a,b)	14.2		38.5		27.5		11		N/A		19		5.93 J		17.7	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		0.936 J		0.427 J		< 1 U		N/A		< 1 U		< 1 U		0.286 J	
Boron	7440-42-8	ug/L	NE	440		679		321		1620		N/A		868		413 J	FG	332	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	536000		657000		631000		437000		N/A		643000		688000		640000	
Chromium	7440-47-3	ug/L	100 (a,b)	1.73 J		13.5		8.35		< 2 U		N/A		3.88		< 2 U		4.03	
Cobalt	7440-48-4	ug/L	NE (c)	0.938		8.97		7.14		0.987		N/A		1.06		2.36		2.68	
Copper	7440-50-8	ug/L	NE	1.35 J		9.02		6.24		< 2 U		N/A		1.82 J		1.46 J		3.52	
Iron	7439-89-6	ug/L	NE	2670		29200		14200		67.6		N/A		4320		217		6690	
Lead	7439-92-1	ug/L	15 (a,b)	0.708 J		6.02		4.1		< 1 U		N/A		1.75		< 1 U		1.83	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		4.86 J		3.53 J		< 5 U		N/A		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	184000		25500		11700 R	FG	32800		N/A		35000		779		2110	
Manganese	7439-96-5	ug/L	NE	72.2		373		102		1410		N/A		508		6.78		66.5	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		< 0.2 U		< 0.2 U		0.216		N/A		0.273		< 0.2 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	5.55		15.9 J	FG	21.8		0.629 J		N/A		1.06 J		57.7		30.2	
Nickel	7440-02-0	ug/L	100 (a)	1.16		8.7		5.02		0.561 J		N/A		2.05		< 1 U		2.41	
Potassium	7440-09-7	ug/L	NE	4550		5090		4930		4260		N/A		5700		3470		3470	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		< 5 U		< 5 U		N/A		< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U		0.184 J		< 1 U		N/A		0.223 J		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	80500		67300		49200 J	FG	96300		N/A		77100		62200		48900	
Thallium	7440-28-0	ug/L	2 (a,b)	0.183 J		0.456 J		0.604 J		< 1 U		N/A		0.185 J		< 1 U		0.413 J	
Vanadium	7440-62-2	ug/L	NE	4.05		34		19		< 1 U		N/A		7.45		< 1 U		9.15	
Zinc	7440-66-6	ug/L	NE	3.57 J		36.4		16.2		< 5 U		N/A		5.81		< 5 U		7.89	

Table B-2
Direct Soil Treatment
Method 1316 Whole Sampling Leaching Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

Notes and Acronymns

< - analyte not detected at the reporting quantitation limit shown

MG/L - miligrams per liter

N - primary sample

N/A - not analyzed

NE - not established at the Non-Registered Site

ug/L - micrograms per liter

(a) - Default published GWPS based on TN MCLs from Tennessee solid waste regulations, Appendix III (TN Rule 0400-11-01-.04). Site-specific GWPS may be developed under TN Rules (Alternate Concentration Limits, ACLs) with TDEC Approval.

(b) - Default published GWPS from CCR Rule, Appendix IV (40 CFR 257.95) based on Primary MCLs for public drinking water supplies (https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations) and default values for parameters without primary MCLs. Site-specific GWPSs may be developed under the CCR Rule if background is above the default GWPS/MCL.

(c) TDEC approved an Alternate Source Demonstration for cobalt at the NRS; no alternate GWPS established.

Red text - value exceeds GWPS

Qualifier Definitions

U	The analyte was analyzed for but not detected. The associated numerical value is at or below the reporting limit.
U*	This result should be considered “not detected” because it was detected in a rinsate blank or laboratory blank at a similar level.
UR	Unreliable reporting limit; analyte may or may not be present in sample.
R	Unreliable positive result; analyte may or may not be present in sample.
R*	This result has been rejected following data user review.
J	Quantitation is approximate due to limitations identified during data validation.
UJ	This analyte was not detected, but the reporting or detection limit may or may not be higher due to a bias identified during data validation.

Reason Code Definitions

BE	Equipment blank contamination. The result should be considered “not-detected.”
BF	Field blank contamination. The result should be considered “not-detected.”
BL	Laboratory blank contamination. The result should be considered “not-detected.”
BN	Negative laboratory blank contamination.
C	Initial and/or continuing calibration issue, indeterminate bias.
C+	Initial and/or continuing calibration issue. The result may be biased high.
C-	Initial and/or continuing calibration issue. The result may be biased low.
DQ	Data user qualification.
FD	Field duplicate imprecision.
FG	Total versus Dissolved Imprecision.
H	Holding time exceeded.
I	Internal standard recovery outside of acceptance limits.
L	LCS and LCSD recoveries outside of acceptance limits, indeterminate bias.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits, indeterminate bias.
M+	MS and/or MSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.
MP	MS/MSD imprecision.
P	Post-digestion spike recoveries outside of acceptance limits, indeterminate bias.
P+	Post-digestion spike recovery outside of acceptance limits. The result may be biased high.
P-	Post-digestion spike recovery outside of acceptance limits. The result may be biased low.
Q	Chemical preservation issue.
R	RL standards outside of acceptance limits, indeterminate bias.
R+	RL standard(s) outside of acceptance limits. The result may be biased high.
R-	RL standard(s) outside of acceptance limits. The result may be biased low.
S	Radium-226+228 flagged due to reporting protocol for combined results.
SD	Serial dilution imprecision.
T	Temperature preservation issue.
X	Percent solids < 50%.
Y+	Chemical yield outside of acceptance limits. The result may be biased high.
Y-	Chemical yield outside of acceptance limits. The result may be biased low.
Z	ICP/MS interference.
ZZ	Other.

Table B-3
In-Situ Stabilization
Method 1315 Whole Sampling Leaching Test Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/16/2020		12/16/2020		12/17/2020		12/17/2020		12/18/2020		12/18/2020		12/23/2020		12/23/2020		12/30/2020	
		Sample ID		GAF-GW-1315-Lean-t2hr		GAF-GW-1315-Rich-t2hr		GAF-GW-1315-Lean-t48hr		GAF-GW-1315-Rich-t48hr		GAF-GW-1315-Lean-t 1day		GAF-GW-1315-Rich-t 1day		GAF-GW-1315-Lean-t7		GAF-GW-1315-Rich-t7		GAF-GW-1315-Lean-t14	
		Lab Sample ID		180-115551-29		180-115551-30		180-115551-31		180-115551-32		180-115551-33		180-115551-34		180-115551-35		180-115551-36		180-115551-37	
		Sample Type		N		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																					
Laboratory pH	--	SU	--	8.15		7.76		7.75		7.33		7.42		7.30		7.49		7.43		7.85	
Anions																					
Chloride	16887-00-6	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		43.2	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.299	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		559	
General Chemistry																					
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		264	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		264	
Metals, Dissolved																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		22.6 J	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.524 J	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.847 J	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		29.4	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1580	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		247000	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		50.8	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		2.46	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 2 U	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		30.5 J	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		3.66 J		< 5 U		4.16 J		< 5 U	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		15800	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1180	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		18	
Nickel	7440-02-0	ug/L	100 (a)	4.51		4.22		4.31		4.9		3.54		3.06		2.35		3.05		1.04	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		5100	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		97000	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		2.11	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Metals, Total																					
Aluminum	7429-90-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1400	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.827 J	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1.53	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		36.9	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1510	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		251000	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		52.1	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		3.84	
Copper	7440-50-8	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1.02 J	
Iron	7439-89-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		2780	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.875 J	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U		< 5 U		< 5 U		3.88 J		< 5 U		4.17 J		< 5 U	
Magnesium	7439-95-4	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		15900	
Manganese	7439-96-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		1350	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		17.7	
Nickel	7440-02-0	ug/L	100 (a)	4.58		4.43		5.15		5.32		3.86		3.25		2.92		3.48		2.7	
Potassium	7440-09-7	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		5330	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		< 1 U	
Sodium	7440-23-5	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		96500	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		0.201 J	
Vanadium	7440-62-2	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		4.48	
Zinc	7440-66-6	ug/L	NE	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		7.12	

Table B-3
In-Situ Stabilization
Method 1315 Whole Sampling Leaching Test Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/30/2020	
		Sample ID		GAF-GW-1315-Rich-t14	
		Lab Sample ID		180-115551-38	
		Sample Type		N	
Analyte	CASNO	Units	MCL	Result	Reason Code
Treatability Laboratory pH					
Laboratory pH	--	SU	--	7.67	
Anions					
Chloride	16887-00-6	MG/L	NE	40.2	
Fluoride	16984-48-8	MG/L	4 (a,b)	0.211	
Sulfate	14808-79-8	MG/L	NE	494	
General Chemistry					
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	< 5 U	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	< 5 U	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	336	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	336	
Metals, Dissolved					
Aluminum	7429-90-5	ug/L	NE	17.5 J	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	0.844 J	
Barium	7440-39-3	ug/L	2000 (a,b)	39.3	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U	
Boron	7440-42-8	ug/L	NE	1900	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U	
Calcium	7440-70-2	ug/L	NE	233000	
Chromium	7440-47-3	ug/L	100 (a,b)	6.49	
Cobalt	7440-48-4	ug/L	NE (c)	2.84	
Copper	7440-50-8	ug/L	NE	< 2 U	
Iron	7439-89-6	ug/L	NE	< 50 U	
Lead	7439-92-1	ug/L	15 (a,b)	< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U	
Magnesium	7439-95-4	ug/L	NE	28300	
Manganese	7439-96-5	ug/L	NE	956	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	1.98 J	
Nickel	7440-02-0	ug/L	100 (a)	2.22	
Potassium	7440-09-7	ug/L	NE	7410	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U	
Sodium	7440-23-5	ug/L	NE	103000	
Thallium	7440-28-0	ug/L	2 (a,b)	< 1 U	
Vanadium	7440-62-2	ug/L	NE	3	
Zinc	7440-66-6	ug/L	NE	< 5 U	
Metals, Total					
Aluminum	7429-90-5	ug/L	NE	167	
Antimony	7440-36-0	ug/L	6 (a,b)	0.541 J	
Arsenic	7440-38-2	ug/L	10 (a,b)	0.964 J	
Barium	7440-39-3	ug/L	2000 (a,b)	43.3	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U	
Boron	7440-42-8	ug/L	NE	1930	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U	
Calcium	7440-70-2	ug/L	NE	248000	
Chromium	7440-47-3	ug/L	100 (a,b)	6.56	
Cobalt	7440-48-4	ug/L	NE (c)	3.72	
Copper	7440-50-8	ug/L	NE	< 2 U	
Iron	7439-89-6	ug/L	NE	827	
Lead	7439-92-1	ug/L	15 (a,b)	0.142 J	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U	
Magnesium	7439-95-4	ug/L	NE	28900	
Manganese	7439-96-5	ug/L	NE	1230	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	2.06 J	
Nickel	7440-02-0	ug/L	100 (a)	2.43	
Potassium	7440-09-7	ug/L	NE	7520	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U	
Sodium	7440-23-5	ug/L	NE	105000	
Thallium	7440-28-0	ug/L	2 (a,b)	0.167 J	
Vanadium	7440-62-2	ug/L	NE	4.18	
Zinc	7440-66-6	ug/L	NE	< 5 U	

Table B-3
In-Situ Stabilization
Method 1315 Whole Sampling Leaching Test Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

Notes and Acronymns

< - analyte not detected at the reporting quantitation limit shown

MG/L - miligrams per liter

N - primary sample

N/A - not analyzed

NE - not established at the Non-Registered Site

ug/L - micrograms per liter

(a) - Default published GWPS based on TN MCLs from Tennessee solid waste regulations, Appendix III (TN Rule 0400-11-01-.04). Site-specific GWPS may be developed under TN Rules (Alternate Concentration Limits, ACLs) with TDEC Approval.

(b) - Default published GWPS from CCR Rule, Appendix IV (40 CFR 257.95) based on Primary MCLs for public drinking water supplies (https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations) and default values for parameters without primary MCLs. Site-specific GWPSs may be developed under the CCR Rule if background is above the default GWPS/MCL.

(c) TDEC approved an Alternate Source Demonstration for cobalt at the NRS; no alternate GWPS established.

Qualifier Definitions

U	The analyte was analyzed for but not detected. The associated numerical value is at or below the reporting limit.
U*	This result should be considered “not detected” because it was detected in a rinsate blank or laboratory blank at a similar level.
UR	Unreliable reporting limit; analyte may or may not be present in sample.
R	Unreliable positive result; analyte may or may not be present in sample.
R*	This result has been rejected following data user review.
J	Quantitation is approximate due to limitations identified during data validation.
UJ	This analyte was not detected, but the reporting or detection limit may or may not be higher due to a bias identified during data validation.

Reason Code Definitions

BE	Equipment blank contamination. The result should be considered “not-detected.”
BF	Field blank contamination. The result should be considered “not-detected.”
BL	Laboratory blank contamination. The result should be considered “not-detected.”
BN	Negative laboratory blank contamination.
C	Initial and/or continuing calibration issue, indeterminate bias.
C+	Initial and/or continuing calibration issue. The result may be biased high.
C-	Initial and/or continuing calibration issue. The result may be biased low.
DQ	Data user qualification.
FD	Field duplicate imprecision.
FG	Total versus Dissolved Imprecision.
H	Holding time exceeded.
I	Internal standard recovery outside of acceptance limits.
L	LCS and LCSD recoveries outside of acceptance limits, indeterminate bias.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits, indeterminate bias.
M+	MS and/or MSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.
MP	MS/MSD imprecision.
P	Post-digestion spike recoveries outside of acceptance limits, indeterminate bias.
P+	Post-digestion spike recovery outside of acceptance limits. The result may be biased high.
P-	Post-digestion spike recovery outside of acceptance limits. The result may be biased low.
Q	Chemical preservation issue.
R	RL standards outside of acceptance limits, indeterminate bias.
R+	RL standard(s) outside of acceptance limits. The result may be biased high.
R-	RL standard(s) outside of acceptance limits. The result may be biased low.
S	Radium-226+228 flagged due to reporting protocol for combined results.
SD	Serial dilution imprecision.
T	Temperature preservation issue.
X	Percent solids < 50%.
Y+	Chemical yield outside of acceptance limits. The result may be biased high.
Y-	Chemical yield outside of acceptance limits. The result may be biased low.
Z	ICP/MS interference.
ZZ	Other.

Table B-4
In-Situ Stabilization
Method 1316 Whole Sampling Leaching Test Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/29/2020		12/29/2020		12/29/2020		12/29/2020		12/29/2020		12/29/2020		12/29/2020		12/29/2020		12/29/2020	
		Sample ID		GAF-GW-1316-Lean-T1-Mid		GAF-GW-1316-Lean-T2-Mid		GAF-GW-1316-Lean-T3-Mid		GAF-GW-1316-Lean-T4-Mid		GAF-GW-1316-Lean-T5-Mid		GAF-GW-1316-Rich-T1-Mid		GAF-GW-1316-Rich-T2-Mid		GAF-GW-1316-Rich-T3-Mid		GAF-GW-1316-Rich-T4-Mid	
		Lab Sample ID		180-115551-1		180-115551-2		180-115551-3		180-115551-4		180-115551-5		180-115551-6		180-115551-7		180-115551-8		180-115551-9	
		Sample Type		N		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																					
Laboratory pH	--	SU	--	9.50		10.07		10.52		10.62		10.75		10.92		11.40		11.56		11.68	
Anions																					
Chloride	16887-00-6	MG/L	NE	N/A		41.2		N/A		N/A		N/A		N/A		40.0		N/A		N/A	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		0.347		N/A		N/A		N/A		N/A		0.434		N/A		N/A	
Sulfate	14808-79-8	MG/L	NE	N/A		387		N/A		N/A		N/A		N/A		170		N/A		N/A	
General Chemistry																					
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		32.5		N/A		N/A		N/A		N/A		51.0		N/A		N/A	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		32.5		N/A		N/A		N/A		N/A		230		N/A		N/A	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		64.9		N/A		N/A		N/A		N/A		281		N/A		N/A	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		< 5 U		N/A		N/A		N/A		N/A		< 5 U		N/A		N/A	
Metals, Dissolved																					
Aluminum	7429-90-5	ug/L	NE	365		567		706		775		N/A		1240		1380		2500		3670	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		< 2 U		< 2 U		< 2 U		N/A		< 2 U		< 2 U		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	2.54		3.6		5.14		6.51		N/A		2.03		1.65		1.99		2.37	
Barium	7440-39-3	ug/L	2000 (a,b)	25		27.1		22.9		24.3		N/A		36.4		39.7		37.8		50.7	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	895		578		175		59.6 J		N/A		618		< 80 U		< 80 U		< 80 U	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	253000		254000		235000		272000		N/A		243000		157000		151000		178000	
Chromium	7440-47-3	ug/L	100 (a,b)	78.7		118		189		330		N/A		114		184		178		89.4	
Cobalt	7440-48-4	ug/L	NE (c)	2.14		3.6		7.19		12.5		N/A		1.67		3.67		6.65		10	
Copper	7440-50-8	ug/L	NE	1.6 J		2.2		2.97		4.21		N/A		1.61 J		1.99 J		2.91		3.17	
Iron	7439-89-6	ug/L	NE	< 50 U		< 50 U		< 50 U		< 50 U		N/A		< 50 U		< 50 U		< 50 U		< 50 U	
Lead	7439-92-1	ug/L	15 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U		< 5 U		< 5 U		N/A		< 5 U		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	185 J		< 500 U		< 500 U		< 500 U		N/A		< 500 U		< 500 U		< 500 U		< 500 U	
Manganese	7439-96-5	ug/L	NE	< 5 U		< 5 U		< 5 U		< 5 U		N/A		< 5 U		< 5 U		< 5 U		< 5 U	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		< 0.2 U		< 0.2 U		< 0.5 U		N/A		< 0.2 U		< 0.2 U		< 0.2 U		< 0.5 U	
Molybdenum	7439-98-7	ug/L	100 (b)	27.9		47.5		94.8		163		N/A		25.5		47.5		62.8		44	
Nickel	7440-02-0	ug/L	100 (a)	0.613 J		1.74		1.31		2.03		N/A		0.451 J		0.668 J		3.05 J	FG	1.11	
Potassium	7440-09-7	ug/L	NE	11800		5710		4290		4080		N/A		6970		8310		9560		10200	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		< 5 U		1.51 J		N/A		< 5 U		< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	81700		80900		71000		58300		N/A		82600		83800		78000		66500	
Thallium	7440-28-0	ug/L	2 (a,b)	< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U	
Vanadium	7440-62-2	ug/L	NE	42.7		47.4		40.9		33.8		N/A		30.4		10.7		6.81		3.25	
Zinc	7440-66-6	ug/L	NE	< 5 U		< 5 U		< 5 U		13.7 J	FG	N/A		< 5 U		< 5 U		3.77 J		< 5 U	
Metals, Total																					
Aluminum	7429-90-5	ug/L	NE	642		N/A		6930		3150		3690		1770		N/A		2530		3890	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		N/A		0.908 J		< 2 U		< 2 U		< 2 U		N/A		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	2.78		N/A		6.51		7.06		8.54		2.23		N/A		2.18		2.42	
Barium	7440-39-3	ug/L	2000 (a,b)	25.7		N/A		40		33		31.8		39.9		N/A		37.5		52	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	891		N/A		231		102		< 80 U		632		N/A		< 80 U		< 80 U	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	250000		N/A		240000		293000		233000		260000		N/A		152000		191000	
Chromium	7440-47-3	ug/L	100 (a,b)	77.1		N/A		188		314		504		120		N/A		178		95.8	
Cobalt	7440-48-4	ug/L	NE (c)	2.21		N/A		8.12		12.7		20.3		1.83		N/A		6.17		10.6	
Copper	7440-50-8	ug/L	NE	1.61 J		N/A		6.17		5.43		7.74		2.04		N/A		3.04		4.08	
Iron	7439-89-6	ug/L	NE	313		N/A		7310		4640		5160		639		N/A		564		421	
Lead	7439-92-1	ug/L	15 (a,b)	0.163 J		N/A		2.91		1.3		1.35		0.229 J		N/A		0.243 J		0.131 J	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		N/A		< 5 U		< 5 U		< 5 U		< 5 U		N/A		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	221 J		N/A		402 J		184 J		258 J		< 500 U		N/A		< 500 U		< 500 U	
Manganese	7439-96-5	ug/L	NE	4.19 J		N/A		43.4		26.6		38.1		7.02		N/A		4.51 J		3.39 J	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		N/A		< 0.2 U		< 0.2 U		< 0.5 U		< 0.2 U		N/A		< 0.2 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	27.1		N/A		92.4		156		236		26.5		N/A		60.1		46.4	
Nickel	7440-02-0	ug/L	100 (a)	0.814 J		N/A		4.59		3.47		5.02		1.61		N/A		1.09 J	FG	1.3	
Potassium	7440-09-7	ug/L	NE	11900		N/A		8940		4750		7050		7480		N/A		9010		10700	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		N/A		< 5 U		< 5 U		1.9 J		< 5 U		N/A		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	0.83 J		N/A		0.485 J		0.19 J		1.09		< 1 U		N/A		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	80600		N/A		70500		59300		41100		87500		N/A		75500		70700	
Thallium	7440-28-0	ug/L	2 (a,b)	< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U	
Vanadium	7440-62-2	ug/L	NE	43.6		N/A		49.7		38		37.3		33.7		N/A		7.09		3.88	
Zinc	7440-66-6	ug/L	NE	< 5 U		N/A		15.8		5.35 J	FG	5.86		< 5 U		N/A		< 5 U		< 5 U	

Table B-4
In-Situ Stabilization
Method 1316 Whole Sampling Leaching Test Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/29/2020		12/30/2020		12/30/2020		12/30/2020		12/30/2020		12/30/2020		12/30/2020		12/30/2020		12/30/2020	
		Sample ID		GAF-GW-1316-Rich-T5-Mid		GAF-GW-1316-Lean-T1-End		GAF-GW-1316-Lean-T2-End		GAF-GW-1316-Lean-T3-End		GAF-GW-1316-Lean-T4-End		GAF-GW-1316-Lean-T5-End		GAF-GW-1316-Rich-T1-End		GAF-GW-1316-Rich-T2-End		GAF-GW-1316-Rich-T3-End	
		Lab Sample ID		180-115551-10		180-115551-11		180-115551-12		180-115551-13		180-115551-14		180-115551-15		180-115551-16		180-115551-17		180-115551-18	
		Sample Type		N		N		N		N		N		N		N		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH																					
Laboratory pH	--	SU	--	11.69		9.49		9.79		10.55		10.74		10.79		11.26		11.47		11.65	
Anions																					
Chloride	16887-00-6	MG/L	NE	N/A		N/A		43.0		N/A		N/A		N/A		N/A		39.5		N/A	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A		0.377		N/A		N/A		N/A		N/A		0.395		N/A	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A		407		N/A		N/A		N/A		N/A		239		N/A	
General Chemistry																					
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A		33.9		N/A		N/A		N/A		N/A		46.8		N/A	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A		< 5 U		N/A		N/A		N/A		N/A		190		N/A	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A		34.0		N/A		N/A		N/A		N/A		237		N/A	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A		< 5 U		N/A		N/A		N/A		N/A		< 5 U		N/A	
Metals, Dissolved																					
Aluminum	7429-90-5	ug/L	NE	N/A		297		276		578		626		N/A		1260		739		2590	
Antimony	7440-36-0	ug/L	6 (a,b)	N/A		< 2 U		< 2 U		< 2 U		< 2 U		N/A		< 2 U		< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	N/A		2.72		3.06		4.67		6.34		N/A		1.7		1.55		2.06	
Barium	7440-39-3	ug/L	2000 (a,b)	N/A		23.9		17.9		25.2		24.5		N/A		37		35.8		39.8	
Beryllium	7440-41-7	ug/L	4 (a,b)	N/A		< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U		< 1 U	
Boron	7440-42-8	ug/L	NE	N/A		929		735		186		39.3 J		N/A		275		< 80 U		< 80 U	
Cadmium	7440-43-9	ug/L	5 (a,b)	N/A		< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	N/A		309000		255000		268000		286000		N/A		214000		157000		160000	
Chromium	7440-47-3	ug/L	100 (a,b)	N/A		67.5		66.1		191		297		N/A		121		204		135	
Cobalt	7440-48-4	ug/L	NE (c)	N/A		2.14		3.15		6.98		11.6		N/A		2.15		3.55		6.69	
Copper	7440-50-8	ug/L	NE	N/A		1.53 J		2.19		3.48		4.33		N/A		2.81		2.62		4.24	
Iron	7439-89-6	ug/L	NE	N/A		< 50 U		< 50 U		< 50 U		< 50 U		N/A		< 50 U		< 50 U		< 50 U	
Lead	7439-92-1	ug/L	15 (a,b)	N/A		< 1 U		< 1 U		0.14 J		< 1 U		N/A		< 1 U		< 1 U		< 1 U	
Lithium	7439-93-2	ug/L	40 (b)	N/A		< 5 U		< 5 U		< 5 U		< 5 U		N/A		< 5 U		< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	N/A		230 J		169 J		< 500 U		< 500 U		N/A		< 500 U		< 500 U		< 500 U	
Manganese	7439-96-5	ug/L	NE	N/A		< 5 U		< 5 U		< 5 U		< 5 U		N/A		< 5 U		< 5 U		< 5 U	
Mercury	7439-97-6	ug/L	2 (a,b)	N/A		< 0.2 U		< 0.2 U		< 0.2 U		< 0.5 U		N/A		< 0.2 U		< 0.2 U		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	N/A		26.7		39.3		89.3		167		N/A		25.7		48.8		50.8	
Nickel	7440-02-0	ug/L	100 (a)	N/A		0.58 J		0.639 J		1.34		1.99		N/A		0.423 J		0.557 J		1.04	
Potassium	7440-09-7	ug/L	NE	N/A		4530		3590		3770		3770		N/A		7320		7760		9180	
Selenium	7782-49-2	ug/L	50 (a,b)	N/A		< 5 U		< 5 U		< 5 U		< 5 U		N/A		< 5 U		< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	N/A		< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U		< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	N/A		84200		81200		74900		62100		N/A		87200		86500		79300	
Thallium	7440-28-0	ug/L	2 (a,b)	N/A		< 1 U		< 1 U		0.357 J		< 1 U		N/A		< 1 U		< 1 U		< 1 U	
Vanadium	7440-62-2	ug/L	NE	N/A		38.1		28.2		41.9		34.3		N/A		26.1		12.9		5.14	
Zinc	7440-66-6	ug/L	NE	N/A		< 5 U		< 5 U		< 5 U		4.46 J		N/A		3.35 J		3.68 J		14.5 J	FG
Metals, Total																					
Aluminum	7429-90-5	ug/L	NE	17700		529		N/A		1180		842		3620		1350		N/A		2800	
Antimony	7440-36-0	ug/L	6 (a,b)	1.44 J		< 2 U		N/A		< 2 U		< 2 U		< 2 U		< 2 U		N/A		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	9.71		2.77		N/A		4.84		6.51		8.24		1.87		N/A		1.97	
Barium	7440-39-3	ug/L	2000 (a,b)	128		25.3		N/A		27.2		28.3		25.9		37.8		N/A		41.2	
Beryllium	7440-41-7	ug/L	4 (a,b)	0.607 J		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U	
Boron	7440-42-8	ug/L	NE	< 80 U		945		N/A		193		61.1 J		< 80 U		281		N/A		< 80 U	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U	
Calcium	7440-70-2	ug/L	NE	227000		317000		N/A		276000		308000		225000		216000		N/A		171000	
Chromium	7440-47-3	ug/L	100 (a,b)	84.7		68.3		N/A		193		302		430		120		N/A		140	
Cobalt	7440-48-4	ug/L	NE (c)	18.7		2.24		N/A		7.08		12.3		20		2.17		N/A		6.92	
Copper	7440-50-8	ug/L	NE	13.8		1.79 J		N/A		3.45		4.95		7.81		1.82 J		N/A		3.26	
Iron	7439-89-6	ug/L	NE	24400		194		N/A		548		265		4240		77.6		N/A		458	
Lead	7439-92-1	ug/L	15 (a,b)	8.11		< 1 U		N/A		0.215 J		0.192 J		1.28		< 1 U		N/A		0.239 J	
Lithium	7439-93-2	ug/L	40 (b)	4.15 J		< 5 U		N/A		< 5 U		< 5 U		< 5 U		< 5 U		N/A		< 5 U	
Magnesium	7439-95-4	ug/L	NE	1500		263 J		N/A		< 500 U		< 500 U		253 J		< 500 U		N/A		< 500 U	
Manganese	7439-96-5	ug/L	NE	173		2.71 J		N/A		3.64 J		1.88 J		33		1.28 J		N/A		3.13 J	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.5 U		< 0.2 U		N/A		< 0.2 U		< 0.2 U		< 0.5 U		< 0.2 U		N/A		< 0.2 U	
Molybdenum	7439-98-7	ug/L	100 (b)	33.4		27.4		N/A		91.1		172		250		25.7		N/A		51.9	
Nickel	7440-02-0	ug/L	100 (a)	12.8		0.626 J		N/A		1.61		2.44		4.97		0.525 J		N/A		1.07	
Potassium	7440-09-7	ug/L	NE	14400		4630		N/A		4020		3860		3490		7280		N/A		9340	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U		N/A		< 5 U		< 5 U		2.08 J		< 5 U		N/A		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	0.203 J		< 1 U		N/A		< 1 U		< 1 U		< 1 U		< 1 U		N/A		< 1 U	
Sodium	7440-23-5	ug/L	NE	58800		87400		N/A		75500		63700		39800		86400		N/A		83800	
Thallium	7440-28-0	ug/L	2 (a,b)	0.428 J		< 1 U		N/A		< 1 U		0.171 J		0.206 J		< 1 U		N/A		< 1 U	
Vanadium	7440-62-2	ug/L	NE	31		39.6		N/A		43.2		35		35.5		26.1		N/A		5.86	
Zinc	7440-66-6	ug/L	NE	36.9		< 5 U		N/A		< 5 U		< 5 U		5.89		< 5 U		N/A		< 5 UJ	FG

Table B-4
In-Situ Stabilization
Method 1316 Whole Sampling Leaching Test Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

		Sample Date		12/30/2020		12/30/2020	
		Sample ID		GAF-GW-1316-Rich-T4-End		GAF-GW-1316-Rich-T5-End	
		Lab Sample ID		180-115551-19		180-115551-20	
		Sample Type		N		N	
Analyte	CASNO	Units	MCL	Result	Reason Code	Result	Reason Code
Treatability Laboratory pH							
Laboratory pH	--	SU	--	11.68		11.43	
Anions							
Chloride	16887-00-6	MG/L	NE	N/A		N/A	
Fluoride	16984-48-8	MG/L	4 (a,b)	N/A		N/A	
Sulfate	14808-79-8	MG/L	NE	N/A		N/A	
General Chemistry							
Alkalinity, Carbonate (CaCO3)	ALKC	MG/L	NE	N/A		N/A	
Alkalinity, Hydroxide as CaCO3	ALK_HYD	MG/L	NE	N/A		N/A	
Alkalinity, Total as CaCO3	ALK	MG/L	NE	N/A		N/A	
Alkalinity, Bicarbonate (CaCO3)	ALKB	MG/L	NE	N/A		N/A	
Metals, Dissolved							
Aluminum	7429-90-5	ug/L	NE	2950		N/A	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		N/A	
Arsenic	7440-38-2	ug/L	10 (a,b)	1.75		N/A	
Barium	7440-39-3	ug/L	2000 (a,b)	52.4		N/A	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		N/A	
Boron	7440-42-8	ug/L	NE	< 80 U		N/A	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		N/A	
Calcium	7440-70-2	ug/L	NE	155000		N/A	
Chromium	7440-47-3	ug/L	100 (a,b)	60.3		N/A	
Cobalt	7440-48-4	ug/L	NE (c)	8.2		N/A	
Copper	7440-50-8	ug/L	NE	3.02		N/A	
Iron	7439-89-6	ug/L	NE	< 50 U		N/A	
Lead	7439-92-1	ug/L	15 (a,b)	< 1 U		N/A	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		N/A	
Magnesium	7439-95-4	ug/L	NE	< 500 U		N/A	
Manganese	7439-96-5	ug/L	NE	< 5 U		N/A	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.5 U		N/A	
Molybdenum	7439-98-7	ug/L	100 (b)	28		N/A	
Nickel	7440-02-0	ug/L	100 (a)	0.914 J		N/A	
Potassium	7440-09-7	ug/L	NE	9190		N/A	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		N/A	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		N/A	
Sodium	7440-23-5	ug/L	NE	57600		N/A	
Thallium	7440-28-0	ug/L	2 (a,b)	< 1 U		N/A	
Vanadium	7440-62-2	ug/L	NE	2.06		N/A	
Zinc	7440-66-6	ug/L	NE	4.41 J		N/A	
Metals, Total							
Aluminum	7429-90-5	ug/L	NE	4640		7860	
Antimony	7440-36-0	ug/L	6 (a,b)	< 2 U		< 2 U	
Arsenic	7440-38-2	ug/L	10 (a,b)	2.63		4.82	
Barium	7440-39-3	ug/L	2000 (a,b)	69.9		54.4	
Beryllium	7440-41-7	ug/L	4 (a,b)	< 1 U		0.187 J	
Boron	7440-42-8	ug/L	NE	< 80 U		< 80 U	
Cadmium	7440-43-9	ug/L	5 (a,b)	< 1 U		< 1 U	
Calcium	7440-70-2	ug/L	NE	203000		169000	
Chromium	7440-47-3	ug/L	100 (a,b)	70.7		115	
Cobalt	7440-48-4	ug/L	NE (c)	10.5		16.7	
Copper	7440-50-8	ug/L	NE	4.47		6.61	
Iron	7439-89-6	ug/L	NE	2470		5860	
Lead	7439-92-1	ug/L	15 (a,b)	0.886 J		2	
Lithium	7439-93-2	ug/L	40 (b)	< 5 U		< 5 U	
Magnesium	7439-95-4	ug/L	NE	120 J		367 J	
Manganese	7439-96-5	ug/L	NE	16.6		42.1	
Mercury	7439-97-6	ug/L	2 (a,b)	< 0.2 U		< 0.5 U	
Molybdenum	7439-98-7	ug/L	100 (b)	33.5		50.6	
Nickel	7440-02-0	ug/L	100 (a)	2.15		4.1	
Potassium	7440-09-7	ug/L	NE	11200		10100	
Selenium	7782-49-2	ug/L	50 (a,b)	< 5 U		< 5 U	
Silver	7440-22-4	ug/L	100 (a)	< 1 U		< 1 U	
Sodium	7440-23-5	ug/L	NE	70800		55000	
Thallium	7440-28-0	ug/L	2 (a,b)	< 1 U		0.155 J	
Vanadium	7440-62-2	ug/L	NE	5		12.3	
Zinc	7440-66-6	ug/L	NE	3.54 J		8.92	

Table B-4
In-Situ Stabilization
Method 1316 Whole Sampling Leaching Test Results
TVA Gallatin Fossil Plant, Gallatin, Tennessee

Notes and Acronymns

< - analyte not detected at the reporting quantitation limit shown

MG/L - miligrams per liter

N - primary sample

N/A - not analyzed

NE - not established at the Non-Registered Site

ug/L - micrograms per liter

(a) - Default published GWPS based on TN MCLs from Tennessee solid waste regulations, Appendix III (TN Rule 0400-11-01-.04). Site-specific GWPS may be developed under TN Rules (Alternate Concentration Limits, ACLs) with TDEC Approval.

(b) - Default published GWPS from CCR Rule, Appendix IV (40 CFR 257.95) based on Primary MCLs for public drinking water supplies (https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations) and default values for parameters without primary MCLs. Site-specific GWPSs may be developed under the CCR Rule if background is above the default GWPS/MCL.

(c) TDEC approved an Alternate Source Demonstration for cobalt at the NRS; no alternate GWPS established.

Qualifier Definitions

U	The analyte was analyzed for but not detected. The associated numerical value is at or below the reporting limit.
U*	This result should be considered “not detected” because it was detected in a rinsate blank or laboratory blank at a similar level.
UR	Unreliable reporting limit; analyte may or may not be present in sample.
R	Unreliable positive result; analyte may or may not be present in sample.
R*	This result has been rejected following data user review.
J	Quantitation is approximate due to limitations identified during data validation.
UJ	This analyte was not detected, but the reporting or detection limit may or may not be higher due to a bias identified during data validation.

Reason Code Definitions

BE	Equipment blank contamination. The result should be considered “not-detected.”
BF	Field blank contamination. The result should be considered “not-detected.”
BL	Laboratory blank contamination. The result should be considered “not-detected.”
BN	Negative laboratory blank contamination.
C	Initial and/or continuing calibration issue, indeterminate bias.
C+	Initial and/or continuing calibration issue. The result may be biased high.
C-	Initial and/or continuing calibration issue. The result may be biased low.
DQ	Data user qualification.
FD	Field duplicate imprecision.
FG	Total versus Dissolved Imprecision.
H	Holding time exceeded.
I	Internal standard recovery outside of acceptance limits.
L	LCS and LCSD recoveries outside of acceptance limits, indeterminate bias.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
LD	Laboratory duplicate imprecision.
LP	LCS/LCSD imprecision.
M	MS and MSD recoveries outside of acceptance limits, indeterminate bias.
M+	MS and/or MSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.
MP	MS/MSD imprecision.
P	Post-digestion spike recoveries outside of acceptance limits, indeterminate bias.
P+	Post-digestion spike recovery outside of acceptance limits. The result may be biased high.
P-	Post-digestion spike recovery outside of acceptance limits. The result may be biased low.
Q	Chemical preservation issue.
R	RL standards outside of acceptance limits, indeterminate bias.
R+	RL standard(s) outside of acceptance limits. The result may be biased high.
R-	RL standard(s) outside of acceptance limits. The result may be biased low.
S	Radium-226+228 flagged due to reporting protocol for combined results.
SD	Serial dilution imprecision.
T	Temperature preservation issue.
X	Percent solids < 50%.
Y+	Chemical yield outside of acceptance limits. The result may be biased high.
Y-	Chemical yield outside of acceptance limits. The result may be biased low.
Z	ICP/MS interference.
ZZ	Other.

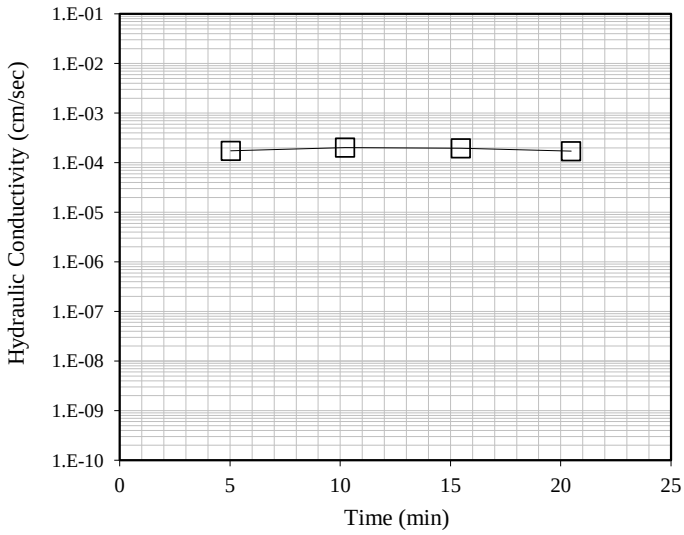
Appendix C Analytical Laboratory Reports

Hydraulic Conductivity

Client: AECOM
Project: 60621225 - NRS Treatability
Sample ID: Lean Mix - Type 5

TRI Log #: 61118.1
Test Method: ASTM D5084

Sample Condition	Initial	Final
	Client-Remolded	Post-Test
Diameter (in)	1.99	1.98
Height (in)	3.08	3.04
Mass (g)	290.5	305.8
Sample Area (in^2)	3.10	3.09
Water Content (%)	14.0	18.8
Total Unit Weight (pcf)	115.9	123.9
Dry Unit Weight (pcf)	101.7	104.3
Specific Gravity (Assumed)	2.75	
Degree of Saturation	56.0	80.0
Void Ratio	0.69	0.64
Porosity	0.41	0.39
1 Pore Volume (cc)	63.7	60.4



Eff. Confining Stress (psi)	5.0
Back-Pressure	80.0
B-Value Prior to Permeation	0.96
Permeant	De-Aired Tap Water

Specimen Image

Method C—Falling Head, rising tailwater elevation			
Time, t	Initial Gradient	Final Gradient	K_{20}
Min	-	-	cm/s
5.0	2.9	2.6	1.7E-04
10.2	2.6	2.2	2.0E-04
15.5	2.2	1.9	1.9E-04
20.5	1.9	1.6	1.7E-04
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Average, Last 4 Readings			**1.9E-04**

Jeffrey A. Kuhn, Ph.D, P.E. 12/29/2020
Analysis & Quality Review/Date

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

Unconfined Compression Test Report

Client: AECOM

Project: 60621225 - NRS Treatability

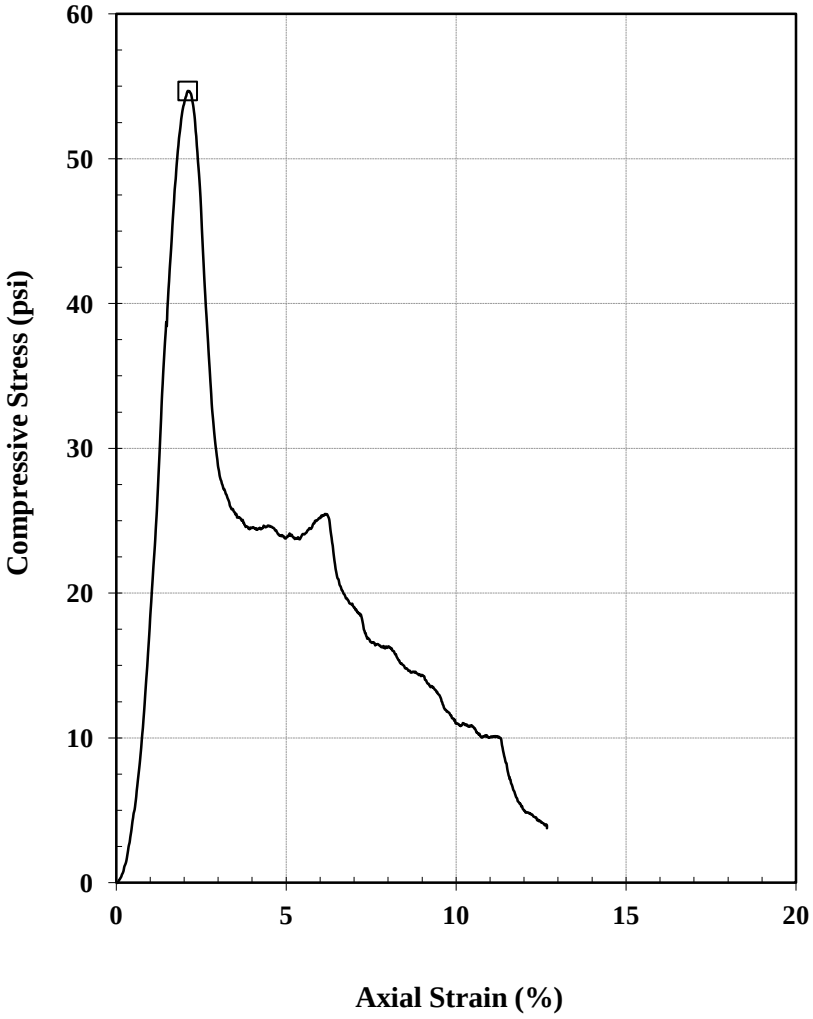
Sample ID: Lean Mix - Type 5

TRI Log No.: 61118.2

Type of Specimen: Client-Remolded

Test Method: ASTM D2166

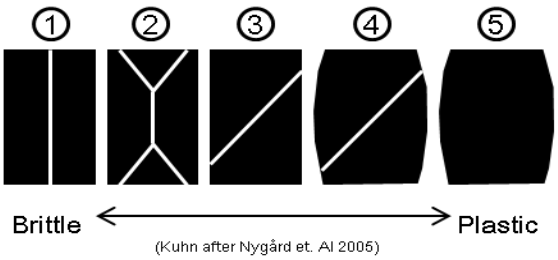
Strain Rate (%/min): 1.0 % / min



Specimen Condition at Time of Test		
Specimen No.		1
Avg. Diameter (in)	D_o	1.99
Avg. Height (in)	H_o	3.77
Avg, Water Content (%)	w_o	17.9
Bulk Density (pcf)	γ_{total}	103.9
Dry Density (pcf)	γ_{dry}	88.2
Saturation (%)	S_r	51.7
Void Ratio	e_o	0.95
Assumed Specific Gravity	G_s	2.75

Stresses at Failure	
Unconfined Compressive Strength (psi)	54.7
Axial Strain at Failure (%)	2.1
Total Stresses at Failure	
Major Principal Stress, σ_1 (psi)	54.7
Minor Principal Stress, σ_3 (psi)	0.0
Undrained Shear Strength, S_u (psi)	27.3

Failure Mode	2



(Kuhn after Nygård et. Al 2005)

Jeffrey A. Kuhn, Ph.D., P.E., 12/29/20

Quality Review/Date

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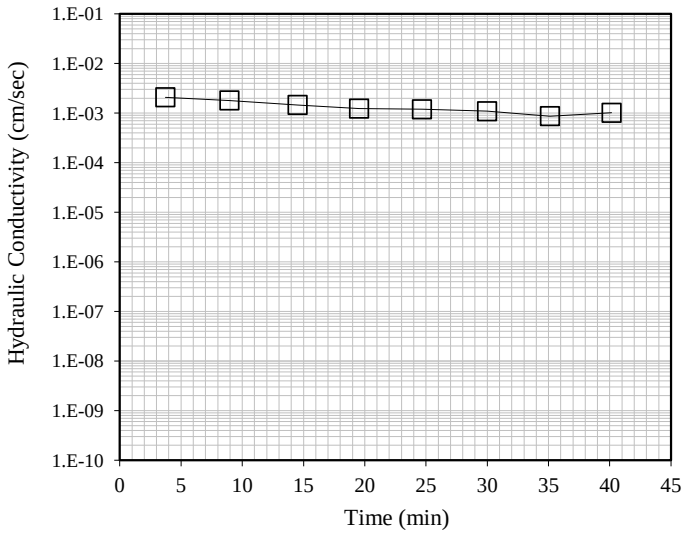
Hydraulic Conductivity

Client: AECOM
Project: 60621225 - NRS Treatability
Sample ID: Rich Mix - Type 5

TRI Log #: 61118.3
Test Method: ASTM D5084

Sample Condition	Initial	Final
	Client-Remolded	Post-Test
Diameter (in)	1.99	1.97
Height (in)	3.14	3.12
Mass (g)	257.5	280.9
Sample Area (in^2)	3.10	3.03
Water Content (%)	16.3	23.6
Total Unit Weight (pcf)	100.9	113.1
Dry Unit Weight (pcf)	86.7	91.5
Specific Gravity (Assumed)	2.75	
Degree of Saturation	45.9	74.3
Void Ratio	0.98	0.88
Porosity	0.49	0.47
1 Pore Volume (cc)	78.8	72.3



Eff. Confining Stress (psi)	5.0
Back-Pressure	80.0
B-Value Prior to Permeation	0.91
Permeant	De-Aired Tap Water

Specimen Image

Method C—Falling Head, rising tailwater elevation			
Time, t	Initial Gradient	Final Gradient	K_{20}
Min	-	-	cm/s
3.7	2.9	2.3	2.1E-03
9.0	2.3	1.8	1.8E-03
14.5	1.8	1.4	1.5E-03
19.5	1.4	1.2	1.2E-03
24.7	1.2	1.0	1.2E-03
30.0	1.0	0.9	1.1E-03
35.1	0.9	0.8	8.7E-04
40.2	0.8	0.7	1.0E-03
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Average, Last 4 Readings			**1.0E-03**

Jeffrey A. Kuhn, Ph.D, P.E. 12/29/2020
Analysis & Quality Review/Date

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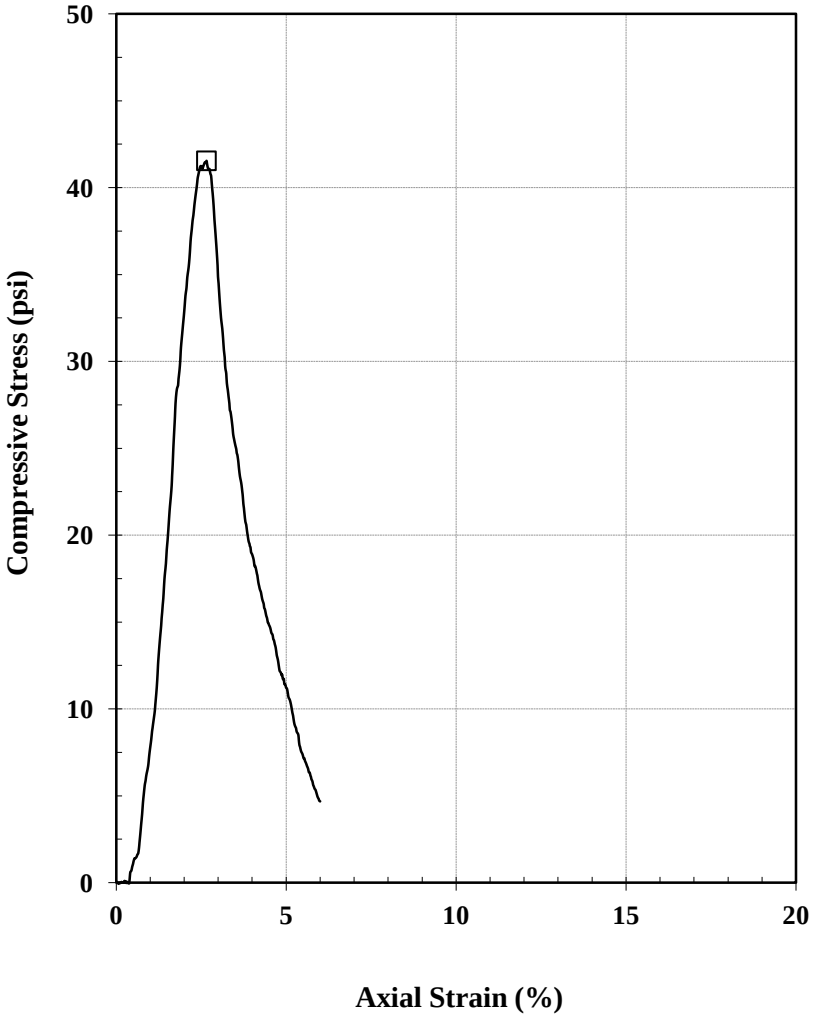
Unconfined Compression Test Report

Client: AECOM
Project: 60621225 - NRS Treatability
Sample ID: Rich Mix - Type 5

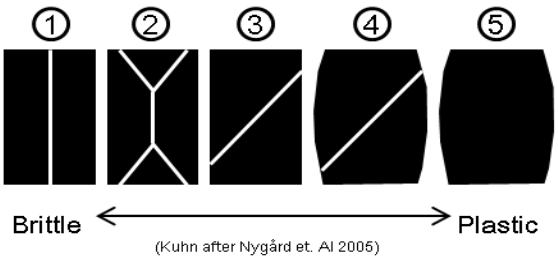
TRI Log No.: 61118.4
Type of Specimen: Client-Remolded
Test Method: ASTM D2166
Strain Rate (%/min): 1.0 % / min



Specimen Condition at Time of Test		
Specimen No.		1
Avg. Diameter (in)	D_o	1.98
Avg. Height (in)	H_o	3.88
Avg, Water Content (%)	w_o	12.7
Bulk Density (pcf)	γ_{total}	102.8
Dry Density (pcf)	γ_{dry}	91.2
Saturation (%)	S_r	37.5
Void Ratio	e_o	0.88
Assumed Specific Gravity	G_s	2.75

Stresses at Failure	
Unconfined Compressive Strength (psi)	41.5
Axial Strain at Failure (%)	2.7
Total Stresses at Failure	
Major Principal Stress, σ_1 (psi)	41.5
Minor Principal Stress, σ_3 (psi)	0.0
Undrained Shear Strength, S_u (psi)	20.8

Failure Mode	2



(Kuhn after Nygård et. Al 2005)

Jeffrey A. Kuhn, Ph.D., P.E., 12/29/20
Quality Review/Date

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-114256-1
Client Project/Site: GAF-NRS-Treatabilty

For:
Environmental Standards Inc.
1140 Valley Forge Road
PO BOX 810
Valley Forge, Pennsylvania 19482-0810

Attn: Jennifer N. Gable

Authorized for release by:
12/7/2020 4:33:16 PM

Jennifer Rumble, Project Manager I
(412)963-7058
Jennifer.Rumble@Eurofinset.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

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Case Narrative

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Job ID: 180-114256-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-114256-1

Receipt
The samples were received on 12/2/2020 10:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.9º C.

Receipt Exceptions
The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): GAF-1315-DOLO 1.0%-T2-T (180-114256-19). The container labels list an id of GAF-1315 DOLO 1%-T2-T, while the COC lists GAF-1315 DOLO 1.0%-T2-T. The ID on the COC was used.

The container labels for the following samples did not match the information listed on the Chain-of-Custody (COC): GAF-1315-CONTROL-T48-D (180-114256-6), GAF-1315-HICAL 0.5%-T2-D (180-114256-8), GAF-1315-HICAL 0.5-T48-D (180-114256-12), GAF-1315-DOLO 0.5-T2-D (180-114256-14) and GAF-1315-DOLO 1.0-T24-D (180-114256-22). The container labels do not list nitric dissolved, while the COC listed dissolved metals analysis. They were logged as dissolved metals according to the COC.

The container labels for the following samples did not match the information listed on the Chain-of-Custody (COC): GAF-1315-HICAL 0.5%-T2-T (180-114256-7), GAF-1315-HICAL 0.5-T48-T (180-114256-11), GAF-1315-DOLO 1.0%-T2-T (180-114256-19), GAF-1315-DOLO 1.0-T24-T (180-114256-21), GAF-1315-DOLO 1.0-T48-T (180-114256-23) and GAF-GW-COL 1 REDOSE-PV1 (180-114256-34). The container labels listed nitric dissolved, while the COC listed total metals analysis. They were logged as total metals according to the COC.

Metals
Method 3005A: Insufficient sample was provided for preparation/analysis of GAF-GW-COL 1 REDOSE-PV1 (180-114256-34). THe volume was adjusted so as to not affect the reporting limit.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Environmental Standards Inc.
Job ID: 180-114256-1
Project/Site: GAF-NRS-Treatabilty

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-114256-1	GAF-1315-CONTROL-T2-T	Water	11/23/20 14:40	12/02/20 10:30	
180-114256-2	GAF-1315-CONTROL-T2-D	Water	11/23/20 14:40	12/02/20 10:30	
180-114256-3	GAF-1315-CONTROL-T24-T	Water	11/24/20 12:40	12/02/20 10:30	
180-114256-4	GAF-1315-CONTROL-T24-D	Water	11/24/20 12:40	12/02/20 10:30	
180-114256-5	GAF-1315-CONTROL-T48-T	Water	11/25/20 12:40	12/02/20 10:30	
180-114256-6	GAF-1315-CONTROL-T48-D	Water	11/25/20 12:40	12/02/20 10:30	
180-114256-7	GAF-1315-HICAL 0.5-T2-T	Water	11/23/20 14:40	12/02/20 10:30	
180-114256-8	GAF-1315-HICAL 0.5-T2-D	Water	11/23/20 14:40	12/02/20 10:30	
180-114256-9	GAF-1315-HICAL 0.5-T24-T	Water	11/24/20 12:40	12/02/20 10:30	
180-114256-10	GAF-1315-HICAL 0.5-T24-D	Water	11/24/20 12:40	12/02/20 10:30	
180-114256-11	GAF-1315-HICAL 0.5-T48-T	Water	11/25/20 12:40	12/02/20 10:30	
180-114256-12	GAF-1315-HICAL 0.5-T48-D	Water	11/25/20 12:40	12/02/20 10:30	
180-114256-13	GAF-1315-DOLO 0.5-T2-T	Water	11/23/20 14:40	12/02/20 10:30	
180-114256-14	GAF-1315-DOLO 0.5-T2-D	Water	11/23/20 14:40	12/02/20 10:30	
180-114256-15	GAF-1315-DOLO 0.5-T24-T	Water	11/24/20 12:40	12/02/20 10:30	
180-114256-16	GAF-1315-DOLO 0.5-T24-D	Water	11/24/20 12:40	12/02/20 10:30	
180-114256-17	GAF-1315-DOLO 0.5-T48-T	Water	11/25/20 12:40	12/02/20 10:30	
180-114256-18	GAF-1315-DOLO 0.5-T48-D	Water	11/25/20 12:40	12/02/20 10:30	
180-114256-19	GAF-1315-DOLO 1.0-T2-T	Water	11/23/20 14:40	12/02/20 10:30	
180-114256-20	GAF-1315-DOLO 1.0-T2-D	Water	11/23/20 14:40	12/02/20 10:30	
180-114256-21	GAF-1315-DOLO 1.0-T24-T	Water	11/24/20 12:40	12/02/20 10:30	
180-114256-22	GAF-1315-DOLO 1.0-T24-D	Water	11/24/20 12:40	12/02/20 10:30	
180-114256-23	GAF-1315-DOLO 1.0-T48-T	Water	11/25/20 12:40	12/02/20 10:30	
180-114256-24	GAF-1315-DOLO 1.0-T48-D	Water	11/25/20 12:40	12/02/20 10:30	
180-114256-25	GAF-1315-CONTROL-T7DAY-T	Water	11/30/20 12:40	12/02/20 10:30	
180-114256-26	GAF-1315-CONTROL-T7DAY-D	Water	11/30/20 12:40	12/02/20 10:30	
180-114256-27	GAF-1315-HICAL 0.5-T7DAY-T	Water	11/30/20 12:40	12/02/20 10:30	
180-114256-28	GAF-1315-HICAL 0.5-T-7DAY-D	Water	11/30/20 12:40	12/02/20 10:30	
180-114256-29	GAF-1315-DOLO 0.5-T7DAY-T	Water	11/30/20 12:40	12/02/20 10:30	
180-114256-30	GAF-1315-DOLO 0.5-T7DAY-D	Water	11/30/20 12:40	12/02/20 10:30	
180-114256-31	GAF-1315-DOLO 1.0-T7DAY-T	Water	11/30/20 12:40	12/02/20 10:30	
180-114256-32	GAF-1315-DOLO 1.0-T7DAY-D	Water	11/30/20 12:40	12/02/20 10:30	
180-114256-33	GAF-GW-COL 1 REDOSE-PV0.5	Water	11/22/20 11:30	12/02/20 10:30	
180-114256-34	GAF-GW-COL 1 REDOSE-PV1	Water	11/23/20 03:30	12/02/20 10:30	

Method Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Method	Method Description	Protocol	Laboratory
EPA 6020A	Metals (ICP/MS)	SW846	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-CONTROL-T2-T

Lab Sample ID: 180-114256-1
Date Collected: 11/23/20 14:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 09:28	RJR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339667	12/07/20 07:39	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-CONTROL-T2-D

Lab Sample ID: 180-114256-2
Date Collected: 11/23/20 14:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 09:31	RJR	TAL PIT
	Instrument ID: NEMO									
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339667	12/07/20 07:42	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-CONTROL-T24-T

Lab Sample ID: 180-114256-3
Date Collected: 11/24/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 09:39	RJR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339667	12/07/20 07:45	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-CONTROL-T24-D

Lab Sample ID: 180-114256-4
Date Collected: 11/24/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 09:41	RJR	TAL PIT
	Instrument ID: NEMO									
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339667	12/07/20 07:47	RJR	TAL PIT
	Instrument ID: NEMO									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-CONTROL-T48-T

Lab Sample ID: 180-114256-5
Date Collected: 11/25/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 09:44	RJR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339667	12/07/20 07:50	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-CONTROL-T48-D

Lab Sample ID: 180-114256-6
Date Collected: 11/25/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 09:46	RJR	TAL PIT
	Instrument ID: NEMO									
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339667	12/07/20 07:52	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-HICAL 0.5-T2-T

Lab Sample ID: 180-114256-7
Date Collected: 11/23/20 14:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 09:49	RJR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339667	12/07/20 07:55	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-HICAL 0.5-T2-D

Lab Sample ID: 180-114256-8
Date Collected: 11/23/20 14:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 09:52	RJR	TAL PIT
	Instrument ID: NEMO									
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339667	12/07/20 08:05	RJR	TAL PIT
	Instrument ID: NEMO									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-HICAL 0.5-T24-T

Lab Sample ID: 180-114256-9
Date Collected: 11/24/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 09:54	RJR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339667	12/07/20 08:08	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-HICAL 0.5-T24-D

Lab Sample ID: 180-114256-10
Date Collected: 11/24/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 09:57	RJR	TAL PIT
	Instrument ID: NEMO									
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339667	12/07/20 08:10	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-HICAL 0.5-T48-T

Lab Sample ID: 180-114256-11
Date Collected: 11/25/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 09:59	RJR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339667	12/07/20 08:13	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-HICAL 0.5-T48-D

Lab Sample ID: 180-114256-12
Date Collected: 11/25/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 10:02	RJR	TAL PIT
	Instrument ID: NEMO									
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339667	12/07/20 08:16	RJR	TAL PIT
	Instrument ID: NEMO									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 0.5-T2-T
Lab Sample ID: 180-114256-13
Date Collected: 11/23/20 14:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 10:10	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 0.5-T2-D
Lab Sample ID: 180-114256-14
Date Collected: 11/23/20 14:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 10:30	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 0.5-T24-T
Lab Sample ID: 180-114256-15
Date Collected: 11/24/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 10:33	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 0.5-T24-D
Lab Sample ID: 180-114256-16
Date Collected: 11/24/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 10:35	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 0.5-T48-T
Lab Sample ID: 180-114256-17
Date Collected: 11/25/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 10:38	RJR	TAL PIT
	Instrument ID: NEMO									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 0.5-T48-D
Lab Sample ID: 180-114256-18
Date Collected: 11/25/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 10:40	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 1.0-T2-T
Lab Sample ID: 180-114256-19
Date Collected: 11/23/20 14:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 10:48	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 1.0-T2-D
Lab Sample ID: 180-114256-20
Date Collected: 11/23/20 14:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339278	12/03/20 07:32	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 10:51	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 1.0-T24-T
Lab Sample ID: 180-114256-21
Date Collected: 11/24/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 10:59	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 1.0-T24-D
Lab Sample ID: 180-114256-22
Date Collected: 11/24/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 11:01	RJR	TAL PIT
	Instrument ID: NEMO									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 1.0-T48-T

Lab Sample ID: 180-114256-23
Date Collected: 11/25/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 11:04	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 1.0-T48-D

Lab Sample ID: 180-114256-24
Date Collected: 11/25/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 11:06	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-CONTROL-T7DAY-T

Lab Sample ID: 180-114256-25
Date Collected: 11/30/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 11:09	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-CONTROL-T7DAY-D

Lab Sample ID: 180-114256-26
Date Collected: 11/30/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 11:42	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-HICAL 0.5-T7DAY-T

Lab Sample ID: 180-114256-27
Date Collected: 11/30/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 11:45	RJR	TAL PIT
	Instrument ID: NEMO									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-HICAL 0.5-T-7DAY-D

Lab Sample ID: 180-114256-28
Date Collected: 11/30/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 11:48	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 0.5-T7DAY-T

Lab Sample ID: 180-114256-29
Date Collected: 11/30/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 11:50	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 0.5-T7DAY-D

Lab Sample ID: 180-114256-30
Date Collected: 11/30/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 11:53	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 1.0-T7DAY-T

Lab Sample ID: 180-114256-31
Date Collected: 11/30/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 11:55	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-1315-DOLO 1.0-T7DAY-D

Lab Sample ID: 180-114256-32
Date Collected: 11/30/20 12:40
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			339509	12/04/20 11:58	RJR	TAL PIT
	Instrument ID: NEMO									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-GW-COL 1 REDOSE-PV0.5

Lab Sample ID: 180-114256-33
Date Collected: 11/22/20 11:30
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	339274	12/03/20 07:28	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 12:06	RJR	TAL PIT
	Instrument ID: NEMO									

Client Sample ID: GAF-GW-COL 1 REDOSE-PV1

Lab Sample ID: 180-114256-34
Date Collected: 11/23/20 03:30
Matrix: Water
Date Received: 12/02/20 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	339274	12/03/20 07:28	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			339509	12/04/20 12:16	RJR	TAL PIT
	Instrument ID: NEMO									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KHM = Kyle Mucroski

Batch Type: Analysis

RJR = Ron Rosenbaum

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-CONTROL-T2-T

Date Collected: 11/23/20 14:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-1

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	**0.000264**	**J**	0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 07:39	1
Cadmium	**0.000321**	**J**	0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:28	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 07:39	1
Nickel	**0.0144**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:28	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-CONTROL-T2-D

Date Collected: 11/23/20 14:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-2

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 07:42	1
Cadmium	**0.000230**	**J**	0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:31	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 07:42	1
Nickel	**0.0143**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:31	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-CONTROL-T24-T
Date Collected: 11/24/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-3
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 07:45	1
Cadmium	**0.000299**	**J**	0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:39	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 07:45	1
Nickel	**0.0234**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:39	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-CONTROL-T24-D
Date Collected: 11/24/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-4
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 07:47	1
Cadmium	**0.000275**	**J**	0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:41	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 07:47	1
Nickel	**0.0230**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:41	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-CONTROL-T48-T
Date Collected: 11/25/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-5
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 07:50	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:44	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 07:50	1
Nickel	**0.0121**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:44	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-CONTROL-T48-D
Date Collected: 11/25/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-6
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 07:52	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:46	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 07:52	1
Nickel	**0.0117**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:46	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-HICAL 0.5-T2-T

Date Collected: 11/23/20 14:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-7

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 07:55	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:49	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 07:55	1
Nickel	**0.00548**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:49	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-HICAL 0.5-T2-D

Date Collected: 11/23/20 14:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-8

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 08:05	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:52	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 08:05	1
Nickel	**0.00474**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:52	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-HICAL 0.5-T24-T
Date Collected: 11/24/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-9
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 08:08	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:54	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 08:08	1
Nickel	**0.00397**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:54	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-HICAL 0.5-T24-D

Date Collected: 11/24/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-10

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 08:10	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:57	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 08:10	1
Nickel	**0.00349**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:57	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-HICAL 0.5-T48-T
Date Collected: 11/25/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-11
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 08:13	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:59	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 08:13	1
Nickel	**0.00379**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:59	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-HICAL 0.5-T48-D

Date Collected: 11/25/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-12

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 08:16	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 10:02	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 08:16	1
Nickel	**0.00372**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 10:02	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 0.5-T2-T
Date Collected: 11/23/20 14:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-13
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/04/20 10:10	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 10:10	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/04/20 10:10	1
Nickel	**0.00534**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 10:10	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 0.5-T2-D
Date Collected: 11/23/20 14:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-14
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/04/20 10:30	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 10:30	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/04/20 10:30	1
Nickel	**0.00501**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 10:30	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 0.5-T24-T
Date Collected: 11/24/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-15
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/04/20 10:33	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 10:33	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/04/20 10:33	1
Nickel	**0.00457**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 10:33	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 0.5-T24-D
Date Collected: 11/24/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-16
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/04/20 10:35	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 10:35	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/04/20 10:35	1
Nickel	**0.00430**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 10:35	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 0.5-T48-T
Date Collected: 11/25/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-17
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/04/20 10:38	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 10:38	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/04/20 10:38	1
Nickel	**0.00431**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 10:38	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 0.5-T48-D
Date Collected: 11/25/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-18
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/04/20 10:40	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 10:40	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/04/20 10:40	1
Nickel	**0.00418**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 10:40	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 1.0-T2-T
Date Collected: 11/23/20 14:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-19
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/04/20 10:48	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 10:48	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/04/20 10:48	1
Nickel	**0.00575**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 10:48	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 1.0-T2-D
Date Collected: 11/23/20 14:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-20
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/04/20 10:51	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 10:51	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/04/20 10:51	1
Nickel	**0.00486**	**B**	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 10:51	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 1.0-T24-T
Date Collected: 11/24/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-21
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	**0.000319**	**J**	0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 10:59	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 10:59	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 10:59	1
Nickel	**0.00424**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 10:59	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 1.0-T24-D

Date Collected: 11/24/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-22

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:01	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:01	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:01	1
Nickel	**0.00459**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:01	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 1.0-T48-T
Date Collected: 11/25/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-23
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:04	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:04	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:04	1
Nickel	**0.00403**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:04	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 1.0-T48-D
Date Collected: 11/25/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-24
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:06	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:06	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:06	1
Nickel	**0.00383**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:06	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-CONTROL-T7DAY-T
Date Collected: 11/30/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-25
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:09	1
Cadmium	**0.000344**	**J**	0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:09	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:09	1
Nickel	**0.0128**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:09	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-CONTROL-T7DAY-D

Lab Sample ID: 180-114256-26

Date Collected: 11/30/20 12:40
Date Received: 12/02/20 10:30

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:42	1
Cadmium	**0.000364**	**J**	0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:42	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:42	1
Nickel	**0.0129**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:42	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-HICAL 0.5-T7DAY-T
Date Collected: 11/30/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-27
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:45	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:45	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:45	1
Nickel	**0.00223**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:45	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-HICAL 0.5-T-7DAY-D
Date Collected: 11/30/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-28
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:48	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:48	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:48	1
Nickel	**0.00269**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:48	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 0.5-T7DAY-T
Date Collected: 11/30/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-29
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:50	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:50	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:50	1
Nickel	**0.00301**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:50	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 0.5-T7DAY-D
Date Collected: 11/30/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-30
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:53	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:53	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:53	1
Nickel	**0.00302**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:53	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 1.0-T7DAY-T
Date Collected: 11/30/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-31
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:55	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:55	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:55	1
Nickel	**0.00271**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:55	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-1315-DOLO 1.0-T7DAY-D
Date Collected: 11/30/20 12:40
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-32
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 11:58	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 11:58	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 11:58	1
Nickel	**0.00249**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 11:58	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-GW-COL 1 REDOSE-PV0.5
Date Collected: 11/22/20 11:30
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-33
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 12:06	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 12:06	1
Lithium	**0.00364**	**J**	0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 12:06	1
Nickel	**0.00957**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 12:06	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatabilty

Job ID: 180-114256-1

Client Sample ID: GAF-GW-COL 1 REDOSE-PV1
Date Collected: 11/23/20 03:30
Date Received: 12/02/20 10:30

Lab Sample ID: 180-114256-34
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 12:16	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 12:16	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 12:16	1
Nickel	**0.0179**		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 12:16	1

Method: EPA 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-339274/1-A
Matrix: Water
Analysis Batch: 339509

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 339274

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:28	12/04/20 10:53	1
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:28	12/04/20 10:53	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:28	12/04/20 10:53	1
Nickel	ND		0.00100	0.000336	mg/L		12/03/20 07:28	12/04/20 10:53	1

Lab Sample ID: LCS 180-339274/2-A
Matrix: Water
Analysis Batch: 339509

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 339274

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	0.500	0.5182		mg/L		104	80 - 120
Cadmium	0.500	0.5101		mg/L		102	80 - 120
Lithium	0.500	0.4776		mg/L		96	80 - 120
Nickel	0.500	0.4686		mg/L		94	80 - 120

Lab Sample ID: 180-114256-25 MS
Matrix: Water
Analysis Batch: 339509

Client Sample ID: GAF-1315-CONTROL-T7DAY-T
Prep Type: Total Recoverable
Prep Batch: 339274

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	ND		0.500	0.4939		mg/L		99	75 - 125
Cadmium	0.000344	J	0.500	0.4924		mg/L		98	75 - 125
Lithium	ND		0.500	0.4505		mg/L		90	75 - 125
Nickel	0.0128		0.500	0.4603		mg/L		90	75 - 125

Lab Sample ID: 180-114256-25 MSD
Matrix: Water
Analysis Batch: 339509

Client Sample ID: GAF-1315-CONTROL-T7DAY-T
Prep Type: Total Recoverable
Prep Batch: 339274

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Beryllium	ND		0.500	0.4932		mg/L		99	75 - 125	0	20
Cadmium	0.000344	J	0.500	0.4929		mg/L		99	75 - 125	0	20
Lithium	ND		0.500	0.4653		mg/L		93	75 - 125	3	20
Nickel	0.0128		0.500	0.4629		mg/L		90	75 - 125	1	20

Lab Sample ID: MB 180-339278/1-A
Matrix: Water
Analysis Batch: 339509

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 339278

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.00100	0.000217	mg/L		12/03/20 07:32	12/04/20 09:23	1
Nickel	0.0003570	J	0.00100	0.000336	mg/L		12/03/20 07:32	12/04/20 09:23	1

Lab Sample ID: MB 180-339278/1-A
Matrix: Water
Analysis Batch: 339667

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 339278

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		12/03/20 07:32	12/07/20 07:34	1
Lithium	ND		0.00500	0.00339	mg/L		12/03/20 07:32	12/07/20 07:34	1

Method: EPA 6020A - Metals (ICP/MS)

Lab Sample ID: LCS 180-339278/2-A
Matrix: Water
Analysis Batch: 339509

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 339278

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.500	0.5004		mg/L		100	80 - 120
Nickel	0.500	0.4640		mg/L		93	80 - 120

Lab Sample ID: LCS 180-339278/2-A
Matrix: Water
Analysis Batch: 339667

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 339278

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	0.500	0.4668		mg/L		93	80 - 120
Lithium	0.500	0.5029		mg/L		101	80 - 120

Lab Sample ID: 180-114256-13 MS
Matrix: Water
Analysis Batch: 339509

Client Sample ID: GAF-1315-DOLO 0.5-T2-T
Prep Type: Total Recoverable
Prep Batch: 339278

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	ND		0.500	0.5157		mg/L		103	75 - 125
Cadmium	ND		0.500	0.4902		mg/L		98	75 - 125
Lithium	ND		0.500	0.4590		mg/L		92	75 - 125
Nickel	0.00534	B	0.500	0.4618		mg/L		91	75 - 125

Lab Sample ID: 180-114256-13 MSD
Matrix: Water
Analysis Batch: 339509

Client Sample ID: GAF-1315-DOLO 0.5-T2-T
Prep Type: Total Recoverable
Prep Batch: 339278

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Beryllium	ND		0.500	0.4948		mg/L		99	75 - 125	4	20
Cadmium	ND		0.500	0.4838		mg/L		97	75 - 125	1	20
Lithium	ND		0.500	0.4498		mg/L		90	75 - 125	2	20
Nickel	0.00534	B	0.500	0.4480		mg/L		89	75 - 125	3	20

Metals

Prep Batch: 339274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114256-21	GAF-1315-DOLO 1.0-T24-T	Total Recoverable	Water	3005A	
180-114256-22	GAF-1315-DOLO 1.0-T24-D	Dissolved	Water	3005A	
180-114256-23	GAF-1315-DOLO 1.0-T48-T	Total Recoverable	Water	3005A	
180-114256-24	GAF-1315-DOLO 1.0-T48-D	Dissolved	Water	3005A	
180-114256-25	GAF-1315-CONTROL-T7DAY-T	Total Recoverable	Water	3005A	
180-114256-26	GAF-1315-CONTROL-T7DAY-D	Dissolved	Water	3005A	
180-114256-27	GAF-1315-HICAL 0.5-T7DAY-T	Total Recoverable	Water	3005A	
180-114256-28	GAF-1315-HICAL 0.5-T-7DAY-D	Dissolved	Water	3005A	
180-114256-29	GAF-1315-DOLO 0.5-T7DAY-T	Total Recoverable	Water	3005A	
180-114256-30	GAF-1315-DOLO 0.5-T7DAY-D	Dissolved	Water	3005A	
180-114256-31	GAF-1315-DOLO 1.0-T7DAY-T	Total Recoverable	Water	3005A	
180-114256-32	GAF-1315-DOLO 1.0-T7DAY-D	Dissolved	Water	3005A	
180-114256-33	GAF-GW-COL 1 REDOSE-PV0.5	Total Recoverable	Water	3005A	
180-114256-34	GAF-GW-COL 1 REDOSE-PV1	Total Recoverable	Water	3005A	
MB 180-339274/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-339274/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-114256-25 MS	GAF-1315-CONTROL-T7DAY-T	Total Recoverable	Water	3005A	
180-114256-25 MSD	GAF-1315-CONTROL-T7DAY-T	Total Recoverable	Water	3005A	

Prep Batch: 339278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114256-1	GAF-1315-CONTROL-T2-T	Total Recoverable	Water	3005A	
180-114256-2	GAF-1315-CONTROL-T2-D	Dissolved	Water	3005A	
180-114256-3	GAF-1315-CONTROL-T24-T	Total Recoverable	Water	3005A	
180-114256-4	GAF-1315-CONTROL-T24-D	Dissolved	Water	3005A	
180-114256-5	GAF-1315-CONTROL-T48-T	Total Recoverable	Water	3005A	
180-114256-6	GAF-1315-CONTROL-T48-D	Dissolved	Water	3005A	
180-114256-7	GAF-1315-HICAL 0.5-T2-T	Total Recoverable	Water	3005A	
180-114256-8	GAF-1315-HICAL 0.5-T2-D	Dissolved	Water	3005A	
180-114256-9	GAF-1315-HICAL 0.5-T24-T	Total Recoverable	Water	3005A	
180-114256-10	GAF-1315-HICAL 0.5-T24-D	Dissolved	Water	3005A	
180-114256-11	GAF-1315-HICAL 0.5-T48-T	Total Recoverable	Water	3005A	
180-114256-12	GAF-1315-HICAL 0.5-T48-D	Dissolved	Water	3005A	
180-114256-13	GAF-1315-DOLO 0.5-T2-T	Total Recoverable	Water	3005A	
180-114256-14	GAF-1315-DOLO 0.5-T2-D	Dissolved	Water	3005A	
180-114256-15	GAF-1315-DOLO 0.5-T24-T	Total Recoverable	Water	3005A	
180-114256-16	GAF-1315-DOLO 0.5-T24-D	Dissolved	Water	3005A	
180-114256-17	GAF-1315-DOLO 0.5-T48-T	Total Recoverable	Water	3005A	
180-114256-18	GAF-1315-DOLO 0.5-T48-D	Dissolved	Water	3005A	
180-114256-19	GAF-1315-DOLO 1.0-T2-T	Total Recoverable	Water	3005A	
180-114256-20	GAF-1315-DOLO 1.0-T2-D	Dissolved	Water	3005A	
MB 180-339278/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-339278/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-114256-13 MS	GAF-1315-DOLO 0.5-T2-T	Total Recoverable	Water	3005A	
180-114256-13 MSD	GAF-1315-DOLO 0.5-T2-T	Total Recoverable	Water	3005A	

Analysis Batch: 339509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114256-1	GAF-1315-CONTROL-T2-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-2	GAF-1315-CONTROL-T2-D	Dissolved	Water	EPA 6020A	339278
180-114256-3	GAF-1315-CONTROL-T24-T	Total Recoverable	Water	EPA 6020A	339278

Metals (Continued)

Analysis Batch: 339509 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114256-4	GAF-1315-CONTROL-T24-D	Dissolved	Water	EPA 6020A	339278
180-114256-5	GAF-1315-CONTROL-T48-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-6	GAF-1315-CONTROL-T48-D	Dissolved	Water	EPA 6020A	339278
180-114256-7	GAF-1315-HICAL 0.5-T2-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-8	GAF-1315-HICAL 0.5-T2-D	Dissolved	Water	EPA 6020A	339278
180-114256-9	GAF-1315-HICAL 0.5-T24-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-10	GAF-1315-HICAL 0.5-T24-D	Dissolved	Water	EPA 6020A	339278
180-114256-11	GAF-1315-HICAL 0.5-T48-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-12	GAF-1315-HICAL 0.5-T48-D	Dissolved	Water	EPA 6020A	339278
180-114256-13	GAF-1315-DOLO 0.5-T2-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-14	GAF-1315-DOLO 0.5-T2-D	Dissolved	Water	EPA 6020A	339278
180-114256-15	GAF-1315-DOLO 0.5-T24-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-16	GAF-1315-DOLO 0.5-T24-D	Dissolved	Water	EPA 6020A	339278
180-114256-17	GAF-1315-DOLO 0.5-T48-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-18	GAF-1315-DOLO 0.5-T48-D	Dissolved	Water	EPA 6020A	339278
180-114256-19	GAF-1315-DOLO 1.0-T2-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-20	GAF-1315-DOLO 1.0-T2-D	Dissolved	Water	EPA 6020A	339278
180-114256-21	GAF-1315-DOLO 1.0-T24-T	Total Recoverable	Water	EPA 6020A	339274
180-114256-22	GAF-1315-DOLO 1.0-T24-D	Dissolved	Water	EPA 6020A	339274
180-114256-23	GAF-1315-DOLO 1.0-T48-T	Total Recoverable	Water	EPA 6020A	339274
180-114256-24	GAF-1315-DOLO 1.0-T48-D	Dissolved	Water	EPA 6020A	339274
180-114256-25	GAF-1315-CONTROL-T7DAY-T	Total Recoverable	Water	EPA 6020A	339274
180-114256-26	GAF-1315-CONTROL-T7DAY-D	Dissolved	Water	EPA 6020A	339274
180-114256-27	GAF-1315-HICAL 0.5-T7DAY-T	Total Recoverable	Water	EPA 6020A	339274
180-114256-28	GAF-1315-HICAL 0.5-T-7DAY-D	Dissolved	Water	EPA 6020A	339274
180-114256-29	GAF-1315-DOLO 0.5-T7DAY-T	Total Recoverable	Water	EPA 6020A	339274
180-114256-30	GAF-1315-DOLO 0.5-T7DAY-D	Dissolved	Water	EPA 6020A	339274
180-114256-31	GAF-1315-DOLO 1.0-T7DAY-T	Total Recoverable	Water	EPA 6020A	339274
180-114256-32	GAF-1315-DOLO 1.0-T7DAY-D	Dissolved	Water	EPA 6020A	339274
180-114256-33	GAF-GW-COL 1 REDOSE-PV0.5	Total Recoverable	Water	EPA 6020A	339274
180-114256-34	GAF-GW-COL 1 REDOSE-PV1	Total Recoverable	Water	EPA 6020A	339274
MB 180-339274/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	339274
MB 180-339278/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	339278
LCS 180-339274/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	339274
LCS 180-339278/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	339278
180-114256-13 MS	GAF-1315-DOLO 0.5-T2-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-13 MSD	GAF-1315-DOLO 0.5-T2-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-25 MS	GAF-1315-CONTROL-T7DAY-T	Total Recoverable	Water	EPA 6020A	339274
180-114256-25 MSD	GAF-1315-CONTROL-T7DAY-T	Total Recoverable	Water	EPA 6020A	339274

Analysis Batch: 339667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114256-1	GAF-1315-CONTROL-T2-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-2	GAF-1315-CONTROL-T2-D	Dissolved	Water	EPA 6020A	339278
180-114256-3	GAF-1315-CONTROL-T24-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-4	GAF-1315-CONTROL-T24-D	Dissolved	Water	EPA 6020A	339278
180-114256-5	GAF-1315-CONTROL-T48-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-6	GAF-1315-CONTROL-T48-D	Dissolved	Water	EPA 6020A	339278
180-114256-7	GAF-1315-HICAL 0.5-T2-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-8	GAF-1315-HICAL 0.5-T2-D	Dissolved	Water	EPA 6020A	339278
180-114256-9	GAF-1315-HICAL 0.5-T24-T	Total Recoverable	Water	EPA 6020A	339278

Metals (Continued)

Analysis Batch: 339667 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114256-10	GAF-1315-HICAL 0.5-T24-D	Dissolved	Water	EPA 6020A	339278
180-114256-11	GAF-1315-HICAL 0.5-T48-T	Total Recoverable	Water	EPA 6020A	339278
180-114256-12	GAF-1315-HICAL 0.5-T48-D	Dissolved	Water	EPA 6020A	339278
MB 180-339278/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	339278
LCS 180-339278/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	339278

Pittsburgh, PA 15238
(413) 7[illegible]9018

Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr
Chelmsford, MA 01824

P O No: _____ Quote #: _____

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: _____ State: _____
Sampler(s): Craig Katkic

3=H_2SO_4 4=HNO_3 5–NaOH 6=Ascorbic Acid
er 10=H_3PO_4 1= _____ 12= _____

List Preservative Code below: 4 | 4

QA/QC Reporting Notes:

SW=Surface Water WW=Waste Water
ndoor/Ambient Air SG=Soil Gas
X2= _____ _____

C=Compsite

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other _____
State-specific reporting standards:

	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		6020 Totals -Be, Cd, Li, Ni	6020 Dissolved -Be, Cd, Li, Ni							
I-T2-T	11/23/2020	2:40 PM	G	X1				1		x								
I-T2-D	11/23/2020	2:40 PM	G	X1				1			x							
-T24-T	11/24/2020	12:40 PM	G	X1				1		x								
-T24-D	11/24/2020	12:40 PM	G	X1				1			x							
-T48-T	11/25/2020	12:40 PM	G	X1				1		x								
-T48-D 0.5-T2-T	11/25/2020	12:40 PM	G	X1				1			x							
~~5%-T2-T~~	11/23/2020	2:40 PM	G	X1				1		x								
0.5-T2-D ~~%-T2-D~~	11/23/2020	2:40 PM	G	X1				1			x							
5-T24-T	11/24/2020	12:40 PM	G	X1				1		x								
5-T24-D	11/24/2020	12:40 PM	G	X1				1			x							

180-114256 Chain of Custody

Received by:	Date:	Time:	Temp °C
	12/1/20	1500	Observed
Dallie Watson	12-2-20	10:30	Correction Factor
ETAPITT			Corrected
			IR ID #

☐ EDD format: _____
☐ E-mail to _____

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Pittsburgh, PA 15238
(412) 963-7058

Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr.
Chelmsford, MA 01824

P.O No.: _____ Quote #: _____

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: _____ State: _____
Sampler(s): Craig Katkic

3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
10=H_3PO_4 1= _____ 12= _____

SW=Surface Water WW=Waste Water
door/Ambient Air SG=Soil Gas
2= _____ _____

C=Compsite

	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		List Preservative Code below: 4	4								QA/QC Reporting Notes:
										Analysis: 6020 Totals -Be, Cd, Li, Ni	6020 Dissolved -Be, Cd, Li, Ni								
-T48-T	11/25/2020	12:40 PM	G	X1				1		x									QA/QC Reporting Level: ☐ Level I ☐ Level II ☐ Level III ☐ Level IV ☐ Other: _____ State-specific reporting standards:
-T48-D	11/25/2020	12:40 PM	G	X1				1			x								
~~6-T2-T~~	11/23/2020	2:40 PM	G	X1				1		x									
-T2-D	11/23/2020	2:40 PM	G	X1				1			x								
T24-T	11/24/2020	12:40 PM	G	X1				1		x									
T24-D	11/24/2020	12:40 PM	G	X1				1			x								
T48-T	11/25/2020	12:40 PM	G	X1				1		x									
T48-D	11/25/2020	12:40 PM	G	X1				1			x								
~~6-T2-T~~	11/23/2020	2:40 PM	G	X1				1		x									
-T2-D	11/23/2020	2:40 PM	G	X1				1			x								

Received by:	Date:	Time:	Temp °C
	12/1/20	1500	Observed
[illegible]	12-2-20	10:30	Correction Factor
ETAPIT			Corrected
			IR ID #

☐ EDD format: _____
☐ E-mail to: _____

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Pittsburgh, PA 15238
(412) 788-9318

Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr
Chelmsford, MA 01824

P.O No.: _____ Quote #: _____

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: _____ State: _____
Sampler(s): Craig Katkic

3 H_2SO_4 4=HNO_3 5 NaOH 6=Ascorbic Acid
10=H_3PO_4 t= _____ 12= _____

SW=Surface Water WW=Waste Water
loor/Ambient Air SG=Soil Gas
= _____ _____

C=Composite

	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		6020 Totals -Be, Cd, Li, Ni	6020 Dissolved -Be, Cd, Li, Ni							
					Containers					List Preservative Code below:								
										4	4							
'24-T	11/24/2020	12:40 PM	G	X1				1		x								
'24-D	11/24/2020	12:40 PM	G	X1				1			x							
'48-T	11/25/2020	12:40 PM	G	X1				1		x								
'48-D	11/25/2020	12:40 PM	G	X1				1			x							
day-T	11/30/2020	12:40 PM	G	X1				1		x								
day-D	11/30/2020	12:40 PM	G	X1				1			x							
7day-T	11/30/2020	12:40 PM	G	X1				1		x								
7day-D	11/30/2020	12:40 PM	G	X1				1			x							
'day-T	11/30/2020	12:40 PM	G	X1				1		x								
'day-D	11/30/2020	12:40 PM	G	X1				1			x							

Analysis

QA/QC Reporting Notes:

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other: _____
State-specific reporting standards:

Received by:	Date:	Time:	Temp °C
	12/1/20	1500	Observed:
Distilled Water	12-2-20	10:30	Correction Factor:
FTAH TI			Corrected:
			IR ID #:

☐ EDD format: _____
☐ E-mail to: _____

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Pittsburgh, PA 15238
(412) 788-8618

Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr.
Chelmsford, MA 01824

P O No.: _____ Quote #: _____

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: _____ State: _____
Sampler(s): Craig Katkic

3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
10=H_3PO_4 1= _____ 12= _____

SW=Surface Water WW=Waste Water
door/Ambient Air SG=Soil Gas
2= _____ _____

C=Compsite

	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		6020 Totals -Be, Cd, Li, Ni	6020 Dissolved - Be, Cd, Li, Ni								
					Containers					List Preservative Code below:									
										4	4								
7day-T	11/30/2020	12:40 PM	G	X1				1		x									
7day-D	11/30/2020	12:40 PM	G	X1				1			x								
e-PV0.5	11/22/2020	11:30 AM	G	GW				1		x									
se-PV1	11/23/2020	3:30 AM	G	GW				1		x									

Analysis

QA/QC Reporting Notes:

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other: _____
State-specific reporting standards

Received by:	Date:	Time:	Temp °C
	12/1/20	1500	Observed
Debbie Watson	12-2-20	10:30	Correction Factor
			Corrected
			IR ID #

☐ EDD format: _____
☐ E-mail to: _____

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Page 1 of 4

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CHAIN OF CUSTODY RECORD

301 Alpha Drive
Pittsburgh, PA 15238
(413) 789-9018

RUSH

Special Handling:

☑TAT - Date Needed: 3-day TAT

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: Franciscos Barajas
AECOM
9400 Amberglen Blvd
Austin, TX 78729
Telephone #: 978-905-2299
Project Mgr: Craig MacPhee

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr.
Chelmsford, MA 01824
P.O No.: Quote #:

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Craig Katkic

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 1= 12=

List Preservative Code below: 4 4

QA/QC Reporting Notes:

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= 1315 leachate X2=

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other
State-specific reporting standards

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	6020 Totals -Be, Cd, Li, Ni	6020 Dissolved -Be, Cd, Li, Ni
	GAF-1315-Control-T2-T	11/23/2020	2:40 PM	G	X1				1	x	
	GAF-1315-Control-T2-D	11/23/2020	2:40 PM	G	X1				1		x
	GAF-1315-Control-T24-T	11/24/2020	12:40 PM	G	X1				1	x	
	GAF-1315-Control-T24-D	11/24/2020	12:40 PM	G	X1				1		x
	GAF-1315-Control-T48-T	11/25/2020	12:40 PM	G	X1				1	x	
	GAF-1315-Control-T48-D	11/25/2020	12:40 PM	G	X1				1		x
	GAF-1315-HiCal 0.5%-T2-T	11/23/2020	2:40 PM	G	X1				1	x	
	GAF-1315-HiCal 0.5%-T2-D	11/23/2020	2:40 PM	G	X1				1		x
	GAF-1315-HiCal 0.5-T24-T	11/24/2020	12:40 PM	G	X1				1	x	
	GAF-1315-HiCal 0.5-T24-D	11/24/2020	12:40 PM	G	X1				1		x

180-114256 Chain of Custody

Relinquished by:	Received by:	Date:	Time:	Temp °C
[signature]		12/1/20	1500	Observed
	Dulce Watson	12-2-20	10:30	Correction Factor
	ETAPITT			Corrected
				IR ID #

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
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Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Craig Katkic

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7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 1= 12=

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☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other:
State-specific reporting standards

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	GAF-1315-HiCal 0.5-T48-T	11/25/2020	12:40 PM	G	X1				1		x									
	GAF-1315-HiCal 0.5-T48-D	11/25/2020	12:40 PM	G	X1				1			x								
	GAF-1315-Dolo 0.5%-T2-T	11/23/2020	2:40 PM	G	X1				1		x									
	GAF-1315-Dolo 0.5-T2-D	11/23/2020	2:40 PM	G	X1				1			x								
	GAF-1315-Dolo 0.5-T24-T	11/24/2020	12:40 PM	G	X1				1		x									
	GAF-1315-Dolo 0.5-T24-D	11/24/2020	12:40 PM	G	X1				1			x								
	GAF-1315-Dolo 0.5-T48-T	11/25/2020	12:40 PM	G	X1				1		x									
	GAF-1315-Dolo 0.5-T48-D	11/25/2020	12:40 PM	G	X1				1			x								
	GAF-1315-Dolo 1.0%-T2-T	11/23/2020	2:40 PM	G	X1				1		x									
	GAF-1315-Dolo 1.0-T2-D	11/23/2020	2:40 PM	G	X1				1			x								

Relinquished by:	Received by:	Date:	Time:	Temp °C
[signature]		12/1/20	1500	Observed
	[signature]	12-2-20	10:30	Correction Factor
	ETAPiH			Corrected
				IR ID #

☐ EDD format:
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Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
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Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Craig Katkic

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Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		6020 Totals -Be, Cd, Li, Ni	6020 Dissolved -Be, Cd, Li, Ni							
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	GAF-1315-Dolo 1.0-T24-D	11/24/2020	12:40 PM	G	X1				1			x							
	GAF-1315-Dolo 1.0-T48-T	11/25/2020	12:40 PM	G	X1				1		x								
	GAF-1315-Dolo 1.0-T48-D	11/25/2020	12:40 PM	G	X1				1			x							
	GAF-1315-Control-T7day-T	11/30/2020	12:40 PM	G	X1				1		x								
	GAF-1315-Control-T7day-D	11/30/2020	12:40 PM	G	X1				1			x							
	GAF-1315-HiCal 0.5-T7day-T	11/30/2020	12:40 PM	G	X1				1		x								
	GAF-1315-HiCal 0.5-T7day-D	11/30/2020	12:40 PM	G	X1				1			x							
	GAF-1315-Dolo 0.5-T7day-T	11/30/2020	12:40 PM	G	X1				1		x								
	GAF-1315-Dolo 0.5-T7day-D	11/30/2020	12:40 PM	G	X1				1			x							

Relinquished by:	Received by:	Date:	Time:	Temp °C
[signature]		12/1/20	1500	Observed
	[signature]	12-2-20	10:30	Correction Factor
	ETAPH			Corrected
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	250 Apollo Dr.
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P.O No.:	
Quote #:	

Project No:	TVA Gallatin EIP
Site Name:	GAF-NRS-Treatability
Location:	State:
Sampler(s):	Craig Katkic

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= 12=

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O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= 1315 leachate X2=

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analysis: 6020 Totals -Be, Cd, Li, Ni	6020 Dissolved -Be, Cd, Li, Ni
	GAF-1315-Dolo 1.0-T7day-T	11/30/2020	12:40 PM	G	X1				1	x	
	GAF-1315-Dolo 1.0-T7day-D	11/30/2020	12:40 PM	G	X1				1		x
	GAF-GW-Col 1 Redose-PV0.5	11/22/2020	11:30 AM	G	GW				1	x	
	GAF-GW-Col 1 Redose-PV1	11/23/2020	3:30 AM	G	GW				1	x	

List Preservative Code below: 4 4

QA/QC Reporting Notes:

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other:
State-specific reporting standards:

Relinquished by:	Received by:	Date:	Time:
		12/1/20	1500
	Debbie Watson	12-2-20	10:30

Temp °C: Observed | Correction Factor | Corrected | IR ID #

☐ EDD format:
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Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Login Sample Receipt Checklist

Client: Environmental Standards Inc. Job Number: 180-114256-1

Login Number: 114256 **List Source: Eurofins TestAmerica, Pittsburgh**
List Number: 1
Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-114632-1
Client Project/Site: GAF-NRS-Treatability

For:
Environmental Standards Inc.
1140 Valley Forge Road
PO BOX 810
Valley Forge, Pennsylvania 19482-0810

Attn: Jennifer N. Gable

Authorized for release by:
12/15/2020 3:54:38 PM

Jennifer Rumble, Project Manager I
(412)963-7058
Jennifer.Rumble@Eurofinset.com

LINKS

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Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

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Receipt Checklists 69

Job ID: 180-114632-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-114632-1

Receipt
The samples were received on 12/9/2020 9:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.4º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method 3005A: Elevated reporting limits are provided for the following samples due to insufficient sample provided for preparation/analysis: GAF-GW-1316-DOLO 1.0-T3-MID (180-114632-18). Due to the limited sample, the sample could not be run at a lower dilution.

Method 3005A: The following samples were diluted due to the nature of the sample matrix: GAF-GW-1316-CONTROL-T4-MID (180-114632-4), GAF-GW-1316-CONTROL-T5-MID (180-114632-5) and GAF-GW-1316-HI-CAL-T3-MID (180-114632-8). Elevated reporting limits (RLs) are provided.

Method 3005A: The following sample was diluted due to the nature of the sample matrix: GAF-GW-1316-DOLO 1.0-T4-MID (180-114632-19). Elevated reporting limits (RLs) are provided.

Method 6020A: The following sample was diluted due to the turbid nature of the sample matrix: GAF-GW-1316-HI-CAL-T3-MID (180-114632-8). Elevated reporting limits (RLs) are provided. This sample could not be run at a lower dilution.

Method 6020A: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following samples: GAF-GW-1316-CONTROL-T3-MID (180-114632-3), GAF-GW-1316-CONTROL-T4-MID (180-114632-4) and GAF-GW-1316-CONTROL-T5-MID (180-114632-5). These samples could not be run at a lower dilution for the affected analytes.

Method 6020A: The continuing calibration blank (CCB) associated with batch 180-340422 recovered above the upper control limit for chromium. The samples associated with this CCB were non-detects -or- less than the RL for the affected analytes; therefore, the data have been reported. The associated samples are impacted: GAF-GW-1316-HI-CAL-T5-MID (180-114632-10), GAF-GW-1316-DOLO 0.5-T1-MID (180-114632-11), GAF-GW-1316-DOLO 0.5-T2-MID (180-114632-12), GAF-GW-1316-DOLO 0.5-T3-MID (180-114632-13), GAF-GW-1316-DOLO 0.5-T4-MID (180-114632-14), GAF-GW-1316-DOLO 0.5-T5-MID (180-114632-15), (LCS 180-340145/2-A), (LCSD 180-340145/3-A), (MB 180-340145/1-A) and (180-114632-B-11-A SD ^5).

Methods 6020A: The data in this batch was analyzed on the A instrument however the data transfer program to the LIMs system was not working. Since this data needed to be reported the file was copied over to the DORY instrument and then uploaded. GAF-GW-1316-CONTROL-T3-MID (180-114632-3), GAF-GW-1316-CONTROL-T4-MID (180-114632-4), GAF-GW-1316-CONTROL-T5-MID (180-114632-5), GAF-GW-1316-DOLO 0.5-T4-MID (180-114632-14) and GAF-GW-1316-DOLO 0.5-T5-MID (180-114632-15)

Method 7470A: The continuing calibration verification (CCV) associated with batch 180-340576 recovered above the upper control limit for mercury . The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: GAF-GW-1316-CONTROL-T1-MID (180-114632-1), GAF-GW-1316-CONTROL-T2-MID (180-114632-2), GAF-GW-1316-CONTROL-T3-MID (180-114632-3), GAF-GW-1316-CONTROL-T4-MID (180-114632-4), GAF-GW-1316-CONTROL-T5-MID (180-114632-5), GAF-GW-1316-HI-CAL-T1-MID (180-114632-6), GAF-GW-1316-HI-CAL-T2-MID (180-114632-7), GAF-GW-1316-HI-CAL-T3-MID (180-114632-8), GAF-GW-1316-HI-CAL-T4-MID (180-114632-9), GAF-GW-1316-HI-CAL-T5-MID (180-114632-10), GAF-GW-1316-DOLO 0.5-T1-MID (180-114632-11), GAF-GW-1316-DOLO 0.5-T2-MID (180-114632-12), GAF-GW-1316-DOLO 0.5-T3-MID (180-114632-13), GAF-GW-1316-DOLO 0.5-T4-MID (180-114632-14), GAF-GW-1316-DOLO 0.5-T5-MID (180-114632-15), GAF-GW-1316-DOLO 1.0-T1-MID (180-114632-16), GAF-GW-1316-DOLO 1.0-T2-MID (180-114632-17), GAF-GW-1316-DOLO 1.0-T3-MID (180-114632-18), GAF-GW-1316-DOLO 1.0-T4-MID (180-114632-19), GAF-GW-1316-DOLO 1.0-T5-MID (180-114632-20), (LCS 180-340320/2-A), (LCS 180-340322/2-A), (LCSD 180-340320/3-A), (LCSD 180-340322/3-A), (MB 180-340320/1-A) and (MB 180-340322/1-A).

Job ID: 180-114632-1 (Continued)

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

Method 7470A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 180-340320. LCSD was used instead

Method 7470A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/(MS/MSD) associated with preparation batch 180-340322.

Method 7470A: Elevated reporting limits are provided for the following samples due to insufficient sample provided for 7470A preparation/analysis: GAF-GW-1316-CONTROL-T2-MID (180-114632-2), GAF-GW-1316-CONTROL-T3-MID (180-114632-3), GAF-GW-1316-CONTROL-T4-MID (180-114632-4), GAF-GW-1316-CONTROL-T5-MID (180-114632-5), GAF-GW-1316-HI-CAL-T4-MID (180-114632-9), GAF-GW-1316-HI-CAL-T5-MID (180-114632-10). Acid amounts and spike amounts have been adjusted accordingly. There is not enough volume to run these samples at a lower dilution.

Method 7470A: Elevated reporting limits are provided for the following samples due to insufficient sample provided for 7470A preparation/analysis: GAF-GW-1316-DOLO 0.5-T2-MID (180-114632-12), GAF-GW-1316-DOLO 0.5-T4-MID (180-114632-14), GAF-GW-1316-DOLO 0.5-T5-MID (180-114632-15), GAF-GW-1316-DOLO 1.0-T2-MID (180-114632-17), GAF-GW-1316-DOLO 1.0-T3-MID (180-114632-18), GAF-GW-1316-DOLO 1.0-T5-MID (180-114632-20). Acid amounts and spike have been adjusted accordingly. There is not enough volume to run these samples at a lower dilution.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Qualifiers

Metals

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Environmental Standards Inc.
Job ID: 180-114632-1
Project/Site: GAF-NRS-Treatability

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-114632-1	GAF-GW-1316-CONTROL-T1-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-2	GAF-GW-1316-CONTROL-T2-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-4	GAF-GW-1316-CONTROL-T4-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-5	GAF-GW-1316-CONTROL-T5-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-6	GAF-GW-1316-HI-CAL-T1-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-7	GAF-GW-1316-HI-CAL-T2-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-8	GAF-GW-1316-HI-CAL-T3-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-9	GAF-GW-1316-HI-CAL-T4-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-10	GAF-GW-1316-HI-CAL-T5-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-11	GAF-GW-1316-DOLO 0.5-T1-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-12	GAF-GW-1316-DOLO 0.5-T2-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-13	GAF-GW-1316-DOLO 0.5-T3-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-14	GAF-GW-1316-DOLO 0.5-T4-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-15	GAF-GW-1316-DOLO 0.5-T5-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-16	GAF-GW-1316-DOLO 1.0-T1-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-17	GAF-GW-1316-DOLO 1.0-T2-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-18	GAF-GW-1316-DOLO 1.0-T3-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-19	GAF-GW-1316-DOLO 1.0-T4-MID	Water	12/02/20 11:20	12/09/20 09:30	
180-114632-20	GAF-GW-1316-DOLO 1.0-T5-MID	Water	12/02/20 11:20	12/09/20 09:30	

Method Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM2320 B	Alkalinity, Total	SM18	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-CONTROL-T1-MID

Lab Sample ID: 180-114632-1
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 13:34	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 13:31	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:06	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:03	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-CONTROL-T2-MID

Lab Sample ID: 180-114632-2
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			340113	12/10/20 14:39	EPS	TAL PIT
	Instrument ID: CHICS2100B									
Total/NA	Analysis	EPA 9056A		10			340113	12/10/20 14:55	EPS	TAL PIT
	Instrument ID: CHICS2100B									
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 13:37	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			20 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:07	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			340265	12/10/20 16:52	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-CONTROL-T3-MID

Lab Sample ID: 180-114632-3
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 13:44	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		10			340599	12/12/20 12:49	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 13:41	RSK	TAL PIT
	Instrument ID: DORY									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-CONTROL-T3-MID

Lab Sample ID: 180-114632-3
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		10			340599	12/12/20 12:46	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			20 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:09	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:08	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-CONTROL-T4-MID

Lab Sample ID: 180-114632-4
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 13:51	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		10			340599	12/12/20 12:59	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			5 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 13:48	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			20 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:11	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 16:33	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-CONTROL-T5-MID

Lab Sample ID: 180-114632-5
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 14:05	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		10			340599	12/12/20 13:03	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			5 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 14:01	RSK	TAL PIT
	Instrument ID: DORY									

Client Sample ID: GAF-GW-1316-CONTROL-T5-MID

Lab Sample ID: 180-114632-5
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	7470A			20 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:13	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 16:36	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-HI-CAL-T1-MID

Lab Sample ID: 180-114632-6
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 14:12	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 14:08	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:15	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:14	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-HI-CAL-T2-MID

Lab Sample ID: 180-114632-7
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			340113	12/10/20 15:12	EPS	TAL PIT
	Instrument ID: CHICS2100B									
Total/NA	Analysis	EPA 9056A		10			340113	12/10/20 15:28	EPS	TAL PIT
	Instrument ID: CHICS2100B									
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 14:15	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:18	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			340265	12/10/20 17:25	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-HI-CAL-T3-MID

Lab Sample ID: 180-114632-8

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 14:22	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			5 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		2			340422	12/11/20 14:19	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:20	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 16:37	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-HI-CAL-T4-MID

Lab Sample ID: 180-114632-9

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 14:29	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 14:26	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			10 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:22	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:21	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-HI-CAL-T5-MID

Lab Sample ID: 180-114632-10

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 14:43	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 14:32	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			20 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:24	KEM	TAL PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-HI-CAL-T5-MID

Lab Sample ID: 180-114632-10
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			20 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:23	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T1-MID

Lab Sample ID: 180-114632-11
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 14:50	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340144	12/10/20 07:58	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 14:46	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:26	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340320	12/11/20 09:29	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:25	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T2-MID

Lab Sample ID: 180-114632-12
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			340113	12/10/20 16:17	EPS	TAL PIT
	Instrument ID: CHICS2100B									
Total/NA	Analysis	EPA 9056A		10			340113	12/10/20 16:33	EPS	TAL PIT
	Instrument ID: CHICS2100B									
Dissolved	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 15:17	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			20 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:32	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			340265	12/10/20 17:40	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T3-MID

Lab Sample ID: 180-114632-13

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 15:24	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 15:21	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			25 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:33	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:33	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T4-MID

Lab Sample ID: 180-114632-14

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 15:31	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 15:28	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340599	12/12/20 13:27	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			20 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:35	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			10 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:34	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T5-MID

Lab Sample ID: 180-114632-15

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 15:38	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 15:35	RSK	TAL PIT
	Instrument ID: DORY									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T5-MID

Lab Sample ID: 180-114632-15
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340599	12/12/20 13:31	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			20 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:37	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			10 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:36	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 1.0-T1-MID

Lab Sample ID: 180-114632-16
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 15:52	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 15:48	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			25 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:41	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:40	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 1.0-T2-MID

Lab Sample ID: 180-114632-17
Date Collected: 12/02/20 11:20
Matrix: Water
Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			340113	12/10/20 16:50	EPS	TAL PIT
	Instrument ID: CHICS2100B									
Total/NA	Analysis	EPA 9056A		10			340113	12/10/20 17:06	EPS	TAL PIT
	Instrument ID: CHICS2100B									
Dissolved	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 15:55	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			20 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:42	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			340265	12/10/20 17:46	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T3-MID

Lab Sample ID: 180-114632-18

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			10 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 16:02	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 15:59	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			10 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:44	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			20 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:43	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 1.0-T4-MID

Lab Sample ID: 180-114632-19

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 16:09	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			5 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 16:06	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			25 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:46	KEM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 16:38	KEM	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 1.0-T5-MID

Lab Sample ID: 180-114632-20

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			340422	12/11/20 16:16	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			25 mL	25 mL	340145	12/10/20 08:02	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			340422	12/11/20 16:13	RSK	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	7470A			20 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			340576	12/14/20 15:48	KEM	TAL PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T5-MID

Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-20

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			20 mL	25 mL	340322	12/11/20 09:36	KEM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			340576	12/14/20 15:47	KEM	TAL PIT
	Instrument ID: HGZ									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KEM = Kimberly Mahoney
KHM = Kyle Mucroski

Batch Type: Analysis

AVS = Abbey Smith
EPS = Evan Scheuer
KEM = Kimberly Mahoney
RSK = Robert Kurtz

Client Sample ID: GAF-GW-1316-CONTROL-T1-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-1
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.776**		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 13:31	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 13:31	1
Arsenic	**0.000672**	**J**	0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 13:31	1
Barium	**0.00936**	**J**	0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 13:31	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 13:31	1
Boron	**1.63**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 13:31	1
Cadmium	**0.000242**	**J**	0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 13:31	1
Calcium	**248**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 13:31	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 13:31	1
Cobalt	**0.0235**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 13:31	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 13:31	1
Iron	**1.17**		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 13:31	1
Lead	**0.000634**	**J**	0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 13:31	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 13:31	1
Magnesium	**27.0**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 13:31	1
Manganese	**7.50**		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 13:31	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 13:31	1
Nickel	**0.0146**		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 13:31	1
Potassium	**6.41**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 13:31	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 13:31	1
Silver	**0.000399**	**J**	0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 13:31	1
Sodium	**86.0**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 13:31	1
Thallium	**0.000624**	**J**	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 13:31	1
Vanadium	**0.00176**		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 13:31	1
Zinc	**0.00594**		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 13:31	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0257**	**J**	0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 13:34	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 13:34	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 13:34	1
Barium	**0.00770**	**J**	0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 13:34	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 13:34	1
Boron	**1.63**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 13:34	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 13:34	1
Calcium	**246**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 13:34	1
Chromium	**0.00343**		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 13:34	1
Cobalt	**0.0190**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 13:34	1
Copper	**0.000796**	**J**	0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 13:34	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 13:34	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 13:34	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 13:34	1
Magnesium	**26.5**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 13:34	1
Manganese	**7.19**		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 13:34	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 13:34	1
Nickel	**0.0119**		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 13:34	1
Potassium	**4.83**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 13:34	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 13:34	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 13:34	1
Sodium	**86.6**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 13:34	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-CONTROL-T1-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-1
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.000454	J	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 13:34	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 13:34	1
Zinc	0.00547		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 13:34	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:03	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:06	1

Client Sample ID: GAF-GW-1316-CONTROL-T2-MID

Lab Sample ID: 180-114632-2

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.5		1.00	0.320	mg/L			12/10/20 14:39	1
Fluoride	0.316		0.100	0.0440	mg/L			12/10/20 14:39	1
Sulfate	1610		10.0	3.80	mg/L			12/10/20 14:55	10

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1.38		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 13:37	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 13:37	1
Arsenic	0.000592	J	0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 13:37	1
Barium	0.0112		0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 13:37	1
Beryllium	0.000499	J	0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 13:37	1
Boron	1.58		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 13:37	1
Cadmium	0.00114		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 13:37	1
Calcium	242		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 13:37	1
Chromium	0.00417		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 13:37	1
Cobalt	0.157		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 13:37	1
Copper	0.000839	J	0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 13:37	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 13:37	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 13:37	1
Lithium	0.00447	J	0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 13:37	1
Magnesium	31.1		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 13:37	1
Manganese	13.0		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 13:37	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 13:37	1
Nickel	0.0799		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 13:37	1
Potassium	3.78		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 13:37	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 13:37	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 13:37	1
Sodium	87.7		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 13:37	1
Thallium	0.000747	J	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 13:37	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 13:37	1
Zinc	0.127		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 13:37	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000250	0.000163	mg/L		12/11/20 09:29	12/14/20 15:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	66.6		5.00	5.00	mg/L			12/10/20 16:52	1
Bicarbonate Alkalinity as CaCO3	66.6		5.00	5.00	mg/L			12/10/20 16:52	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/10/20 16:52	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/10/20 16:52	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-CONTROL-T3-MID

Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-3

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**58.8**		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 13:41	1
Antimony	ND		0.0200	0.00378	mg/L		12/10/20 07:58	12/12/20 12:46	10
Arsenic	**0.00747**		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 13:41	1
Barium	**0.0226**	**J**	0.100	0.0160	mg/L		12/10/20 07:58	12/12/20 12:46	10
Beryllium	**0.0119**		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 13:41	1
Boron	**1.46**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 13:41	1
Cadmium	**0.00377**		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 13:41	1
Calcium	**339**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 13:41	1
Chromium	**0.00222**		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 13:41	1
Cobalt	**0.465**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 13:41	1
Copper	**0.0120**		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 13:41	1
Iron	**1.75**		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 13:41	1
Lead	**0.000605**	**J**	0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 13:41	1
Lithium	**0.0179**		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 13:41	1
Magnesium	**52.4**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 13:41	1
Manganese	**29.3**		0.0500	0.00866	mg/L		12/10/20 07:58	12/12/20 12:46	10
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 13:41	1
Nickel	**0.245**		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 13:41	1
Potassium	**4.13**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 13:41	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 13:41	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 13:41	1
Sodium	**85.3**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 13:41	1
Thallium	**0.000853**	**J**	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 13:41	1
Vanadium	**0.00224**		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 13:41	1
Zinc	**0.641**		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 13:41	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**59.5**		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 13:44	1
Antimony	ND		0.0200	0.00378	mg/L		12/10/20 07:58	12/12/20 12:49	10
Arsenic	**0.00691**		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 13:44	1
Barium	**0.0168**	**J**	0.100	0.0160	mg/L		12/10/20 07:58	12/12/20 12:49	10
Beryllium	**0.0117**		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 13:44	1
Boron	**1.43**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 13:44	1
Cadmium	**0.00370**		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 13:44	1
Calcium	**347**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 13:44	1
Chromium	**0.00504**		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 13:44	1
Cobalt	**0.469**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 13:44	1
Copper	**0.0115**		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 13:44	1
Iron	**0.0964**		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 13:44	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 13:44	1
Lithium	**0.0174**		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 13:44	1
Magnesium	**53.8**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 13:44	1
Manganese	**29.6**		0.0500	0.00866	mg/L		12/10/20 07:58	12/12/20 12:49	10
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 13:44	1
Nickel	**0.249**		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 13:44	1
Potassium	**3.76**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 13:44	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 13:44	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 13:44	1
Sodium	**88.4**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 13:44	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-CONTROL-T3-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-3
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.000720**	**J**	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 13:44	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 13:44	1
Zinc	**0.636**		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 13:44	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:08	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000250	0.000163	mg/L		12/11/20 09:29	12/14/20 15:09	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-CONTROL-T4-MID

Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-4

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**228**		0.150	0.0625	mg/L		12/10/20 07:58	12/11/20 13:48	1
Antimony	ND		0.0100	0.00189	mg/L		12/10/20 07:58	12/11/20 13:48	1
Arsenic	**0.0502**		0.00500	0.00157	mg/L		12/10/20 07:58	12/11/20 13:48	1
Barium	**0.119**		0.0500	0.00800	mg/L		12/10/20 07:58	12/11/20 13:48	1
Beryllium	**0.0409**		0.00500	0.000910	mg/L		12/10/20 07:58	12/11/20 13:48	1
Boron	**1.67**		0.400	0.193	mg/L		12/10/20 07:58	12/11/20 13:48	1
Cadmium	**0.00699**		0.00500	0.00109	mg/L		12/10/20 07:58	12/11/20 13:48	1
Calcium	**407**		2.50	0.635	mg/L		12/10/20 07:58	12/11/20 13:48	1
Chromium	**0.0483**		0.0100	0.00765	mg/L		12/10/20 07:58	12/11/20 13:48	1
Cobalt	**0.927**		0.00250	0.000670	mg/L		12/10/20 07:58	12/11/20 13:48	1
Copper	**0.0750**		0.0100	0.00314	mg/L		12/10/20 07:58	12/11/20 13:48	1
Iron	**118**		0.250	0.0975	mg/L		12/10/20 07:58	12/11/20 13:48	1
Lead	**0.0368**		0.00500	0.000640	mg/L		12/10/20 07:58	12/11/20 13:48	1
Lithium	**0.0564**		0.0250	0.0170	mg/L		12/10/20 07:58	12/11/20 13:48	1
Magnesium	**85.5**		2.50	0.414	mg/L		12/10/20 07:58	12/11/20 13:48	1
Manganese	**52.3**		0.0250	0.00433	mg/L		12/10/20 07:58	12/11/20 13:48	1
Molybdenum	**0.00746**	**J**	0.0250	0.00305	mg/L		12/10/20 07:58	12/11/20 13:48	1
Nickel	**0.430**		0.00500	0.00168	mg/L		12/10/20 07:58	12/11/20 13:48	1
Potassium	**9.53**		2.50	0.780	mg/L		12/10/20 07:58	12/11/20 13:48	1
Selenium	ND		0.0250	0.00755	mg/L		12/10/20 07:58	12/11/20 13:48	1
Silver	ND		0.00500	0.000885	mg/L		12/10/20 07:58	12/11/20 13:48	1
Sodium	**98.1**		2.50	1.74	mg/L		12/10/20 07:58	12/11/20 13:48	1
Thallium	**0.00286**	**J**	0.00500	0.000740	mg/L		12/10/20 07:58	12/11/20 13:48	1
Vanadium	**0.123**		0.00500	0.00496	mg/L		12/10/20 07:58	12/11/20 13:48	1
Zinc	**1.42**		0.0250	0.0161	mg/L		12/10/20 07:58	12/11/20 13:48	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**125**		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 13:51	1
Antimony	ND		0.0200	0.00378	mg/L		12/10/20 07:58	12/12/20 12:59	10
Arsenic	**0.0137**		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 13:51	1
Barium	**0.0170**	**J**	0.100	0.0160	mg/L		12/10/20 07:58	12/12/20 12:59	10
Beryllium	**0.0335**		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 13:51	1
Boron	**2.20**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 13:51	1
Cadmium	**0.00715**		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 13:51	1
Calcium	**372**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 13:51	1
Chromium	**0.00561**		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 13:51	1
Cobalt	**0.979**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 13:51	1
Copper	**0.0355**		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 13:51	1
Iron	**2.30**		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 13:51	1
Lead	**0.000136**	**J**	0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 13:51	1
Lithium	**0.0363**		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 13:51	1
Magnesium	**63.5**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 13:51	1
Manganese	**59.0**		0.0500	0.00866	mg/L		12/10/20 07:58	12/12/20 12:59	10
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 13:51	1
Nickel	**0.392**		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 13:51	1
Potassium	**3.69**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 13:51	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 13:51	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 13:51	1
Sodium	**83.0**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 13:51	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-CONTROL-T4-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-4
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.00123**		0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 13:51	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 13:51	1
Zinc	**1.09**		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 13:51	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000306**		0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 16:33	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000250	0.000163	mg/L		12/11/20 09:29	12/14/20 15:11	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-CONTROL-T5-MID

Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-5

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**218**		0.150	0.0625	mg/L		12/10/20 07:58	12/11/20 14:01	1
Antimony	ND		0.0100	0.00189	mg/L		12/10/20 07:58	12/11/20 14:01	1
Arsenic	**0.0504**		0.00500	0.00157	mg/L		12/10/20 07:58	12/11/20 14:01	1
Barium	**0.0916**		0.0500	0.00800	mg/L		12/10/20 07:58	12/11/20 14:01	1
Beryllium	**0.0663**		0.00500	0.000910	mg/L		12/10/20 07:58	12/11/20 14:01	1
Boron	**2.11**		0.400	0.193	mg/L		12/10/20 07:58	12/11/20 14:01	1
Cadmium	**0.00999**		0.00500	0.00109	mg/L		12/10/20 07:58	12/11/20 14:01	1
Calcium	**333**		2.50	0.635	mg/L		12/10/20 07:58	12/11/20 14:01	1
Chromium	**0.0548**		0.0100	0.00765	mg/L		12/10/20 07:58	12/11/20 14:01	1
Cobalt	**1.34**		0.00250	0.000670	mg/L		12/10/20 07:58	12/11/20 14:01	1
Copper	**0.107**		0.0100	0.00314	mg/L		12/10/20 07:58	12/11/20 14:01	1
Iron	**132**		0.250	0.0975	mg/L		12/10/20 07:58	12/11/20 14:01	1
Lead	**0.0303**		0.00500	0.000640	mg/L		12/10/20 07:58	12/11/20 14:01	1
Lithium	**0.0646**		0.0250	0.0170	mg/L		12/10/20 07:58	12/11/20 14:01	1
Magnesium	**82.4**		2.50	0.414	mg/L		12/10/20 07:58	12/11/20 14:01	1
Manganese	**68.0**		0.0250	0.00433	mg/L		12/10/20 07:58	12/11/20 14:01	1
Molybdenum	**0.00799**	**J**	0.0250	0.00305	mg/L		12/10/20 07:58	12/11/20 14:01	1
Nickel	**0.523**		0.00500	0.00168	mg/L		12/10/20 07:58	12/11/20 14:01	1
Potassium	**10.9**		2.50	0.780	mg/L		12/10/20 07:58	12/11/20 14:01	1
Selenium	ND		0.0250	0.00755	mg/L		12/10/20 07:58	12/11/20 14:01	1
Silver	ND		0.00500	0.000885	mg/L		12/10/20 07:58	12/11/20 14:01	1
Sodium	**73.6**		2.50	1.74	mg/L		12/10/20 07:58	12/11/20 14:01	1
Thallium	**0.00348**	**J**	0.00500	0.000740	mg/L		12/10/20 07:58	12/11/20 14:01	1
Vanadium	**0.123**		0.00500	0.00496	mg/L		12/10/20 07:58	12/11/20 14:01	1
Zinc	**1.69**		0.0250	0.0161	mg/L		12/10/20 07:58	12/11/20 14:01	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**206**		0.300	0.125	mg/L		12/10/20 07:58	12/12/20 13:03	10
Antimony	ND		0.0200	0.00378	mg/L		12/10/20 07:58	12/12/20 13:03	10
Arsenic	**0.0196**		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:05	1
Barium	ND		0.100	0.0160	mg/L		12/10/20 07:58	12/12/20 13:03	10
Beryllium	**0.0639**		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:05	1
Boron	**1.92**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:05	1
Cadmium	**0.00978**		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:05	1
Calcium	**396**		5.00	1.27	mg/L		12/10/20 07:58	12/12/20 13:03	10
Chromium	**0.00956**		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:05	1
Cobalt	**1.40**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:05	1
Copper	**0.0777**		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:05	1
Iron	**14.8**		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:05	1
Lead	**0.000242**	**J**	0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:05	1
Lithium	**0.0461**		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:05	1
Magnesium	**90.1**		5.00	0.827	mg/L		12/10/20 07:58	12/12/20 13:03	10
Manganese	**76.9**		0.0500	0.00866	mg/L		12/10/20 07:58	12/12/20 13:03	10
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:05	1
Nickel	**0.493**		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:05	1
Potassium	**7.04**		5.00	1.56	mg/L		12/10/20 07:58	12/12/20 13:03	10
Selenium	ND		0.0500	0.0151	mg/L		12/10/20 07:58	12/12/20 13:03	10
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:05	1
Sodium	**73.2**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:05	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-CONTROL-T5-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-5
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.00171		0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:05	1
Vanadium	0.00108		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:05	1
Zinc	1.57		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:05	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000717		0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 16:36	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000250	0.000163	mg/L		12/11/20 09:29	12/14/20 15:13	1

Client Sample ID: GAF-GW-1316-HI-CAL-T1-MID

Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-6

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.225**		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 14:08	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 14:08	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:08	1
Barium	**0.0157**		0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 14:08	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:08	1
Boron	**1.61**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:08	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:08	1
Calcium	**401**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 14:08	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:08	1
Cobalt	**0.00480**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:08	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:08	1
Iron	**0.153**		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:08	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:08	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:08	1
Magnesium	**32.9**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 14:08	1
Manganese	**4.66**		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 14:08	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:08	1
Nickel	**0.00183**		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:08	1
Potassium	**11.7**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 14:08	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 14:08	1
Silver	**0.000752**	**J**	0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:08	1
Sodium	**94.3**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:08	1
Thallium	**0.000219**	**J**	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:08	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:08	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:08	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 14:12	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 14:12	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:12	1
Barium	**0.0168**		0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 14:12	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:12	1
Boron	**1.58**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:12	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:12	1
Calcium	**387**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 14:12	1
Chromium	**0.00154**	**J**	0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:12	1
Cobalt	**0.00241**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:12	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:12	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:12	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:12	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:12	1
Magnesium	**31.9**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 14:12	1
Manganese	**3.37**		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 14:12	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:12	1
Nickel	**0.00109**		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:12	1
Potassium	**8.22**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 14:12	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 14:12	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:12	1
Sodium	**94.6**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:12	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-HI-CAL-T1-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-6
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.000237**	**J**	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:12	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:12	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:12	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:14	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:15	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-HI-CAL-T2-MID

Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-7

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.4		1.00	0.320	mg/L			12/10/20 15:12	1
Fluoride	0.166		0.100	0.0440	mg/L			12/10/20 15:12	1
Sulfate	1460		10.0	3.80	mg/L			12/10/20 15:28	10

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0167	J	0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 14:15	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 14:15	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:15	1
Barium	0.00753	J	0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 14:15	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:15	1
Boron	1.06		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:15	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:15	1
Calcium	459		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 14:15	1
Chromium	0.00397		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:15	1
Cobalt	0.000545		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:15	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:15	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:15	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:15	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:15	1
Magnesium	34.6		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 14:15	1
Manganese	0.668		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 14:15	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:15	1
Nickel	0.000358	J	0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:15	1
Potassium	3.37		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 14:15	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 14:15	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:15	1
Sodium	89.1		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:15	1
Thallium	0.000176	J	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:15	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:15	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:15	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	188		5.00	5.00	mg/L			12/10/20 17:25	1
Bicarbonate Alkalinity as CaCO3	188		5.00	5.00	mg/L			12/10/20 17:25	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/10/20 17:25	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/10/20 17:25	1

Client Sample ID: GAF-GW-1316-HI-CAL-T3-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-8
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	192		0.300	0.125	mg/L		12/10/20 07:58	12/11/20 14:19	2
Antimony	ND		0.0200	0.00378	mg/L		12/10/20 07:58	12/11/20 14:19	2
Arsenic	0.0778		0.0100	0.00313	mg/L		12/10/20 07:58	12/11/20 14:19	2
Barium	0.411		0.100	0.0160	mg/L		12/10/20 07:58	12/11/20 14:19	2
Beryllium	0.00805	J	0.0100	0.00182	mg/L		12/10/20 07:58	12/11/20 14:19	2
Boron	1.26		0.800	0.386	mg/L		12/10/20 07:58	12/11/20 14:19	2
Cadmium	ND		0.0100	0.00217	mg/L		12/10/20 07:58	12/11/20 14:19	2
Calcium	759		5.00	1.27	mg/L		12/10/20 07:58	12/11/20 14:19	2
Chromium	0.175		0.0200	0.0153	mg/L		12/10/20 07:58	12/11/20 14:19	2
Cobalt	0.0522		0.00500	0.00134	mg/L		12/10/20 07:58	12/11/20 14:19	2
Copper	0.102		0.0200	0.00627	mg/L		12/10/20 07:58	12/11/20 14:19	2
Iron	311		0.500	0.195	mg/L		12/10/20 07:58	12/11/20 14:19	2
Lead	0.0938		0.0100	0.00128	mg/L		12/10/20 07:58	12/11/20 14:19	2
Lithium	0.0714		0.0500	0.0339	mg/L		12/10/20 07:58	12/11/20 14:19	2
Magnesium	47.7		5.00	0.827	mg/L		12/10/20 07:58	12/11/20 14:19	2
Manganese	3.00		0.0500	0.00866	mg/L		12/10/20 07:58	12/11/20 14:19	2
Molybdenum	0.0146	J	0.0500	0.00610	mg/L		12/10/20 07:58	12/11/20 14:19	2
Nickel	0.0949		0.0100	0.00336	mg/L		12/10/20 07:58	12/11/20 14:19	2
Potassium	17.5		5.00	1.56	mg/L		12/10/20 07:58	12/11/20 14:19	2
Selenium	ND		0.0500	0.0151	mg/L		12/10/20 07:58	12/11/20 14:19	2
Silver	ND		0.0100	0.00177	mg/L		12/10/20 07:58	12/11/20 14:19	2
Sodium	83.5		5.00	3.48	mg/L		12/10/20 07:58	12/11/20 14:19	2
Thallium	0.00399	J	0.0100	0.00148	mg/L		12/10/20 07:58	12/11/20 14:19	2
Vanadium	0.463		0.0100	0.00991	mg/L		12/10/20 07:58	12/11/20 14:19	2
Zinc	0.330		0.0500	0.0322	mg/L		12/10/20 07:58	12/11/20 14:19	2

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0176	J	0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 14:22	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 14:22	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:22	1
Barium	0.00479	J	0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 14:22	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:22	1
Boron	0.514		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:22	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:22	1
Calcium	659		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 14:22	1
Chromium	0.00209		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:22	1
Cobalt	0.000416	J	0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:22	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:22	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:22	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:22	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:22	1
Magnesium	36.2		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 14:22	1
Manganese	0.645		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 14:22	1
Molybdenum	0.000782	J	0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:22	1
Nickel	ND		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:22	1
Potassium	3.34		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 14:22	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 14:22	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:22	1
Sodium	79.4		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:22	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-HI-CAL-T3-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-8
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:22	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:22	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:22	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000488**		0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 16:37	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:20	1

Client Sample ID: GAF-GW-1316-HI-CAL-T4-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-9
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.53**		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 14:26	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 14:26	1
Arsenic	**0.000670**	**J**	0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:26	1
Barium	**0.00802**	**J**	0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 14:26	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:26	1
Boron	**0.209**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:26	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:26	1
Calcium	**664**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 14:26	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:26	1
Cobalt	**0.000423**	**J**	0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:26	1
Copper	**0.000688**	**J**	0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:26	1
Iron	**1.58**		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:26	1
Lead	**0.000596**	**J**	0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:26	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:26	1
Magnesium	**19.5**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 14:26	1
Manganese	**0.103**		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 14:26	1
Molybdenum	**0.00224**	**J**	0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:26	1
Nickel	**0.000820**	**J**	0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:26	1
Potassium	**2.77**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 14:26	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 14:26	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:26	1
Sodium	**70.7**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:26	1
Thallium	ND		0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:26	1
Vanadium	**0.00316**		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:26	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:26	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0307**		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 14:29	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 14:29	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:29	1
Barium	**0.00532**	**J**	0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 14:29	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:29	1
Boron	**0.210**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:29	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:29	1
Calcium	**616**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 14:29	1
Chromium	**0.00417**		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:29	1
Cobalt	**0.000145**	**J**	0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:29	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:29	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:29	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:29	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:29	1
Magnesium	**18.6**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 14:29	1
Manganese	**0.0805**		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 14:29	1
Molybdenum	**0.00231**	**J**	0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:29	1
Nickel	ND		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:29	1
Potassium	**2.66**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 14:29	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 14:29	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:29	1
Sodium	**72.5**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:29	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-HI-CAL-T4-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-9
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:29	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:29	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:29	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:21	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000500	0.000325	mg/L		12/11/20 09:29	12/14/20 15:22	1

Client Sample ID: GAF-GW-1316-HI-CAL-T5-MID

Lab Sample ID: 180-114632-10

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.613**		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 14:32	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 14:32	1
Arsenic	**0.00195**		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:32	1
Barium	**0.00274**	**J**	0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 14:32	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:32	1
Boron	**0.195**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:32	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:32	1
Calcium	**693**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 14:32	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:32	1
Cobalt	**0.00163**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:32	1
Copper	**0.00104**	**J**	0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:32	1
Iron	**0.154**		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:32	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:32	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:32	1
Magnesium	**1.41**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 14:32	1
Manganese	**0.00221**	**J**	0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 14:32	1
Molybdenum	**0.0478**		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:32	1
Nickel	ND		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:32	1
Potassium	**1.87**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 14:32	1
Selenium	**0.00284**	**J**	0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 14:32	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:32	1
Sodium	**49.7**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:32	1
Thallium	ND		0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:32	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:32	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:32	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.290**		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 14:43	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 14:43	1
Arsenic	**0.00113**		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:43	1
Barium	**0.00433**	**J**	0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 14:43	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:43	1
Boron	**0.315**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:43	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:43	1
Calcium	**613**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 14:43	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:43	1
Cobalt	**0.00116**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:43	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:43	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:43	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:43	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:43	1
Magnesium	**3.92**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 14:43	1
Manganese	**0.00539**		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 14:43	1
Molybdenum	**0.0283**		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:43	1
Nickel	ND		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:43	1
Potassium	**7.33**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 14:43	1
Selenium	**0.00178**	**J**	0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 14:43	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:43	1
Sodium	**68.8**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:43	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-HI-CAL-T5-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-10
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.000148**	**J**	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:43	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:43	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:43	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000250	0.000163	mg/L		12/11/20 09:29	12/14/20 15:23	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000250	0.000163	mg/L		12/11/20 09:29	12/14/20 15:24	1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T1-MID

Lab Sample ID: 180-114632-11

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.09**		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 14:46	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 14:46	1
Arsenic	**0.000408**	**J**	0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:46	1
Barium	**0.00913**	**J**	0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 14:46	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:46	1
Boron	**1.45**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:46	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:46	1
Calcium	**305**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 14:46	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:46	1
Cobalt	**0.00865**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:46	1
Copper	**0.000801**	**J**	0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:46	1
Iron	**1.25**		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:46	1
Lead	**0.000500**	**J**	0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:46	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:46	1
Magnesium	**72.1**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 14:46	1
Manganese	**6.33**		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 14:46	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:46	1
Nickel	**0.00338**		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:46	1
Potassium	**5.21**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 14:46	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 14:46	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:46	1
Sodium	**93.7**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:46	1
Thallium	**0.000265**	**J**	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:46	1
Vanadium	**0.00258**		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:46	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:46	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 14:50	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 14:50	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 14:50	1
Barium	**0.00631**	**J**	0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 14:50	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 14:50	1
Boron	**1.48**		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 14:50	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 14:50	1
Calcium	**303**		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 14:50	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 14:50	1
Cobalt	**0.00798**		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 14:50	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 14:50	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 14:50	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 14:50	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 14:50	1
Magnesium	**71.3**		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 14:50	1
Manganese	**6.19**		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 14:50	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 14:50	1
Nickel	**0.00264**		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 14:50	1
Potassium	**4.86**		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 14:50	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 14:50	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 14:50	1
Sodium	**94.4**		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 14:50	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T1-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-11
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.000213**	**J**	0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 14:50	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 14:50	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 14:50	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:25	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+ *+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:26	1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T2-MID

Lab Sample ID: 180-114632-12

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41.2**		1.00	0.320	mg/L			12/10/20 16:17	1
Fluoride	**0.139**		0.100	0.0440	mg/L			12/10/20 16:17	1
Sulfate	**1570**		10.0	3.80	mg/L			12/10/20 16:33	10

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.37**		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:17	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:17	1
Arsenic	**0.000425**	**J**	0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:17	1
Barium	**0.00797**	**J**	0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:17	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:17	1
Boron	**1.36**		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:17	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:17	1
Calcium	**371**		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:17	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 15:17	1
Cobalt	**0.00214**		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:17	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:17	1
Iron	**1.44**		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:17	1
Lead	**0.000566**	**J**	0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:17	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:17	1
Magnesium	**150**		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:17	1
Manganese	**3.09**	**B**	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:17	1
Molybdenum	**0.000656**	**J**	0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:17	1
Nickel	**0.00114**		0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:17	1
Potassium	**3.81**		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:17	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:17	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:17	1
Sodium	**90.6**		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:17	1
Thallium	**0.000462**	**J**	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:17	1
Vanadium	**0.00309**		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:17	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:17	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000250	0.000163	mg/L		12/11/20 09:36	12/14/20 15:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**359**		5.00	5.00	mg/L			12/10/20 17:40	1
Bicarbonate Alkalinity as CaCO3	**359**		5.00	5.00	mg/L			12/10/20 17:40	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/10/20 17:40	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/10/20 17:40	1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T3-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-13
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.42**		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:21	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:21	1
Arsenic	**0.000755**	**J**	0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:21	1
Barium	**0.00723**	**J**	0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:21	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:21	1
Boron	**0.349**		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:21	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:21	1
Calcium	**462**		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:21	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 15:21	1
Cobalt	**0.000629**		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:21	1
Copper	**0.000760**	**J**	0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:21	1
Iron	**1.55**		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:21	1
Lead	**0.000648**	**J**	0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:21	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:21	1
Magnesium	**144**		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:21	1
Manganese	**0.0296**	**B**	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:21	1
Molybdenum	**0.00842**		0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:21	1
Nickel	**0.000780**	**J**	0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:21	1
Potassium	**2.80**		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:21	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:21	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:21	1
Sodium	**84.2**		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:21	1
Thallium	**0.000390**	**J**	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:21	1
Vanadium	**0.00289**		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:21	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:21	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0426**		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:24	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:24	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:24	1
Barium	**0.00588**	**J**	0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:24	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:24	1
Boron	**0.389**		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:24	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:24	1
Calcium	**480**		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:24	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 15:24	1
Cobalt	**0.000479**	**J**	0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:24	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:24	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:24	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:24	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:24	1
Magnesium	**147**		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:24	1
Manganese	**0.0457**	**B**	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:24	1
Molybdenum	**0.00810**		0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:24	1
Nickel	ND		0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:24	1
Potassium	**2.92**		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:24	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:24	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:24	1
Sodium	**87.2**		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:24	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T3-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-13
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.000297**	**J**	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:24	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:24	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:24	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000200	0.000130	mg/L		12/11/20 09:36	12/14/20 15:33	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000200	0.000130	mg/L		12/11/20 09:36	12/14/20 15:33	1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T4-MID

Lab Sample ID: 180-114632-14

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.54**		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:28	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:28	1
Arsenic	**0.00184**		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:28	1
Barium	**0.0149**		0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:28	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:28	1
Boron	**0.210**		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:28	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:28	1
Calcium	**585**		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:28	1
Chromium	**0.00277**		0.00200	0.00153	mg/L		12/10/20 08:02	12/12/20 13:27	1
Cobalt	**0.00220**		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:28	1
Copper	**0.00172**	**J**	0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:28	1
Iron	**3.48**		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:28	1
Lead	**0.00135**		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:28	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:28	1
Magnesium	**186**		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:28	1
Manganese	**0.131**	**B**	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:28	1
Molybdenum	**0.0162**		0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:28	1
Nickel	**0.00152**		0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:28	1
Potassium	**3.26**		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:28	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:28	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:28	1
Sodium	**71.9**		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:28	1
Thallium	**0.000283**	**J**	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:28	1
Vanadium	**0.00708**		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:28	1
Zinc	**0.00446**	**J**	0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:28	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0211**	**J**	0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:31	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:31	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:31	1
Barium	**0.00792**	**J**	0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:31	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:31	1
Boron	**0.208**		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:31	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:31	1
Calcium	**566**		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:31	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 15:31	1
Cobalt	**0.00106**		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:31	1
Copper	**0.000836**	**J**	0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:31	1
Iron	**0.390**		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:31	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:31	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:31	1
Magnesium	**244**		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:31	1
Manganese	**0.318**	**B**	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:31	1
Molybdenum	**0.00391**	**J**	0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:31	1
Nickel	**0.000372**	**J**	0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:31	1
Potassium	**3.01**		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:31	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:31	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:31	1
Sodium	**76.6**		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:31	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T4-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-14
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.000267	J	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:31	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:31	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:31	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000500	0.000325	mg/L		12/11/20 09:36	12/14/20 15:34	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000250	0.000163	mg/L		12/11/20 09:36	12/14/20 15:35	1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T5-MID

Lab Sample ID: 180-114632-15

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**4.67**		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:35	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:35	1
Arsenic	**0.00246**		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:35	1
Barium	**0.0147**		0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:35	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:35	1
Boron	**0.743**		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:35	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:35	1
Calcium	**461**		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:35	1
Chromium	**0.00411**		0.00200	0.00153	mg/L		12/10/20 08:02	12/12/20 13:31	1
Cobalt	**0.00191**		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:35	1
Copper	**0.00234**		0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:35	1
Iron	**6.36**		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:35	1
Lead	**0.00200**		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:35	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:35	1
Magnesium	**117**		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:35	1
Manganese	**0.931**	**B**	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:35	1
Molybdenum	**0.00168**	**J**	0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:35	1
Nickel	**0.00269**		0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:35	1
Potassium	**4.12**		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:35	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:35	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:35	1
Sodium	**81.6**		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:35	1
Thallium	**0.000389**	**J**	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:35	1
Vanadium	**0.0101**		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:35	1
Zinc	**0.00795**		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:35	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0302**		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:38	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:38	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:38	1
Barium	**0.00571**	**J**	0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:38	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:38	1
Boron	**0.230**		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:38	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:38	1
Calcium	**541**		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:38	1
Chromium	**0.00184**	**J**	0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 15:38	1
Cobalt	**0.00216**		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:38	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:38	1
Iron	**0.456**		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:38	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:38	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:38	1
Magnesium	**180**		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:38	1
Manganese	**0.810**	**B**	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:38	1
Molybdenum	**0.00297**	**J**	0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:38	1
Nickel	**0.000733**	**J**	0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:38	1
Potassium	**3.05**		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:38	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:38	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:38	1
Sodium	**70.2**		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:38	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T5-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-15
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.000226	J	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:38	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:38	1
Zinc	0.00362	J	0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:38	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000500	0.000325	mg/L		12/11/20 09:36	12/14/20 15:36	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000250	0.000163	mg/L		12/11/20 09:36	12/14/20 15:37	1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T1-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-16
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.912		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:48	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:48	1
Arsenic	0.000435	J	0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:48	1
Barium	0.00747	J	0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:48	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:48	1
Boron	1.10		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:48	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:48	1
Calcium	109		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:48	1
Chromium	0.00276		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 15:48	1
Cobalt	0.000438	J	0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:48	1
Copper	0.000644	J	0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:48	1
Iron	2.06		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:48	1
Lead	0.000587	J	0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:48	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:48	1
Magnesium	139		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:48	1
Manganese	0.0506	B	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:48	1
Molybdenum	0.00601		0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:48	1
Nickel	0.000594	J	0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:48	1
Potassium	3.44		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:48	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:48	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:48	1
Sodium	96.1		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:48	1
Thallium	0.000250	J	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:48	1
Vanadium	0.00416		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:48	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:48	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0418		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:52	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:52	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:52	1
Barium	0.00516	J	0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:52	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:52	1
Boron	1.17		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:52	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:52	1
Calcium	111		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:52	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 15:52	1
Cobalt	0.000237	J	0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:52	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:52	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:52	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:52	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:52	1
Magnesium	143		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:52	1
Manganese	0.0385	B	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:52	1
Molybdenum	0.00643		0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:52	1
Nickel	ND		0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:52	1
Potassium	3.58		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:52	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:52	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:52	1
Sodium	99.5		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:52	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T1-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-16
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.000182**	**J**	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:52	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:52	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:52	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000200	0.000130	mg/L		12/11/20 09:36	12/14/20 15:40	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000200	0.000130	mg/L		12/11/20 09:36	12/14/20 15:41	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T2-MID

Lab Sample ID: 180-114632-17

Date Collected: 12/02/20 11:20

Matrix: Water

Date Received: 12/09/20 09:30

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41.2**		1.00	0.320	mg/L			12/10/20 16:50	1
Fluoride	**0.478**		0.100	0.0440	mg/L			12/10/20 16:50	1
Sulfate	**1010**		10.0	3.80	mg/L			12/10/20 17:06	10

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0420**		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:55	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:55	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:55	1
Barium	**0.00466**	**J**	0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:55	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:55	1
Boron	**0.855**		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:55	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:55	1
Calcium	**223**		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:55	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 15:55	1
Cobalt	**0.000350**	**J**	0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:55	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:55	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:55	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:55	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:55	1
Magnesium	**189**		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:55	1
Manganese	**0.160**	**B**	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:55	1
Molybdenum	**0.00415**	**J**	0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:55	1
Nickel	ND		0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:55	1
Potassium	**3.14**		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:55	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:55	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:55	1
Sodium	**95.2**		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:55	1
Thallium	**0.000150**	**J**	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:55	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:55	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:55	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000250	0.000163	mg/L		12/11/20 09:36	12/14/20 15:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**5.57**		5.00	5.00	mg/L			12/10/20 17:46	1
Bicarbonate Alkalinity as CaCO3	**5.57**		5.00	5.00	mg/L			12/10/20 17:46	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/10/20 17:46	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/10/20 17:46	1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T3-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-18
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	9.27		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 15:59	1
Antimony	0.00108	J	0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 15:59	1
Arsenic	0.00491		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 15:59	1
Barium	0.0270		0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 15:59	1
Beryllium	0.000269	J	0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 15:59	1
Boron	0.467		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 15:59	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 15:59	1
Calcium	626		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 15:59	1
Chromium	0.00832		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 15:59	1
Cobalt	0.00392		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 15:59	1
Copper	0.00520		0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 15:59	1
Iron	13.2		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 15:59	1
Lead	0.00427		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 15:59	1
Lithium	0.00356	J	0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 15:59	1
Magnesium	9.08		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 15:59	1
Manganese	0.0939	B	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 15:59	1
Molybdenum	0.0354		0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 15:59	1
Nickel	0.00429		0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 15:59	1
Potassium	3.52		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 15:59	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 15:59	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 15:59	1
Sodium	80.2		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 15:59	1
Thallium	0.000272	J	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 15:59	1
Vanadium	0.0197		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 15:59	1
Zinc	0.0163		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 15:59	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0590	J	0.0750	0.0313	mg/L		12/10/20 08:02	12/11/20 16:02	1
Antimony	ND		0.00500	0.000945	mg/L		12/10/20 08:02	12/11/20 16:02	1
Arsenic	0.000943	J	0.00250	0.000783	mg/L		12/10/20 08:02	12/11/20 16:02	1
Barium	0.00890	J	0.0250	0.00400	mg/L		12/10/20 08:02	12/11/20 16:02	1
Beryllium	ND		0.00250	0.000455	mg/L		12/10/20 08:02	12/11/20 16:02	1
Boron	0.483		0.200	0.0965	mg/L		12/10/20 08:02	12/11/20 16:02	1
Cadmium	ND		0.00250	0.000543	mg/L		12/10/20 08:02	12/11/20 16:02	1
Calcium	601		1.25	0.318	mg/L		12/10/20 08:02	12/11/20 16:02	1
Chromium	ND		0.00500	0.00383	mg/L		12/10/20 08:02	12/11/20 16:02	1
Cobalt	0.00204		0.00125	0.000335	mg/L		12/10/20 08:02	12/11/20 16:02	1
Copper	ND		0.00500	0.00157	mg/L		12/10/20 08:02	12/11/20 16:02	1
Iron	ND		0.125	0.0488	mg/L		12/10/20 08:02	12/11/20 16:02	1
Lead	ND		0.00250	0.000320	mg/L		12/10/20 08:02	12/11/20 16:02	1
Lithium	ND		0.0125	0.00848	mg/L		12/10/20 08:02	12/11/20 16:02	1
Magnesium	6.38		1.25	0.207	mg/L		12/10/20 08:02	12/11/20 16:02	1
Manganese	ND		0.0125	0.00217	mg/L		12/10/20 08:02	12/11/20 16:02	1
Molybdenum	0.0319		0.0125	0.00153	mg/L		12/10/20 08:02	12/11/20 16:02	1
Nickel	ND		0.00250	0.000840	mg/L		12/10/20 08:02	12/11/20 16:02	1
Potassium	2.67		1.25	0.390	mg/L		12/10/20 08:02	12/11/20 16:02	1
Selenium	ND		0.0125	0.00378	mg/L		12/10/20 08:02	12/11/20 16:02	1
Silver	ND		0.00250	0.000443	mg/L		12/10/20 08:02	12/11/20 16:02	1
Sodium	80.0		1.25	0.870	mg/L		12/10/20 08:02	12/11/20 16:02	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T3-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-18
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00250	0.000370	mg/L		12/10/20 08:02	12/11/20 16:02	1
Vanadium	ND		0.00250	0.00248	mg/L		12/10/20 08:02	12/11/20 16:02	1
Zinc	ND		0.0125	0.00805	mg/L		12/10/20 08:02	12/11/20 16:02	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000250	0.000163	mg/L		12/11/20 09:36	12/14/20 15:43	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000500	0.000325	mg/L		12/11/20 09:36	12/14/20 15:44	1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T4-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-19
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	63.7		0.150	0.0625	mg/L		12/10/20 08:02	12/11/20 16:06	1
Antimony	0.00395	J	0.0100	0.00189	mg/L		12/10/20 08:02	12/11/20 16:06	1
Arsenic	0.0309		0.00500	0.00157	mg/L		12/10/20 08:02	12/11/20 16:06	1
Barium	0.137		0.0500	0.00800	mg/L		12/10/20 08:02	12/11/20 16:06	1
Beryllium	0.00265	J	0.00500	0.000910	mg/L		12/10/20 08:02	12/11/20 16:06	1
Boron	1.75		0.400	0.193	mg/L		12/10/20 08:02	12/11/20 16:06	1
Cadmium	ND		0.00500	0.00109	mg/L		12/10/20 08:02	12/11/20 16:06	1
Calcium	902		2.50	0.635	mg/L		12/10/20 08:02	12/11/20 16:06	1
Chromium	0.0527		0.0100	0.00765	mg/L		12/10/20 08:02	12/11/20 16:06	1
Cobalt	0.0491		0.00250	0.000670	mg/L		12/10/20 08:02	12/11/20 16:06	1
Copper	0.0388		0.0100	0.00314	mg/L		12/10/20 08:02	12/11/20 16:06	1
Iron	109		0.250	0.0975	mg/L		12/10/20 08:02	12/11/20 16:06	1
Lead	0.0305		0.00500	0.000640	mg/L		12/10/20 08:02	12/11/20 16:06	1
Lithium	0.0224	J	0.0250	0.0170	mg/L		12/10/20 08:02	12/11/20 16:06	1
Magnesium	40.8		2.50	0.414	mg/L		12/10/20 08:02	12/11/20 16:06	1
Manganese	2.71	B	0.0250	0.00433	mg/L		12/10/20 08:02	12/11/20 16:06	1
Molybdenum	0.0378		0.0250	0.00305	mg/L		12/10/20 08:02	12/11/20 16:06	1
Nickel	0.0413		0.00500	0.00168	mg/L		12/10/20 08:02	12/11/20 16:06	1
Potassium	11.7		2.50	0.780	mg/L		12/10/20 08:02	12/11/20 16:06	1
Selenium	ND		0.0250	0.00755	mg/L		12/10/20 08:02	12/11/20 16:06	1
Silver	ND		0.00500	0.000885	mg/L		12/10/20 08:02	12/11/20 16:06	1
Sodium	74.4		2.50	1.74	mg/L		12/10/20 08:02	12/11/20 16:06	1
Thallium	0.00181	J	0.00500	0.000740	mg/L		12/10/20 08:02	12/11/20 16:06	1
Vanadium	0.147		0.00500	0.00496	mg/L		12/10/20 08:02	12/11/20 16:06	1
Zinc	0.141		0.0250	0.0161	mg/L		12/10/20 08:02	12/11/20 16:06	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.189		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 16:09	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 16:09	1
Arsenic	0.00280		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 16:09	1
Barium	0.00482	J	0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 16:09	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 16:09	1
Boron	0.185		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 16:09	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 16:09	1
Calcium	706		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 16:09	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 16:09	1
Cobalt	0.00643		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 16:09	1
Copper	0.00195	J	0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 16:09	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 16:09	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 16:09	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 16:09	1
Magnesium	1.61		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 16:09	1
Manganese	ND		0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 16:09	1
Molybdenum	0.0567		0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 16:09	1
Nickel	ND		0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 16:09	1
Potassium	2.23		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 16:09	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 16:09	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 16:09	1
Sodium	63.8		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 16:09	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T4-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-19
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 16:09	1
Vanadium	**0.00207**		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 16:09	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 16:09	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000175**	**J**	0.000200	0.000130	mg/L		12/11/20 09:36	12/14/20 16:38	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000200	0.000130	mg/L		12/11/20 09:36	12/14/20 15:46	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T5-MID

Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-20

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**4.76**		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 16:13	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 16:13	1
Arsenic	**0.00198**		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 16:13	1
Barium	**0.0196**		0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 16:13	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 16:13	1
Boron	**2.34**		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 16:13	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 16:13	1
Calcium	**690**		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 16:13	1
Chromium	**0.00352**		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 16:13	1
Cobalt	**0.0241**		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 16:13	1
Copper	**0.00195**	**J**	0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 16:13	1
Iron	**5.83**		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 16:13	1
Lead	**0.00198**		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 16:13	1
Lithium	**0.00520**		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 16:13	1
Magnesium	**48.9**		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 16:13	1
Manganese	**10.0**	**B**	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 16:13	1
Molybdenum	**0.00737**		0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 16:13	1
Nickel	**0.0189**		0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 16:13	1
Potassium	**7.02**		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 16:13	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 16:13	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 16:13	1
Sodium	**62.1**		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 16:13	1
Thallium	**0.000463**	**J**	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 16:13	1
Vanadium	**0.00945**		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 16:13	1
Zinc	**0.00826**		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 16:13	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.152**		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 16:16	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 16:16	1
Arsenic	**0.000577**	**J**	0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 16:16	1
Barium	**0.00720**	**J**	0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 16:16	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 16:16	1
Boron	**1.09**		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 16:16	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 16:16	1
Calcium	**737**		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 16:16	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 16:16	1
Cobalt	**0.00270**		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 16:16	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 16:16	1
Iron	**0.0529**		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 16:16	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 16:16	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 16:16	1
Magnesium	**23.5**		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 16:16	1
Manganese	**0.239**	**B**	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 16:16	1
Molybdenum	**0.0227**		0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 16:16	1
Nickel	**0.000499**	**J**	0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 16:16	1
Potassium	**4.81**		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 16:16	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 16:16	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 16:16	1
Sodium	**60.5**		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 16:16	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-114632-1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T5-MID
Date Collected: 12/02/20 11:20
Date Received: 12/09/20 09:30

Lab Sample ID: 180-114632-20
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.000173	J	0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 16:16	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 16:16	1
Zinc	0.00537		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 16:16	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000250	0.000163	mg/L		12/11/20 09:36	12/14/20 15:47	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000250	0.000163	mg/L		12/11/20 09:36	12/14/20 15:48	1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-340113/6
Matrix: Water
Analysis Batch: 340113

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00	0.320	mg/L			12/10/20 05:46	1
Fluoride	ND		0.100	0.0440	mg/L			12/10/20 05:46	1
Sulfate	ND		1.00	0.380	mg/L			12/10/20 05:46	1

Lab Sample ID: LCS 180-340113/5
Matrix: Water
Analysis Batch: 340113

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	46.43		mg/L		93	80 - 120
Fluoride	2.50	2.531		mg/L		101	80 - 120
Sulfate	50.0	50.18		mg/L		100	80 - 120

Lab Sample ID: 180-114592-R-1 MS
Matrix: Water
Analysis Batch: 340113

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	ND		50.0	50.33		mg/L		101	80 - 120
Fluoride	ND		2.50	2.562		mg/L		102	80 - 120
Sulfate	ND		50.0	51.40		mg/L		103	80 - 120

Lab Sample ID: 180-114592-R-1 MSD
Matrix: Water
Analysis Batch: 340113

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		50.0	51.15		mg/L		102	80 - 120	2	15
Fluoride	ND		2.50	2.696		mg/L		108	80 - 120	5	15
Sulfate	ND		50.0	54.53		mg/L		109	80 - 120	6	15

Method: EPA 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-340144/1-A
Matrix: Water
Analysis Batch: 340422

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 340144

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/10/20 07:58	12/11/20 13:03	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 07:58	12/11/20 13:03	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 07:58	12/11/20 13:03	1
Barium	ND		0.0100	0.00160	mg/L		12/10/20 07:58	12/11/20 13:03	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 07:58	12/11/20 13:03	1
Boron	ND		0.0800	0.0386	mg/L		12/10/20 07:58	12/11/20 13:03	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 07:58	12/11/20 13:03	1
Calcium	ND		0.500	0.127	mg/L		12/10/20 07:58	12/11/20 13:03	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 07:58	12/11/20 13:03	1
Cobalt	ND		0.000500	0.000134	mg/L		12/10/20 07:58	12/11/20 13:03	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 07:58	12/11/20 13:03	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 07:58	12/11/20 13:03	1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-340144/1-A
Matrix: Water
Analysis Batch: 340422

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 340144

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00100	0.000128	mg/L		12/10/20 07:58	12/11/20 13:03	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 07:58	12/11/20 13:03	1
Magnesium	ND		0.500	0.0827	mg/L		12/10/20 07:58	12/11/20 13:03	1
Manganese	ND		0.00500	0.000866	mg/L		12/10/20 07:58	12/11/20 13:03	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 07:58	12/11/20 13:03	1
Nickel	ND		0.00100	0.000336	mg/L		12/10/20 07:58	12/11/20 13:03	1
Potassium	ND		0.500	0.156	mg/L		12/10/20 07:58	12/11/20 13:03	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 07:58	12/11/20 13:03	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 07:58	12/11/20 13:03	1
Sodium	ND		0.500	0.348	mg/L		12/10/20 07:58	12/11/20 13:03	1
Thallium	ND		0.00100	0.000148	mg/L		12/10/20 07:58	12/11/20 13:03	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 07:58	12/11/20 13:03	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 07:58	12/11/20 13:03	1

Lab Sample ID: LCS 180-340144/2-A
Matrix: Water
Analysis Batch: 340422

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 340144

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5.00	4.969		mg/L		99	80 - 120
Antimony	0.250	0.2232		mg/L		89	80 - 120
Arsenic	1.00	1.020		mg/L		102	80 - 120
Barium	1.00	0.9613		mg/L		96	80 - 120
Beryllium	0.500	0.4927		mg/L		99	80 - 120
Boron	1.25	1.223		mg/L		98	80 - 120
Cadmium	0.500	0.5237		mg/L		105	80 - 120
Calcium	25.0	28.50		mg/L		114	80 - 120
Chromium	0.500	0.5178		mg/L		104	80 - 120
Cobalt	0.500	0.4974		mg/L		99	80 - 120
Copper	0.500	0.4997		mg/L		100	80 - 120
Iron	5.00	4.996		mg/L		100	80 - 120
Lead	0.500	0.5234		mg/L		105	80 - 120
Lithium	0.500	0.4938		mg/L		99	80 - 120
Magnesium	25.0	25.65		mg/L		103	80 - 120
Manganese	0.500	0.5243		mg/L		105	80 - 120
Molybdenum	0.500	0.5143		mg/L		103	80 - 120
Nickel	0.500	0.4907		mg/L		98	80 - 120
Potassium	25.0	23.99		mg/L		96	80 - 120
Selenium	1.00	1.055		mg/L		105	80 - 120
Silver	0.250	0.2525		mg/L		101	80 - 120
Sodium	25.0	25.67		mg/L		103	80 - 120
Thallium	1.00	1.079		mg/L		108	80 - 120
Vanadium	0.500	0.5174		mg/L		103	80 - 120
Zinc	0.250	0.2458		mg/L		98	80 - 120

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 180-340144/3-A
Matrix: Water
Analysis Batch: 340422

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 340144

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			5.00	4.817		mg/L		96	80 - 120	3	20
Antimony			0.250	0.2165		mg/L		87	80 - 120	3	20
Arsenic			1.00	0.9874		mg/L		99	80 - 120	3	20
Barium			1.00	0.9262		mg/L		93	80 - 120	4	20
Beryllium			0.500	0.4755		mg/L		95	80 - 120	4	20
Boron			1.25	1.227		mg/L		98	80 - 120	0	20
Cadmium			0.500	0.5057		mg/L		101	80 - 120	4	20
Calcium			25.0	27.97		mg/L		112	80 - 120	2	20
Chromium			0.500	0.4975		mg/L		100	80 - 120	4	20
Cobalt			0.500	0.4765		mg/L		95	80 - 120	4	20
Copper			0.500	0.4792		mg/L		96	80 - 120	4	20
Iron			5.00	4.616		mg/L		92	80 - 120	8	20
Lead			0.500	0.5005		mg/L		100	80 - 120	4	20
Lithium			0.500	0.4762		mg/L		95	80 - 120	4	20
Magnesium			25.0	25.10		mg/L		100	80 - 120	2	20
Manganese			0.500	0.4983		mg/L		100	80 - 120	5	20
Molybdenum			0.500	0.4935		mg/L		99	80 - 120	4	20
Nickel			0.500	0.4683		mg/L		94	80 - 120	5	20
Potassium			25.0	23.25		mg/L		93	80 - 120	3	20
Selenium			1.00	1.006		mg/L		101	80 - 120	5	20
Silver			0.250	0.2445		mg/L		98	80 - 120	3	20
Sodium			25.0	25.11		mg/L		100	80 - 120	2	20
Thallium			1.00	1.041		mg/L		104	80 - 120	4	20
Vanadium			0.500	0.4980		mg/L		100	80 - 120	4	20
Zinc			0.250	0.2341		mg/L		94	80 - 120	5	20

Lab Sample ID: MB 180-340145/1-A
Matrix: Water
Analysis Batch: 340422

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 340145

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/10/20 08:02	12/11/20 14:57	1
Antimony	ND		0.00200	0.000378	mg/L		12/10/20 08:02	12/11/20 14:57	1
Arsenic	ND		0.00100	0.000313	mg/L		12/10/20 08:02	12/11/20 14:57	1
Barium	ND		0.0100	0.00160	mg/L		12/10/20 08:02	12/11/20 14:57	1
Beryllium	ND		0.00100	0.000182	mg/L		12/10/20 08:02	12/11/20 14:57	1
Boron	ND		0.0800	0.0386	mg/L		12/10/20 08:02	12/11/20 14:57	1
Cadmium	ND		0.00100	0.000217	mg/L		12/10/20 08:02	12/11/20 14:57	1
Calcium	ND		0.500	0.127	mg/L		12/10/20 08:02	12/11/20 14:57	1
Chromium	ND		0.00200	0.00153	mg/L		12/10/20 08:02	12/11/20 14:57	1
Cobalt	ND		0.000500	0.000134	mg/L		12/10/20 08:02	12/11/20 14:57	1
Copper	ND		0.00200	0.000627	mg/L		12/10/20 08:02	12/11/20 14:57	1
Iron	ND		0.0500	0.0195	mg/L		12/10/20 08:02	12/11/20 14:57	1
Lead	ND		0.00100	0.000128	mg/L		12/10/20 08:02	12/11/20 14:57	1
Lithium	ND		0.00500	0.00339	mg/L		12/10/20 08:02	12/11/20 14:57	1
Magnesium	ND		0.500	0.0827	mg/L		12/10/20 08:02	12/11/20 14:57	1
Manganese	0.001042	J	0.00500	0.000866	mg/L		12/10/20 08:02	12/11/20 14:57	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/10/20 08:02	12/11/20 14:57	1
Nickel	ND		0.00100	0.000336	mg/L		12/10/20 08:02	12/11/20 14:57	1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-340145/1-A
Matrix: Water
Analysis Batch: 340422

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 340145

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND		0.500	0.156	mg/L		12/10/20 08:02	12/11/20 14:57	1
Selenium	ND		0.00500	0.00151	mg/L		12/10/20 08:02	12/11/20 14:57	1
Silver	ND		0.00100	0.000177	mg/L		12/10/20 08:02	12/11/20 14:57	1
Sodium	ND		0.500	0.348	mg/L		12/10/20 08:02	12/11/20 14:57	1
Thallium	ND		0.00100	0.000148	mg/L		12/10/20 08:02	12/11/20 14:57	1
Vanadium	ND		0.00100	0.000991	mg/L		12/10/20 08:02	12/11/20 14:57	1
Zinc	ND		0.00500	0.00322	mg/L		12/10/20 08:02	12/11/20 14:57	1

Lab Sample ID: LCS 180-340145/2-A
Matrix: Water
Analysis Batch: 340422

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 340145

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5.00	5.140		mg/L		103	80 - 120
Antimony	0.250	0.2267		mg/L		91	80 - 120
Arsenic	1.00	1.059		mg/L		106	80 - 120
Barium	1.00	0.9387		mg/L		94	80 - 120
Beryllium	0.500	0.4856		mg/L		97	80 - 120
Boron	1.25	1.242		mg/L		99	80 - 120
Cadmium	0.500	0.5528		mg/L		111	80 - 120
Calcium	25.0	29.14		mg/L		117	80 - 120
Chromium	0.500	0.5330		mg/L		107	80 - 120
Cobalt	0.500	0.4942		mg/L		99	80 - 120
Copper	0.500	0.4970		mg/L		99	80 - 120
Iron	5.00	4.873		mg/L		97	80 - 120
Lead	0.500	0.5327		mg/L		107	80 - 120
Lithium	0.500	0.4979		mg/L		100	80 - 120
Magnesium	25.0	27.49		mg/L		110	80 - 120
Manganese	0.500	0.5276		mg/L		106	80 - 120
Molybdenum	0.500	0.5131		mg/L		103	80 - 120
Nickel	0.500	0.4877		mg/L		98	80 - 120
Potassium	25.0	24.09		mg/L		96	80 - 120
Selenium	1.00	1.104		mg/L		110	80 - 120
Silver	0.250	0.2612		mg/L		104	80 - 120
Sodium	25.0	27.73		mg/L		111	80 - 120
Thallium	1.00	1.122		mg/L		112	80 - 120
Vanadium	0.500	0.5328		mg/L		107	80 - 120
Zinc	0.250	0.2447		mg/L		98	80 - 120

Lab Sample ID: LCSD 180-340145/3-A
Matrix: Water
Analysis Batch: 340422

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 340145

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	5.00	5.185		mg/L		104	80 - 120	1	20
Antimony	0.250	0.2243		mg/L		90	80 - 120	1	20
Arsenic	1.00	1.060		mg/L		106	80 - 120	0	20
Barium	1.00	0.9286		mg/L		93	80 - 120	1	20
Beryllium	0.500	0.4817		mg/L		96	80 - 120	1	20

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 180-340145/3-A
Matrix: Water
Analysis Batch: 340422

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 340145

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron			1.25	1.309		mg/L		105	80 - 120	5	20
Cadmium			0.500	0.5545		mg/L		111	80 - 120	0	20
Calcium			25.0	29.00		mg/L		116	80 - 120	0	20
Chromium			0.500	0.5334		mg/L		107	80 - 120	0	20
Cobalt			0.500	0.4906		mg/L		98	80 - 120	1	20
Copper			0.500	0.4923		mg/L		98	80 - 120	1	20
Iron			5.00	4.821		mg/L		96	80 - 120	1	20
Lead			0.500	0.5278		mg/L		106	80 - 120	1	20
Lithium			0.500	0.4916		mg/L		98	80 - 120	1	20
Magnesium			25.0	27.58		mg/L		110	80 - 120	0	20
Manganese			0.500	0.5288		mg/L		106	80 - 120	0	20
Molybdenum			0.500	0.5096		mg/L		102	80 - 120	1	20
Nickel			0.500	0.4803		mg/L		96	80 - 120	2	20
Potassium			25.0	24.06		mg/L		96	80 - 120	0	20
Selenium			1.00	1.074		mg/L		107	80 - 120	3	20
Silver			0.250	0.2602		mg/L		104	80 - 120	0	20
Sodium			25.0	27.80		mg/L		111	80 - 120	0	20
Thallium			1.00	1.098		mg/L		110	80 - 120	2	20
Vanadium			0.500	0.5308		mg/L		106	80 - 120	0	20
Zinc			0.250	0.2489		mg/L		100	80 - 120	2	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-340320/1-A
Matrix: Water
Analysis Batch: 340576

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 340320

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000200	0.000130	mg/L		12/11/20 09:29	12/14/20 15:00	1

Lab Sample ID: LCS 180-340320/2-A
Matrix: Water
Analysis Batch: 340576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 340320

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00250	0.002476	^+	mg/L		99	80 - 120		

Lab Sample ID: LCSD 180-340320/3-A
Matrix: Water
Analysis Batch: 340576

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 340320

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury			0.00250	0.002885	^+	mg/L		115	80 - 120	6	20

Lab Sample ID: MB 180-340322/1-A
Matrix: Water
Analysis Batch: 340576

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 340322

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	^+	0.000200	0.000130	mg/L		12/11/20 09:36	12/14/20 15:29	1

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: LCS 180-340322/2-A
Matrix: Water
Analysis Batch: 340576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 340322

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.002904	^+	mg/L		116	80 - 120

Lab Sample ID: LCSD 180-340322/3-A
Matrix: Water
Analysis Batch: 340576

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 340322

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00250	0.003011	^+	mg/L		120	80 - 120	4	20

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-340265/54
Matrix: Water
Analysis Batch: 340265

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	ND		5.00	5.00	mg/L			12/10/20 14:39	1
Bicarbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/10/20 14:39	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/10/20 14:39	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/10/20 14:39	1

Lab Sample ID: MB 180-340265/78
Matrix: Water
Analysis Batch: 340265

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	ND		5.00	5.00	mg/L			12/10/20 17:18	1
Bicarbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/10/20 17:18	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/10/20 17:18	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/10/20 17:18	1

Lab Sample ID: LCS 180-340265/53
Matrix: Water
Analysis Batch: 340265

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity as CaCO3 to pH 4.5	250	240.1		mg/L		96	90 - 110

Lab Sample ID: LCS 180-340265/77
Matrix: Water
Analysis Batch: 340265

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity as CaCO3 to pH 4.5	250	238.0		mg/L		95	90 - 110

Method: SM2320 B - Alkalinity, Total (Continued)

Lab Sample ID: LLCS 180-340265/4
Matrix: Water
Analysis Batch: 340265

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Alkalinity as CaCO3 to pH 4.5			20.0	20.68		mg/L		103	90 - 110		

Lab Sample ID: 180-114605-B-7 DU
Matrix: Water
Analysis Batch: 340265

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	157			152.3		mg/L				3	20
Bicarbonate Alkalinity as CaCO3	157			152.3		mg/L				3	20
Carbonate Alkalinity as CaCO3	ND			ND		mg/L				NC	20
Hydroxide Alkalinity	ND			ND		mg/L				NC	20

Lab Sample ID: 180-114632-7 DU
Matrix: Water
Analysis Batch: 340265

Client Sample ID: GAF-GW-1316-HI-CAL-T2-MID
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	188			195.5		mg/L				4	20
Bicarbonate Alkalinity as CaCO3	188			195.5		mg/L				4	20
Carbonate Alkalinity as CaCO3	ND			ND		mg/L				NC	20
Hydroxide Alkalinity	ND			ND		mg/L				NC	20

HPLC/IC

Analysis Batch: 340113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-2	GAF-GW-1316-CONTROL-T2-MID	Total/NA	Water	EPA 9056A	
180-114632-2	GAF-GW-1316-CONTROL-T2-MID	Total/NA	Water	EPA 9056A	
180-114632-7	GAF-GW-1316-HI-CAL-T2-MID	Total/NA	Water	EPA 9056A	
180-114632-7	GAF-GW-1316-HI-CAL-T2-MID	Total/NA	Water	EPA 9056A	
180-114632-12	GAF-GW-1316-DOLO 0.5-T2-MID	Total/NA	Water	EPA 9056A	
180-114632-12	GAF-GW-1316-DOLO 0.5-T2-MID	Total/NA	Water	EPA 9056A	
180-114632-17	GAF-GW-1316-DOLO 1.0-T2-MID	Total/NA	Water	EPA 9056A	
180-114632-17	GAF-GW-1316-DOLO 1.0-T2-MID	Total/NA	Water	EPA 9056A	
MB 180-340113/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-340113/5	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-114592-R-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-114592-R-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 340144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-1	GAF-GW-1316-CONTROL-T1-MID	Dissolved	Water	3005A	
180-114632-1	GAF-GW-1316-CONTROL-T1-MID	Total Recoverable	Water	3005A	
180-114632-2	GAF-GW-1316-CONTROL-T2-MID	Dissolved	Water	3005A	
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Dissolved	Water	3005A	
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Total Recoverable	Water	3005A	
180-114632-4	GAF-GW-1316-CONTROL-T4-MID	Dissolved	Water	3005A	
180-114632-4	GAF-GW-1316-CONTROL-T4-MID	Total Recoverable	Water	3005A	
180-114632-5	GAF-GW-1316-CONTROL-T5-MID	Dissolved	Water	3005A	
180-114632-5	GAF-GW-1316-CONTROL-T5-MID	Total Recoverable	Water	3005A	
180-114632-6	GAF-GW-1316-HI-CAL-T1-MID	Dissolved	Water	3005A	
180-114632-6	GAF-GW-1316-HI-CAL-T1-MID	Total Recoverable	Water	3005A	
180-114632-7	GAF-GW-1316-HI-CAL-T2-MID	Dissolved	Water	3005A	
180-114632-8	GAF-GW-1316-HI-CAL-T3-MID	Dissolved	Water	3005A	
180-114632-8	GAF-GW-1316-HI-CAL-T3-MID	Total Recoverable	Water	3005A	
180-114632-9	GAF-GW-1316-HI-CAL-T4-MID	Dissolved	Water	3005A	
180-114632-9	GAF-GW-1316-HI-CAL-T4-MID	Total Recoverable	Water	3005A	
180-114632-10	GAF-GW-1316-HI-CAL-T5-MID	Dissolved	Water	3005A	
180-114632-10	GAF-GW-1316-HI-CAL-T5-MID	Total Recoverable	Water	3005A	
180-114632-11	GAF-GW-1316-DOLO 0.5-T1-MID	Dissolved	Water	3005A	
180-114632-11	GAF-GW-1316-DOLO 0.5-T1-MID	Total Recoverable	Water	3005A	
MB 180-340144/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-340144/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 180-340144/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Prep Batch: 340145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-12	GAF-GW-1316-DOLO 0.5-T2-MID	Dissolved	Water	3005A	
180-114632-13	GAF-GW-1316-DOLO 0.5-T3-MID	Dissolved	Water	3005A	
180-114632-13	GAF-GW-1316-DOLO 0.5-T3-MID	Total Recoverable	Water	3005A	
180-114632-14	GAF-GW-1316-DOLO 0.5-T4-MID	Dissolved	Water	3005A	
180-114632-14	GAF-GW-1316-DOLO 0.5-T4-MID	Total Recoverable	Water	3005A	
180-114632-15	GAF-GW-1316-DOLO 0.5-T5-MID	Dissolved	Water	3005A	
180-114632-15	GAF-GW-1316-DOLO 0.5-T5-MID	Total Recoverable	Water	3005A	
180-114632-16	GAF-GW-1316-DOLO 1.0-T1-MID	Dissolved	Water	3005A	

Metals (Continued)

Prep Batch: 340145 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-16	GAF-GW-1316-DOLO 1.0-T1-MID	Total Recoverable	Water	3005A	
180-114632-17	GAF-GW-1316-DOLO 1.0-T2-MID	Dissolved	Water	3005A	
180-114632-18	GAF-GW-1316-DOLO 1.0-T3-MID	Dissolved	Water	3005A	
180-114632-18	GAF-GW-1316-DOLO 1.0-T3-MID	Total Recoverable	Water	3005A	
180-114632-19	GAF-GW-1316-DOLO 1.0-T4-MID	Dissolved	Water	3005A	
180-114632-19	GAF-GW-1316-DOLO 1.0-T4-MID	Total Recoverable	Water	3005A	
180-114632-20	GAF-GW-1316-DOLO 1.0-T5-MID	Dissolved	Water	3005A	
180-114632-20	GAF-GW-1316-DOLO 1.0-T5-MID	Total Recoverable	Water	3005A	
MB 180-340145/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-340145/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 180-340145/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Prep Batch: 340320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-1	GAF-GW-1316-CONTROL-T1-MID	Dissolved	Water	7470A	
180-114632-1	GAF-GW-1316-CONTROL-T1-MID	Total/NA	Water	7470A	
180-114632-2	GAF-GW-1316-CONTROL-T2-MID	Dissolved	Water	7470A	
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Dissolved	Water	7470A	
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Total/NA	Water	7470A	
180-114632-4	GAF-GW-1316-CONTROL-T4-MID	Dissolved	Water	7470A	
180-114632-4	GAF-GW-1316-CONTROL-T4-MID	Total/NA	Water	7470A	
180-114632-5	GAF-GW-1316-CONTROL-T5-MID	Dissolved	Water	7470A	
180-114632-5	GAF-GW-1316-CONTROL-T5-MID	Total/NA	Water	7470A	
180-114632-6	GAF-GW-1316-HI-CAL-T1-MID	Dissolved	Water	7470A	
180-114632-6	GAF-GW-1316-HI-CAL-T1-MID	Total/NA	Water	7470A	
180-114632-7	GAF-GW-1316-HI-CAL-T2-MID	Dissolved	Water	7470A	
180-114632-8	GAF-GW-1316-HI-CAL-T3-MID	Dissolved	Water	7470A	
180-114632-8	GAF-GW-1316-HI-CAL-T3-MID	Total/NA	Water	7470A	
180-114632-9	GAF-GW-1316-HI-CAL-T4-MID	Dissolved	Water	7470A	
180-114632-9	GAF-GW-1316-HI-CAL-T4-MID	Total/NA	Water	7470A	
180-114632-10	GAF-GW-1316-HI-CAL-T5-MID	Dissolved	Water	7470A	
180-114632-10	GAF-GW-1316-HI-CAL-T5-MID	Total/NA	Water	7470A	
180-114632-11	GAF-GW-1316-DOLO 0.5-T1-MID	Dissolved	Water	7470A	
180-114632-11	GAF-GW-1316-DOLO 0.5-T1-MID	Total/NA	Water	7470A	
MB 180-340320/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-340320/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 180-340320/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Prep Batch: 340322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-12	GAF-GW-1316-DOLO 0.5-T2-MID	Dissolved	Water	7470A	
180-114632-13	GAF-GW-1316-DOLO 0.5-T3-MID	Dissolved	Water	7470A	
180-114632-13	GAF-GW-1316-DOLO 0.5-T3-MID	Total/NA	Water	7470A	
180-114632-14	GAF-GW-1316-DOLO 0.5-T4-MID	Dissolved	Water	7470A	
180-114632-14	GAF-GW-1316-DOLO 0.5-T4-MID	Total/NA	Water	7470A	
180-114632-15	GAF-GW-1316-DOLO 0.5-T5-MID	Dissolved	Water	7470A	
180-114632-15	GAF-GW-1316-DOLO 0.5-T5-MID	Total/NA	Water	7470A	
180-114632-16	GAF-GW-1316-DOLO 1.0-T1-MID	Dissolved	Water	7470A	
180-114632-16	GAF-GW-1316-DOLO 1.0-T1-MID	Total/NA	Water	7470A	
180-114632-17	GAF-GW-1316-DOLO 1.0-T2-MID	Dissolved	Water	7470A	
180-114632-18	GAF-GW-1316-DOLO 1.0-T3-MID	Dissolved	Water	7470A	

Metals (Continued)

Prep Batch: 340322 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-18	GAF-GW-1316-DOLO 1.0-T3-MID	Total/NA	Water	7470A	
180-114632-19	GAF-GW-1316-DOLO 1.0-T4-MID	Dissolved	Water	7470A	
180-114632-19	GAF-GW-1316-DOLO 1.0-T4-MID	Total/NA	Water	7470A	
180-114632-20	GAF-GW-1316-DOLO 1.0-T5-MID	Dissolved	Water	7470A	
180-114632-20	GAF-GW-1316-DOLO 1.0-T5-MID	Total/NA	Water	7470A	
MB 180-340322/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-340322/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 180-340322/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 340422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-1	GAF-GW-1316-CONTROL-T1-MID	Dissolved	Water	EPA 6020A	340144
180-114632-1	GAF-GW-1316-CONTROL-T1-MID	Total Recoverable	Water	EPA 6020A	340144
180-114632-2	GAF-GW-1316-CONTROL-T2-MID	Dissolved	Water	EPA 6020A	340144
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Dissolved	Water	EPA 6020A	340144
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Total Recoverable	Water	EPA 6020A	340144
180-114632-4	GAF-GW-1316-CONTROL-T4-MID	Dissolved	Water	EPA 6020A	340144
180-114632-4	GAF-GW-1316-CONTROL-T4-MID	Total Recoverable	Water	EPA 6020A	340144
180-114632-5	GAF-GW-1316-CONTROL-T5-MID	Dissolved	Water	EPA 6020A	340144
180-114632-5	GAF-GW-1316-CONTROL-T5-MID	Total Recoverable	Water	EPA 6020A	340144
180-114632-6	GAF-GW-1316-HI-CAL-T1-MID	Dissolved	Water	EPA 6020A	340144
180-114632-6	GAF-GW-1316-HI-CAL-T1-MID	Total Recoverable	Water	EPA 6020A	340144
180-114632-7	GAF-GW-1316-HI-CAL-T2-MID	Dissolved	Water	EPA 6020A	340144
180-114632-8	GAF-GW-1316-HI-CAL-T3-MID	Dissolved	Water	EPA 6020A	340144
180-114632-8	GAF-GW-1316-HI-CAL-T3-MID	Total Recoverable	Water	EPA 6020A	340144
180-114632-9	GAF-GW-1316-HI-CAL-T4-MID	Dissolved	Water	EPA 6020A	340144
180-114632-9	GAF-GW-1316-HI-CAL-T4-MID	Total Recoverable	Water	EPA 6020A	340144
180-114632-10	GAF-GW-1316-HI-CAL-T5-MID	Dissolved	Water	EPA 6020A	340144
180-114632-10	GAF-GW-1316-HI-CAL-T5-MID	Total Recoverable	Water	EPA 6020A	340144
180-114632-11	GAF-GW-1316-DOLO 0.5-T1-MID	Dissolved	Water	EPA 6020A	340144
180-114632-11	GAF-GW-1316-DOLO 0.5-T1-MID	Total Recoverable	Water	EPA 6020A	340144
180-114632-12	GAF-GW-1316-DOLO 0.5-T2-MID	Dissolved	Water	EPA 6020A	340145
180-114632-13	GAF-GW-1316-DOLO 0.5-T3-MID	Dissolved	Water	EPA 6020A	340145
180-114632-13	GAF-GW-1316-DOLO 0.5-T3-MID	Total Recoverable	Water	EPA 6020A	340145
180-114632-14	GAF-GW-1316-DOLO 0.5-T4-MID	Dissolved	Water	EPA 6020A	340145
180-114632-14	GAF-GW-1316-DOLO 0.5-T4-MID	Total Recoverable	Water	EPA 6020A	340145
180-114632-15	GAF-GW-1316-DOLO 0.5-T5-MID	Dissolved	Water	EPA 6020A	340145
180-114632-15	GAF-GW-1316-DOLO 0.5-T5-MID	Total Recoverable	Water	EPA 6020A	340145
180-114632-16	GAF-GW-1316-DOLO 1.0-T1-MID	Dissolved	Water	EPA 6020A	340145
180-114632-16	GAF-GW-1316-DOLO 1.0-T1-MID	Total Recoverable	Water	EPA 6020A	340145
180-114632-17	GAF-GW-1316-DOLO 1.0-T2-MID	Dissolved	Water	EPA 6020A	340145
180-114632-18	GAF-GW-1316-DOLO 1.0-T3-MID	Dissolved	Water	EPA 6020A	340145
180-114632-18	GAF-GW-1316-DOLO 1.0-T3-MID	Total Recoverable	Water	EPA 6020A	340145
180-114632-19	GAF-GW-1316-DOLO 1.0-T4-MID	Dissolved	Water	EPA 6020A	340145
180-114632-19	GAF-GW-1316-DOLO 1.0-T4-MID	Total Recoverable	Water	EPA 6020A	340145
180-114632-20	GAF-GW-1316-DOLO 1.0-T5-MID	Dissolved	Water	EPA 6020A	340145
180-114632-20	GAF-GW-1316-DOLO 1.0-T5-MID	Total Recoverable	Water	EPA 6020A	340145
MB 180-340144/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	340144
MB 180-340145/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	340145
LCS 180-340144/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	340144
LCS 180-340145/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	340145

Metals (Continued)

Analysis Batch: 340422 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 180-340144/3-A	Lab Control Sample Dup	Total Recoverable	Water	EPA 6020A	340144
LCSD 180-340145/3-A	Lab Control Sample Dup	Total Recoverable	Water	EPA 6020A	340145

Analysis Batch: 340576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-1	GAF-GW-1316-CONTROL-T1-MID	Dissolved	Water	EPA 7470A	340320
180-114632-1	GAF-GW-1316-CONTROL-T1-MID	Total/NA	Water	EPA 7470A	340320
180-114632-2	GAF-GW-1316-CONTROL-T2-MID	Dissolved	Water	EPA 7470A	340320
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Dissolved	Water	EPA 7470A	340320
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Total/NA	Water	EPA 7470A	340320
180-114632-4	GAF-GW-1316-CONTROL-T4-MID	Dissolved	Water	EPA 7470A	340320
180-114632-4	GAF-GW-1316-CONTROL-T4-MID	Total/NA	Water	EPA 7470A	340320
180-114632-5	GAF-GW-1316-CONTROL-T5-MID	Dissolved	Water	EPA 7470A	340320
180-114632-5	GAF-GW-1316-CONTROL-T5-MID	Total/NA	Water	EPA 7470A	340320
180-114632-6	GAF-GW-1316-HI-CAL-T1-MID	Dissolved	Water	EPA 7470A	340320
180-114632-6	GAF-GW-1316-HI-CAL-T1-MID	Total/NA	Water	EPA 7470A	340320
180-114632-7	GAF-GW-1316-HI-CAL-T2-MID	Dissolved	Water	EPA 7470A	340320
180-114632-8	GAF-GW-1316-HI-CAL-T3-MID	Dissolved	Water	EPA 7470A	340320
180-114632-8	GAF-GW-1316-HI-CAL-T3-MID	Total/NA	Water	EPA 7470A	340320
180-114632-9	GAF-GW-1316-HI-CAL-T4-MID	Dissolved	Water	EPA 7470A	340320
180-114632-9	GAF-GW-1316-HI-CAL-T4-MID	Total/NA	Water	EPA 7470A	340320
180-114632-10	GAF-GW-1316-HI-CAL-T5-MID	Dissolved	Water	EPA 7470A	340320
180-114632-10	GAF-GW-1316-HI-CAL-T5-MID	Total/NA	Water	EPA 7470A	340320
180-114632-11	GAF-GW-1316-DOLO 0.5-T1-MID	Dissolved	Water	EPA 7470A	340320
180-114632-11	GAF-GW-1316-DOLO 0.5-T1-MID	Total/NA	Water	EPA 7470A	340320
180-114632-12	GAF-GW-1316-DOLO 0.5-T2-MID	Dissolved	Water	EPA 7470A	340322
180-114632-13	GAF-GW-1316-DOLO 0.5-T3-MID	Dissolved	Water	EPA 7470A	340322
180-114632-13	GAF-GW-1316-DOLO 0.5-T3-MID	Total/NA	Water	EPA 7470A	340322
180-114632-14	GAF-GW-1316-DOLO 0.5-T4-MID	Dissolved	Water	EPA 7470A	340322
180-114632-14	GAF-GW-1316-DOLO 0.5-T4-MID	Total/NA	Water	EPA 7470A	340322
180-114632-15	GAF-GW-1316-DOLO 0.5-T5-MID	Dissolved	Water	EPA 7470A	340322
180-114632-15	GAF-GW-1316-DOLO 0.5-T5-MID	Total/NA	Water	EPA 7470A	340322
180-114632-16	GAF-GW-1316-DOLO 1.0-T1-MID	Dissolved	Water	EPA 7470A	340322
180-114632-16	GAF-GW-1316-DOLO 1.0-T1-MID	Total/NA	Water	EPA 7470A	340322
180-114632-17	GAF-GW-1316-DOLO 1.0-T2-MID	Dissolved	Water	EPA 7470A	340322
180-114632-18	GAF-GW-1316-DOLO 1.0-T3-MID	Dissolved	Water	EPA 7470A	340322
180-114632-18	GAF-GW-1316-DOLO 1.0-T3-MID	Total/NA	Water	EPA 7470A	340322
180-114632-19	GAF-GW-1316-DOLO 1.0-T4-MID	Dissolved	Water	EPA 7470A	340322
180-114632-19	GAF-GW-1316-DOLO 1.0-T4-MID	Total/NA	Water	EPA 7470A	340322
180-114632-20	GAF-GW-1316-DOLO 1.0-T5-MID	Dissolved	Water	EPA 7470A	340322
180-114632-20	GAF-GW-1316-DOLO 1.0-T5-MID	Total/NA	Water	EPA 7470A	340322
MB 180-340320/1-A	Method Blank	Total/NA	Water	EPA 7470A	340320
MB 180-340322/1-A	Method Blank	Total/NA	Water	EPA 7470A	340322
LCS 180-340320/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	340320
LCS 180-340322/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	340322
LCSD 180-340320/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 7470A	340320
LCSD 180-340322/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 7470A	340322

Analysis Batch: 340599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Dissolved	Water	EPA 6020A	340144

Metals (Continued)

Analysis Batch: 340599 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-3	GAF-GW-1316-CONTROL-T3-MID	Total Recoverable	Water	EPA 6020A	340144
180-114632-4	GAF-GW-1316-CONTROL-T4-MID	Dissolved	Water	EPA 6020A	340144
180-114632-5	GAF-GW-1316-CONTROL-T5-MID	Dissolved	Water	EPA 6020A	340144
180-114632-14	GAF-GW-1316-DOLO 0.5-T4-MID	Total Recoverable	Water	EPA 6020A	340145
180-114632-15	GAF-GW-1316-DOLO 0.5-T5-MID	Total Recoverable	Water	EPA 6020A	340145

General Chemistry

Analysis Batch: 340265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114632-2	GAF-GW-1316-CONTROL-T2-MID	Total/NA	Water	SM2320 B	
180-114632-7	GAF-GW-1316-HI-CAL-T2-MID	Total/NA	Water	SM2320 B	
180-114632-12	GAF-GW-1316-DOLO 0.5-T2-MID	Total/NA	Water	SM2320 B	
180-114632-17	GAF-GW-1316-DOLO 1.0-T2-MID	Total/NA	Water	SM2320 B	
MB 180-340265/54	Method Blank	Total/NA	Water	SM2320 B	
MB 180-340265/78	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-340265/53	Lab Control Sample	Total/NA	Water	SM2320 B	
LCS 180-340265/77	Lab Control Sample	Total/NA	Water	SM2320 B	
LLCS 180-340265/4	Lab Control Sample	Total/NA	Water	SM2320 B	
180-114605-B-7 DU	Duplicate	Total/NA	Water	SM2320 B	
180-114632-7 DU	GAF-GW-1316-HI-CAL-T2-MID	Total/NA	Water	SM2320 B	

RUSH

Special Handling:

☑ TAT - Date Nee 3-day TAT

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

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CHAIN OF CUSTODY RECORD

301 Alpha Drive
Pittsburgh, PA 15238
(413) 789-9018

Report To: Franciscos Barajas
AECOM
9400 Amberglen Blvd
Austin, TX 78729
Telephone #: 978-905-2299
Project Mgr: Craig MacPhee

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr.
Chelmsford, MA 01824
P.O No.: Quote #:

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Rachel Watkins, Craig Katkic

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= 12=

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= 1316 leachate X2=

G= Grab C=Compsite

List Preservative Code below:

4	4							

QA/QC Reporting Notes:

QA/QC Reporting Level
☐ Level I ☐ Level II ☐ Level III ☐ Level IV
☐ Other:
State-specific reporting standards:

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analysis: 6020 Totals -Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	6020 Dissolved-Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	9056A-Cl, F, SO4	2320B- Alkalinity (Total hydroixe, bicarbonate, carbonate)					
	GAF-GW-1316-Control-T1-Mid	12/2/2020	11:20 AM	G	X1				2	x	x							
	GAF-GW-1316-Control-T2-Mid	12/2/2020	11:20 AM	G	X1				2		x	x	x					
	GAF-GW-1316-Control-T3-Mid	12/2/2020	11:20 AM	G	X1				2	x	x							
	GAF-GW-1316-Control-T4-Mid	12/2/2020	11:20 AM	G	X1				2	x	x							
	GAF-GW-1316-Control-T5-Mid	12/2/2020	11:20 AM	G	X1				2	x	x							
	GAF-GW-1316-Hi-Cal-T1-Mid	12/2/2020	11:20 AM	G	X1				2	x	x							
	GAF-GW-1316-Hi-Cal-T2-Mid	12/2/2020	11:20 AM	G	X1				2		x	x	x					
	GAF-GW-1316-Hi-Cal-T3-Mid	12/2/2020	11:20 AM	G	X1				2	x	x							
	GAF-GW-1316-Hi-Cal-T4-Mid	12/2/2020	11:20 AM	G	X1				2	x	x							
	GAF-GW-1316-Hi-Cal-T5-Mid	12/2/2020	11:20 AM	G	X1				2	x	x							

180-114632 Chain of Custody

Relinquished by:	Received by:	Date:	Time:
Rachel Watkins		12/8/20	1500
	Jennifer Malm	12-9-20	
	ETAPH		9:30

Temp °C
Observed
Correction Factor
Corrected
IR ID #

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Froze

RUSH

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CHAIN OF CUSTODY RECORD

301 Alpha Drive
Pittsburgh, PA 15238
(413) 789-9018

Special Handling:

☑ TAT - Date Nee 3-day TAT

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: Franciscos Barajas
AECOM
9400 Amberglen Blvd
Austin, TX 78729
Telephone #: 978-905-2299
Project Mgr: Craig MacPhee

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr.
Chelmsford, MA 01824
P.O No.: Quote #:

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Rachel Watkins, Craig Katkic

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= 12=

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= 1316 leachate X2=

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		6020 Totals -Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	6020 Dissolved-Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	9056A-Cl, F, SO4	2320B- Alkalinity (Total hydroixe, bicarbonate, carbonate)					
						Containers					List Preservative Code below:								QA/QC Reporting Notes:
											4	4							
											Analysis								
	GAF-GW-1316-Dolo 0.5-T1-Mid	12/2/2020	11:20 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 0.5-T2-Mid	12/2/2020	11:20 AM	G	X1				2			x	x	x					
	GAF-GW-1316-Dolo 0.5-T3-Mid	12/2/2020	11:20 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 0.5-T4-Mid	12/2/2020	11:20 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 0.5-T5-Mid	12/2/2020	11:20 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 1.0-T1-Mid	12/2/2020	11:20 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 1.0-T2-Mid	12/2/2020	11:20 AM	G	X1				2			x	x	x					
	GAF-GW-1316-Dolo 1.0-T3-Mid	12/2/2020	11:20 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 1.0-T4-Mid	12/2/2020	11:20 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 1.0-T5-Mid	12/2/2020	11:20 AM	G	X1				2		x	x							

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other:
State-specific reporting standards:

Relinquished by:	Received by:	Date:	Time:
Rachel Watkins		12/8/20	1500
	Dilly Watson	12-9-20	9:30
	FedEx		

Temp °C
Observed
Correction Factor
Corrected
IR ID #

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☑ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Jar Frozen

eurofins | Environment Testing TestAmerica
180-114632 Waybill
ORIGIN ID:PHDA (512) 454-4797
FRANCISCO BARAJAS
AECOM
9400 AMBERGLEN BOULEVARD
BUILDING D
AUSTIN, TX 78729
UNITED STATES US
SHIP DATE: 28FEB20
ACTWGT: 10.00 LB MAN
CAD: 0562021/CAFE3311
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 152382907
(412) 963-7058
REF: S160-58932
RMA:
FedEx Express
WED - 09 DEC AA
PRIORITY OVERNIGHT
15238
PA-US
PIT
FedEx
TRK# 1680 3500 0883
0221
XH AGCA
Uncorrected temp 2.4 °C
Thermometer ID 14
Initials
CF 0
PT-WI-SR-001 effective 7/26/13
ESR

Login Sample Receipt Checklist

Client: Environmental Standards Inc. Job Number: 180-114632-1

Login Number: 114632 **List Source: Eurofins TestAmerica, Pittsburgh**
List Number: 1
Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-115017-1
Laboratory Sample Delivery Group: Treatability
Client Project/Site: GAF-NRS-Treatability

For:
Environmental Standards Inc.
1140 Valley Forge Road
PO BOX 810
Valley Forge, Pennsylvania 19482-0810

Attn: Jennifer N. Gable

Authorized for release by:
1/6/2021 11:47:26 AM

Jennifer Rumble, Project Manager I
(412)963-7058
Jennifer.Rumble@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

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Job ID: 180-115017-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-115017-1

Receipt
The samples were received on 12/16/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.4º C and 3.8º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method 3005A: The following sample was diluted due to the nature of the sample matrix: GAF-GW-1316-CONTROL-T5-END (180-115017-5). Elevated reporting limits (RLs) are provided.

Method 6020A: The following sample was analyzed at a 5X dilution due to the nature of the sample matrix and the internal standard: GAF-GW-1316-CONTROL-T5-END (180-115017-5). Elevated reporting limits (RLs) are provided.

Method 6020A: The following samples were diluted due to the nature of the sample matrix: GAF-GW-1316-CONTROL-T3-END (180-115017-3), GAF-GW-1316-CONTROL-T4-END (180-115017-4) and GAF-GW-1316-CONTROL-T5-END (180-115017-5). Elevated reporting limits (RLs) are provided. No lower dilutions could be read due to sample matrix.

Method 7470A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 180-342043 and analytical batch 180-342315 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 7470A: Due to lack of sample volume, samples GAF-GW-1316-CONTROL-T4-END (180-115017-4) and GAF-GW-1316-HI-CAL-T4-END (180-115017-9) were prepped 20ml to 20ml

Method 7470A: Elevated reporting limits are provided for the following samples due to insufficient sample available for mercury preparation: GAF-GW-1316-DOLO 0.5-T4-END (180-115017-14) and GAF-GW-1316-DOLO 1.0-T4-END (180-115017-19).

Method 7470A: Due to limited sample volume available for mercury prep/digestion, samples GAF-GW-1316-DOLO 0.5-T3-END (180-115017-13) and GAF-GW-1316-DOLO 0.5-T5-END (180-115017-15) were digested 20ml to 20ml so as not to raise the reporting limit.

Method 7470A: The matrix spike/matrix spike duplicate (MS/MSD) sample associated with preparation batch 342043 was rejected and not available for reporting.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	05-21-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-2	GAF-GW-1316-CONTROL-T2-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-7	GAF-GW-1316-HI-CAL-T2-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-10	GAF-GW-1316-HI-CAL-T5-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-11	GAF-GW-1316-DOLO 0.5-T1-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-12	GAF-GW-1316-DOLO 0.5-T2-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-13	GAF-GW-1316-DOLO 0.5-T3-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-14	GAF-GW-1316-DOLO 0.5-T4-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-15	GAF-GW-1316-DOLO 0.5-T5-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-16	GAF-GW-1316-DOLO 1.0-T1-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-17	GAF-GW-1316-DOLO 1.0-T2-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-18	GAF-GW-1316-DOLO 1.0-T3-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-19	GAF-GW-1316-DOLO 1.0-T4-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Water	12/04/20 11:00	12/16/20 10:00	
180-115017-21	GAF-GW-1315-CONTROL-T14	Water	12/07/20 12:40	12/16/20 10:00	
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Water	12/07/20 12:40	12/16/20 10:00	
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Water	12/07/20 12:40	12/16/20 10:00	
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Water	12/07/20 12:40	12/16/20 10:00	

Method Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM2320 B	Alkalinity, Total	SM18	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-CONTROL-T1-END

Lab Sample ID: 180-115017-1
Matrix: Water
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 15:21	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 12:01	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 15:18	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341798	12/23/20 11:57	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:07	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:40	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-CONTROL-T2-END

Lab Sample ID: 180-115017-2
Matrix: Water
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			341424	12/22/20 16:03	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			341424	12/22/20 16:19	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 15:24	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 12:04	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 10:41	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			341258	12/18/20 17:57	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-CONTROL-T3-END

Lab Sample ID: 180-115017-3

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 15:31	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		10			341798	12/23/20 12:12	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 15:28	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		10			341798	12/23/20 12:08	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:08	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:44	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-CONTROL-T4-END

Lab Sample ID: 180-115017-4

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 15:37	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		10			341798	12/23/20 12:19	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 15:34	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		10			341798	12/23/20 12:15	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:09	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			20 mL	20 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:45	RJR	TAL PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-CONTROL-T5-END

Lab Sample ID: 180-115017-5
Matrix: Water
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 15:44	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		5			341798	12/23/20 12:37	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			5 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 15:41	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			5 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		5			341798	12/23/20 12:22	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:09	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:46	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-HI-CAL-T1-END

Lab Sample ID: 180-115017-6
Matrix: Water
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 15:57	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 12:44	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 15:54	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341798	12/23/20 12:40	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:10	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:46	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-HI-CAL-T2-END

Lab Sample ID: 180-115017-7

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			341424	12/22/20 17:08	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			341424	12/22/20 17:24	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 16:00	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 12:48	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:11	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			341258	12/18/20 18:04	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-HI-CAL-T3-END

Lab Sample ID: 180-115017-8

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 16:07	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 12:55	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 16:04	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341798	12/23/20 12:51	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:12	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:47	RJR	TAL PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-HI-CAL-T4-END
Lab Sample ID: 180-115017-9
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 16:13	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 13:02	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 16:10	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341300	12/21/20 08:29	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341798	12/23/20 12:58	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:13	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			20 mL	20 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:48	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-HI-CAL-T5-END
Lab Sample ID: 180-115017-10
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 12:29	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 12:26	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:16	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:49	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T1-END
Lab Sample ID: 180-115017-11
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 12:36	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T1-END

Lab Sample ID: 180-115017-11

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 12:33	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:17	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:50	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T2-END

Lab Sample ID: 180-115017-12

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			341424	12/22/20 17:41	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			341424	12/22/20 17:57	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Dissolved	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 12:39	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341765	12/24/20 09:25	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			341258	12/18/20 18:11	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T3-END

Lab Sample ID: 180-115017-13

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 12:46	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 12:43	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341765	12/24/20 09:26	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			20 mL	20 mL	341715	12/24/20 05:48	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341765	12/24/20 09:16	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T4-END
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 13:09	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 13:06	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341765	12/24/20 09:27	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			10 mL	20 mL	341715	12/24/20 05:48	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341765	12/24/20 09:17	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 0.5-T5-END
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 13:16	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 13:12	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341765	12/24/20 09:28	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			20 mL	20 mL	341715	12/24/20 05:48	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341765	12/24/20 09:18	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 1.0-T1-END
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 13:22	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 13:19	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341765	12/24/20 09:29	RJR	TAL PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 1.0-T1-END
Lab Sample ID: 180-115017-16
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341765	12/24/20 09:19	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 1.0-T2-END
Lab Sample ID: 180-115017-17
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			341424	12/22/20 19:16	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			341424	12/22/20 19:32	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Dissolved	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 13:25	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341765	12/24/20 09:30	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			341258	12/18/20 18:17	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-DOLO 1.0-T3-END
Lab Sample ID: 180-115017-18
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 13:32	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 13:29	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341765	12/24/20 09:31	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341765	12/24/20 09:20	RJR	TAL PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 1.0-T4-END
Lab Sample ID: 180-115017-19
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 13:45	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341297	12/21/20 08:22	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 13:35	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			10 mL	20 mL	341715	12/24/20 05:48	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341765	12/24/20 09:32	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341765	12/24/20 09:21	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1316-DOLO 1.0-T5-END
Lab Sample ID: 180-115017-20
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			25 mL	25 mL	341302	12/21/20 08:33	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 16:37	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			25 mL	25 mL	341302	12/21/20 08:33	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 09:47	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341302	12/21/20 08:33	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 16:33	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			25 mL	25 mL	341302	12/21/20 08:33	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341798	12/23/20 09:44	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341765	12/24/20 09:33	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341715	12/24/20 05:48	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341765	12/24/20 09:22	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: GAF-GW-1315-CONTROL-T14
Lab Sample ID: 180-115017-21
Date Collected: 12/07/20 12:40
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			341424	12/22/20 18:12	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			341424	12/22/20 18:28	EPS	TAL PIT
	Instrument ID: CHIC2100A									

Client Sample ID: GAF-GW-1315-CONTROL-T14

Lab Sample ID: 180-115017-21

Date Collected: 12/07/20 12:40
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 16:43	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 09:55	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 16:40	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341798	12/23/20 09:51	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	342043	12/29/20 12:14	KEM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			342315	12/31/20 17:14	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:37	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			341258	12/18/20 18:57	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1315-HI CAL 0.5-T14

Lab Sample ID: 180-115017-22

Date Collected: 12/07/20 12:40
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			341424	12/22/20 19:47	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			341424	12/22/20 20:03	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Dissolved	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 16:50	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 10:02	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 16:47	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341798	12/23/20 09:58	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:06	RJR	TAL PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1315-HI CAL 0.5-T14

Lab Sample ID: 180-115017-22
Date Collected: 12/07/20 12:40
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:34	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			341258	12/18/20 19:11	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1315-DOLO 0.5-T14

Lab Sample ID: 180-115017-23
Date Collected: 12/07/20 12:40
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			341424	12/22/20 20:19	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			341424	12/22/20 20:35	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Dissolved	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 16:56	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 10:24	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 16:53	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341798	12/23/20 10:20	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:05	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:38	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			341258	12/18/20 19:19	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1315-DOLO 1.0-T14

Lab Sample ID: 180-115017-24
Date Collected: 12/07/20 12:40
Matrix: Water
Date Received: 12/16/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			341424	12/22/20 20:51	EPS	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			341424	12/22/20 21:07	EPS	TAL PIT
	Instrument ID: CHIC2100A									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1315-DOLO 1.0-T14

Date Collected: 12/07/20 12:40
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-24

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341583	12/22/20 17:10	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Dissolved	Analysis	6020A		1			341798	12/23/20 10:31	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341583	12/22/20 17:06	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	341302	12/21/20 08:33	KHM	TAL PIT
Total Recoverable	Analysis	6020A		1			341798	12/23/20 10:27	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	341476	12/22/20 09:05	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			341658	12/23/20 11:00	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Prep	7470A			25 mL	25 mL	341475	12/22/20 09:03	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			341658	12/23/20 10:39	RJR	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM2320 B		1			341258	12/18/20 19:26	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KEM = Kimberly Mahoney
KHM = Kyle Mucroski
RJR = Ron Rosenbaum

Batch Type: Analysis

AVS = Abbey Smith
EPS = Evan Scheuer
KEM = Kimberly Mahoney
RJR = Ron Rosenbaum
RSK = Robert Kurtz

Client Sample ID: GAF-GW-1316-CONTROL-T1-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-1

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	6.74		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 15:18	1
Antimony	0.00120	J	0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 15:18	1
Arsenic	0.00401		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 15:18	1
Barium	0.0398		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 15:18	1
Beryllium	0.000524	J	0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 15:18	1
Boron	1.72	B	0.0800	0.0386	mg/L		12/21/20 08:29	12/23/20 11:57	1
Cadmium	0.000316	J	0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 15:18	1
Calcium	298		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 15:18	1
Chromium	0.00590		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 15:18	1
Cobalt	0.0165		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 15:18	1
Copper	0.00417		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 15:18	1
Iron	14.1		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 15:18	1
Lead	0.00370		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 15:18	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 15:18	1
Magnesium	29.7		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 15:18	1
Manganese	7.10		0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 15:18	1
Molybdenum	0.000888	J	0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 15:18	1
Nickel	0.0113		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 15:18	1
Potassium	4.56		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 15:18	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 15:18	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 15:18	1
Sodium	98.8		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 15:18	1
Thallium	0.000727	J	0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 15:18	1
Vanadium	0.0178		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 15:18	1
Zinc	0.0238		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 15:18	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0162	J	0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 15:21	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 15:21	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 15:21	1
Barium	0.0108		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 15:21	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 15:21	1
Boron	1.74	B	0.0800	0.0386	mg/L		12/21/20 08:29	12/23/20 12:01	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 15:21	1
Calcium	296		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 15:21	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 15:21	1
Cobalt	0.00535		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 15:21	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 15:21	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 15:21	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 15:21	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 15:21	1
Magnesium	29.2		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 15:21	1
Manganese	5.66		0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 15:21	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 15:21	1
Nickel	0.00248		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 15:21	1
Potassium	3.75		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 15:21	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 15:21	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 15:21	1
Sodium	98.3		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 15:21	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-CONTROL-T1-END
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-1
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.000453**	**J**	0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 15:21	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 15:21	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 15:21	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:40	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:07	1

Client Sample ID: GAF-GW-1316-CONTROL-T2-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-2

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41.6**		1.00	0.320	mg/L			12/22/20 16:03	1
Fluoride	**0.304**		0.100	0.0440	mg/L			12/22/20 16:03	1
Sulfate	**877**		10.0	3.80	mg/L			12/22/20 16:19	10

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.07**		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 15:24	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 15:24	1
Arsenic	**0.000894**	**J**	0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 15:24	1
Barium	**0.0133**		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 15:24	1
Beryllium	**0.00101**		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 15:24	1
Boron	**1.82**	**B**	0.0800	0.0386	mg/L		12/21/20 08:29	12/23/20 12:04	1
Cadmium	**0.00137**		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 15:24	1
Calcium	**256**		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 15:24	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 15:24	1
Cobalt	**0.180**		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 15:24	1
Copper	**0.000848**	**J**	0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 15:24	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 15:24	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 15:24	1
Lithium	**0.00414**	**J**	0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 15:24	1
Magnesium	**34.0**		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 15:24	1
Manganese	**13.4**		0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 15:24	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 15:24	1
Nickel	**0.0869**		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 15:24	1
Potassium	**4.09**		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 15:24	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 15:24	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 15:24	1
Sodium	**93.2**		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 15:24	1
Thallium	**0.000624**	**J**	0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 15:24	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 15:24	1
Zinc	**0.148**		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 15:24	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**67.5**		5.00	5.00	mg/L			12/18/20 17:57	1
Bicarbonate Alkalinity as CaCO3	**67.5**		5.00	5.00	mg/L			12/18/20 17:57	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 17:57	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/18/20 17:57	1

Client Sample ID: GAF-GW-1316-CONTROL-T3-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-3

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	74.7		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 15:28	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 15:28	1
Arsenic	0.0110		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 15:28	1
Barium	0.0397		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 15:28	1
Beryllium	0.0135		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 15:28	1
Boron	2.72	B	0.800	0.386	mg/L		12/21/20 08:29	12/23/20 12:08	10
Cadmium	0.00399		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 15:28	1
Calcium	446		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 15:28	1
Chromium	0.00880		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 15:28	1
Cobalt	0.505		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 15:28	1
Copper	0.0153		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 15:28	1
Iron	18.7		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 15:28	1
Lead	0.00513		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 15:28	1
Lithium	0.0203		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 15:28	1
Magnesium	59.1		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 15:28	1
Manganese	29.6		0.0500	0.00866	mg/L		12/21/20 08:29	12/23/20 12:08	10
Molybdenum	0.00134	J	0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 15:28	1
Nickel	0.280		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 15:28	1
Potassium	6.67		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 15:28	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 15:28	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 15:28	1
Sodium	94.9		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 15:28	1
Thallium	0.00120		0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 15:28	1
Vanadium	0.0181		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 15:28	1
Zinc	0.706		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 15:28	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	68.7		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 15:31	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 15:31	1
Arsenic	0.00627		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 15:31	1
Barium	0.0174		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 15:31	1
Beryllium	0.0141		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 15:31	1
Boron	2.29	B	0.800	0.386	mg/L		12/21/20 08:29	12/23/20 12:12	10
Cadmium	0.00403		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 15:31	1
Calcium	459		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 15:31	1
Chromium	0.00206		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 15:31	1
Cobalt	0.510		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 15:31	1
Copper	0.0101		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 15:31	1
Iron	0.105		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 15:31	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 15:31	1
Lithium	0.0188		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 15:31	1
Magnesium	60.8		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 15:31	1
Manganese	30.3		0.0500	0.00866	mg/L		12/21/20 08:29	12/23/20 12:12	10
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 15:31	1
Nickel	0.279		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 15:31	1
Potassium	5.18		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 15:31	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 15:31	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 15:31	1
Sodium	97.8		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 15:31	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-CONTROL-T3-END
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-3
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.000976	J	0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 15:31	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 15:31	1
Zinc	0.699		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 15:31	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:44	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:08	1

Client Sample ID: GAF-GW-1316-CONTROL-T4-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-4

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	128		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 15:34	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 15:34	1
Arsenic	0.0121		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 15:34	1
Barium	0.0282		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 15:34	1
Beryllium	0.0315		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 15:34	1
Boron	1.84	B	0.800	0.386	mg/L		12/21/20 08:29	12/23/20 12:15	10
Cadmium	0.00544		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 15:34	1
Calcium	415		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 15:34	1
Chromium	0.00846		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 15:34	1
Cobalt	0.713		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 15:34	1
Copper	0.0342		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 15:34	1
Iron	10.2		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 15:34	1
Lead	0.00480		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 15:34	1
Lithium	0.0321		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 15:34	1
Magnesium	64.4		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 15:34	1
Manganese	42.0		0.0500	0.00866	mg/L		12/21/20 08:29	12/23/20 12:15	10
Molybdenum	0.00213	J	0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 15:34	1
Nickel	0.302		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 15:34	1
Potassium	4.64		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 15:34	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 15:34	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 15:34	1
Sodium	86.9		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 15:34	1
Thallium	0.000970	J	0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 15:34	1
Vanadium	0.00942		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 15:34	1
Zinc	1.03		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 15:34	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	106		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 15:37	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 15:37	1
Arsenic	0.00853		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 15:37	1
Barium	0.0146		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 15:37	1
Beryllium	0.0294		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 15:37	1
Boron	2.93	B	0.800	0.386	mg/L		12/21/20 08:29	12/23/20 12:19	10
Cadmium	0.00684		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 15:37	1
Calcium	402		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 15:37	1
Chromium	0.00519		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 15:37	1
Cobalt	0.958		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 15:37	1
Copper	0.0302		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 15:37	1
Iron	2.17		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 15:37	1
Lead	0.000130	J	0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 15:37	1
Lithium	0.0331		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 15:37	1
Magnesium	59.6		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 15:37	1
Manganese	57.6		0.0500	0.00866	mg/L		12/21/20 08:29	12/23/20 12:19	10
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 15:37	1
Nickel	0.370		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 15:37	1
Potassium	4.76		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 15:37	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 15:37	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 15:37	1
Sodium	77.9		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 15:37	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-CONTROL-T4-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-4

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.00113**		0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 15:37	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 15:37	1
Zinc	**0.965**		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 15:37	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000146**	**J**	0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:45	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:09	1

Client Sample ID: GAF-GW-1316-CONTROL-T5-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-5

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	283		0.150	0.0625	mg/L		12/21/20 08:29	12/22/20 15:41	1
Antimony	0.00244	J	0.0100	0.00189	mg/L		12/21/20 08:29	12/22/20 15:41	1
Arsenic	0.0786		0.00500	0.00157	mg/L		12/21/20 08:29	12/22/20 15:41	1
Barium	0.311		0.0500	0.00800	mg/L		12/21/20 08:29	12/22/20 15:41	1
Beryllium	0.0640		0.00500	0.000910	mg/L		12/21/20 08:29	12/22/20 15:41	1
Boron	2.33	B	2.00	0.965	mg/L		12/21/20 08:29	12/23/20 12:22	5
Cadmium	0.00875		0.00500	0.00109	mg/L		12/21/20 08:29	12/22/20 15:41	1
Calcium	326		2.50	0.635	mg/L		12/21/20 08:29	12/22/20 15:41	1
Chromium	0.101		0.0100	0.00765	mg/L		12/21/20 08:29	12/22/20 15:41	1
Cobalt	1.18		0.00250	0.000670	mg/L		12/21/20 08:29	12/22/20 15:41	1
Copper	0.137		0.0100	0.00314	mg/L		12/21/20 08:29	12/22/20 15:41	1
Iron	244		0.250	0.0975	mg/L		12/21/20 08:29	12/22/20 15:41	1
Lead	0.0733		0.00500	0.000640	mg/L		12/21/20 08:29	12/22/20 15:41	1
Lithium	0.0840		0.0250	0.0170	mg/L		12/21/20 08:29	12/22/20 15:41	1
Magnesium	86.5		2.50	0.414	mg/L		12/21/20 08:29	12/22/20 15:41	1
Manganese	58.3		0.0250	0.00433	mg/L		12/21/20 08:29	12/22/20 15:41	1
Molybdenum	0.0160	J	0.0250	0.00305	mg/L		12/21/20 08:29	12/22/20 15:41	1
Nickel	0.488		0.00500	0.00168	mg/L		12/21/20 08:29	12/22/20 15:41	1
Potassium	15.4		2.50	0.780	mg/L		12/21/20 08:29	12/22/20 15:41	1
Selenium	ND		0.0250	0.00755	mg/L		12/21/20 08:29	12/22/20 15:41	1
Silver	ND		0.00500	0.000885	mg/L		12/21/20 08:29	12/22/20 15:41	1
Sodium	74.9		2.50	1.74	mg/L		12/21/20 08:29	12/22/20 15:41	1
Thallium	0.00531		0.00500	0.000740	mg/L		12/21/20 08:29	12/22/20 15:41	1
Vanadium	0.236		0.00500	0.00496	mg/L		12/21/20 08:29	12/22/20 15:41	1
Zinc	1.75		0.0250	0.0161	mg/L		12/21/20 08:29	12/22/20 15:41	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	207		0.150	0.0625	mg/L		12/21/20 08:29	12/23/20 12:37	5
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 15:44	1
Arsenic	0.0148		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 15:44	1
Barium	0.0155		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 15:44	1
Beryllium	0.0666		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 15:44	1
Boron	1.63	B	0.400	0.193	mg/L		12/21/20 08:29	12/23/20 12:37	5
Cadmium	0.00936		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 15:44	1
Calcium	402		2.50	0.635	mg/L		12/21/20 08:29	12/23/20 12:37	5
Chromium	0.0118		0.0100	0.00765	mg/L		12/21/20 08:29	12/23/20 12:37	5
Cobalt	1.30		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 15:44	1
Copper	0.0721		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 15:44	1
Iron	5.41		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 15:44	1
Lead	0.000217	J	0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 15:44	1
Lithium	0.0524		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 15:44	1
Magnesium	93.8		2.50	0.414	mg/L		12/21/20 08:29	12/23/20 12:37	5
Manganese	65.9		0.0250	0.00433	mg/L		12/21/20 08:29	12/23/20 12:37	5
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 15:44	1
Nickel	0.463		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 15:44	1
Potassium	6.35		2.50	0.780	mg/L		12/21/20 08:29	12/23/20 12:37	5
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 15:44	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 15:44	1
Sodium	84.5		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 15:44	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-CONTROL-T5-END

Lab Sample ID: 180-115017-5

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.00149**		0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 15:44	1
Vanadium	ND		0.00500	0.00496	mg/L		12/21/20 08:29	12/23/20 12:37	5
Zinc	**1.68**		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 15:44	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000549**		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:46	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:09	1

Client Sample ID: GAF-GW-1316-HI-CAL-T1-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-6

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0657**		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 15:54	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 15:54	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 15:54	1
Barium	**0.0110**		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 15:54	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 15:54	1
Boron	**1.62**	**B**	0.0800	0.0386	mg/L		12/21/20 08:29	12/23/20 12:40	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 15:54	1
Calcium	**437**		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 15:54	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 15:54	1
Cobalt	**0.000987**		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 15:54	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 15:54	1
Iron	**0.0676**		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 15:54	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 15:54	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 15:54	1
Magnesium	**32.8**		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 15:54	1
Manganese	**1.41**		0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 15:54	1
Molybdenum	**0.000629**	**J**	0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 15:54	1
Nickel	**0.000561**	**J**	0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 15:54	1
Potassium	**4.26**		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 15:54	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 15:54	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 15:54	1
Sodium	**96.3**		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 15:54	1
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 15:54	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 15:54	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 15:54	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0184**	**J**	0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 15:57	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 15:57	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 15:57	1
Barium	**0.00868**	**J**	0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 15:57	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 15:57	1
Boron	**1.65**	**B**	0.0800	0.0386	mg/L		12/21/20 08:29	12/23/20 12:44	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 15:57	1
Calcium	**356**		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 15:57	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 15:57	1
Cobalt	**0.000527**		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 15:57	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 15:57	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 15:57	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 15:57	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 15:57	1
Magnesium	**31.5**		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 15:57	1
Manganese	**0.529**		0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 15:57	1
Molybdenum	**0.000706**	**J**	0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 15:57	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 15:57	1
Potassium	**4.16**		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 15:57	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 15:57	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 15:57	1
Sodium	**94.3**		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 15:57	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-HI-CAL-T1-END
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-6
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 15:57	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 15:57	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 15:57	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000216**		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:46	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000291**		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:10	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-HI-CAL-T2-END

Lab Sample ID: 180-115017-7

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**40.1**		1.00	0.320	mg/L			12/22/20 17:08	1
Fluoride	**0.271**		0.100	0.0440	mg/L			12/22/20 17:08	1
Sulfate	**960**		10.0	3.80	mg/L			12/22/20 17:24	10

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0667**		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 16:00	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 16:00	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 16:00	1
Barium	**0.00765**	**J**	0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 16:00	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 16:00	1
Boron	**0.999**	**B**	0.0800	0.0386	mg/L		12/21/20 08:29	12/23/20 12:48	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 16:00	1
Calcium	**386**		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 16:00	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 16:00	1
Cobalt	**0.000336**	**J**	0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 16:00	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 16:00	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 16:00	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 16:00	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 16:00	1
Magnesium	**12.1**		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 16:00	1
Manganese	**0.0200**		0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 16:00	1
Molybdenum	**0.00639**		0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 16:00	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 16:00	1
Potassium	**3.14**		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 16:00	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 16:00	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 16:00	1
Sodium	**84.4**		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 16:00	1
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 16:00	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 16:00	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 16:00	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**165**		5.00	5.00	mg/L			12/18/20 18:04	1
Bicarbonate Alkalinity as CaCO3	**165**		5.00	5.00	mg/L			12/18/20 18:04	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 18:04	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/18/20 18:04	1

Client Sample ID: GAF-GW-1316-HI-CAL-T3-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-8

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**4.41**		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 16:04	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 16:04	1
Arsenic	**0.00143**		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 16:04	1
Barium	**0.0190**		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 16:04	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 16:04	1
Boron	**0.868**	**B**	0.0800	0.0386	mg/L		12/21/20 08:29	12/23/20 12:51	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 16:04	1
Calcium	**643**		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 16:04	1
Chromium	**0.00388**		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 16:04	1
Cobalt	**0.00106**		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 16:04	1
Copper	**0.00182**	**J**	0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 16:04	1
Iron	**4.32**		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 16:04	1
Lead	**0.00175**		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 16:04	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 16:04	1
Magnesium	**35.0**		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 16:04	1
Manganese	**0.508**		0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 16:04	1
Molybdenum	**0.00106**	**J**	0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 16:04	1
Nickel	**0.00205**		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 16:04	1
Potassium	**5.70**		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 16:04	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 16:04	1
Silver	**0.000223**	**J**	0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 16:04	1
Sodium	**77.1**		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 16:04	1
Thallium	**0.000185**	**J**	0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 16:04	1
Vanadium	**0.00745**		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 16:04	1
Zinc	**0.00581**		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 16:04	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0140**	**J**	0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 16:07	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 16:07	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 16:07	1
Barium	**0.00973**	**J**	0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 16:07	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 16:07	1
Boron	**0.786**	**B**	0.0800	0.0386	mg/L		12/21/20 08:29	12/23/20 12:55	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 16:07	1
Calcium	**622**		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 16:07	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 16:07	1
Cobalt	**0.000412**	**J**	0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 16:07	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 16:07	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 16:07	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 16:07	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 16:07	1
Magnesium	**35.2**		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 16:07	1
Manganese	**0.510**		0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 16:07	1
Molybdenum	**0.000849**	**J**	0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 16:07	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 16:07	1
Potassium	**3.52**		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 16:07	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 16:07	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 16:07	1
Sodium	**79.9**		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 16:07	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-HI-CAL-T3-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-8

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 16:07	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 16:07	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 16:07	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000273**		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:47	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:12	1

Client Sample ID: GAF-GW-1316-HI-CAL-T4-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-9

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.692**		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 16:10	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 16:10	1
Arsenic	**0.00212**		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 16:10	1
Barium	**0.00593**	**J**	0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 16:10	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 16:10	1
Boron	**0.413**	**B**	0.0800	0.0386	mg/L		12/21/20 08:29	12/23/20 12:58	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 16:10	1
Calcium	**688**		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 16:10	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 16:10	1
Cobalt	**0.00236**		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 16:10	1
Copper	**0.00146**	**J**	0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 16:10	1
Iron	**0.217**		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 16:10	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 16:10	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 16:10	1
Magnesium	**0.779**		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 16:10	1
Manganese	**0.00678**		0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 16:10	1
Molybdenum	**0.0577**		0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 16:10	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 16:10	1
Potassium	**3.47**		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 16:10	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 16:10	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 16:10	1
Sodium	**62.2**		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 16:10	1
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 16:10	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 16:10	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 16:10	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.648**		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 16:13	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 16:13	1
Arsenic	**0.00182**		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 16:13	1
Barium	**0.00560**	**J**	0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 16:13	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 16:13	1
Boron	**0.460**	**B**	0.0800	0.0386	mg/L		12/21/20 08:29	12/23/20 13:02	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 16:13	1
Calcium	**666**		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 16:13	1
Chromium	**0.00222**		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 16:13	1
Cobalt	**0.00285**		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 16:13	1
Copper	**0.00126**	**J**	0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 16:13	1
Iron	**0.0260**	**J**	0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 16:13	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 16:13	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 16:13	1
Magnesium	**0.652**		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 16:13	1
Manganese	**0.00203**	**J**	0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 16:13	1
Molybdenum	**0.0562**		0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 16:13	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 16:13	1
Potassium	**2.48**		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 16:13	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 16:13	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 16:13	1
Sodium	**61.6**		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 16:13	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-HI-CAL-T4-END
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-9
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 16:13	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 16:13	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 16:13	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:48	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:13	1

Client Sample ID: GAF-GW-1316-HI-CAL-T5-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-10

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**4.28**		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 12:26	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 12:26	1
Arsenic	**0.00298**		0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 12:26	1
Barium	**0.0177**		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 12:26	1
Beryllium	**0.000286**	**J**	0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 12:26	1
Boron	**0.332**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 12:26	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 12:26	1
Calcium	**640**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 12:26	1
Chromium	**0.00403**		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 12:26	1
Cobalt	**0.00268**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 12:26	1
Copper	**0.00352**		0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 12:26	1
Iron	**6.69**		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 12:26	1
Lead	**0.00183**		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 12:26	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 12:26	1
Magnesium	**2.11**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 12:26	1
Manganese	**0.0665**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 12:26	1
Molybdenum	**0.0302**		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 12:26	1
Nickel	**0.00241**		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 12:26	1
Potassium	**3.47**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 12:26	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 12:26	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 12:26	1
Sodium	**48.9**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 12:26	1
Thallium	**0.000413**	**J**	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 12:26	1
Vanadium	**0.00915**		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 12:26	1
Zinc	**0.00789**		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 12:26	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.208**		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 12:29	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 12:29	1
Arsenic	**0.00122**		0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 12:29	1
Barium	**0.00899**	**J**	0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 12:29	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 12:29	1
Boron	**0.351**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 12:29	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 12:29	1
Calcium	**656**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 12:29	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 12:29	1
Cobalt	**0.00151**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 12:29	1
Copper	**0.000905**	**J**	0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 12:29	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 12:29	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 12:29	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 12:29	1
Magnesium	**2.07**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 12:29	1
Manganese	**0.0111**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 12:29	1
Molybdenum	**0.0273**		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 12:29	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 12:29	1
Potassium	**3.01**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 12:29	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 12:29	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 12:29	1
Sodium	**52.7**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 12:29	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-HI-CAL-T5-END

Lab Sample ID: 180-115017-10

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.000183**	**J**	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 12:29	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 12:29	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 12:29	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:49	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:16	1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T1-END

Lab Sample ID: 180-115017-11

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.290**		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 12:33	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 12:33	1
Arsenic	**0.000329**	**J**	0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 12:33	1
Barium	**0.00940**	**J**	0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 12:33	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 12:33	1
Boron	**1.44**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 12:33	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 12:33	1
Calcium	**294**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 12:33	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 12:33	1
Cobalt	**0.00100**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 12:33	1
Copper	**0.00147**	**J**	0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 12:33	1
Iron	**0.324**		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 12:33	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 12:33	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 12:33	1
Magnesium	**101**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 12:33	1
Manganese	**1.20**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 12:33	1
Molybdenum	**0.000807**	**J**	0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 12:33	1
Nickel	**0.000623**	**J**	0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 12:33	1
Potassium	**4.04**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 12:33	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 12:33	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 12:33	1
Sodium	**89.6**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 12:33	1
Thallium	**0.000185**	**J**	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 12:33	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 12:33	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 12:33	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 12:36	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 12:36	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 12:36	1
Barium	**0.00844**	**J**	0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 12:36	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 12:36	1
Boron	**1.56**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 12:36	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 12:36	1
Calcium	**279**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 12:36	1
Chromium	**0.00246**		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 12:36	1
Cobalt	**0.000646**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 12:36	1
Copper	**0.000691**	**J**	0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 12:36	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 12:36	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 12:36	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 12:36	1
Magnesium	**106**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 12:36	1
Manganese	**0.703**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 12:36	1
Molybdenum	**0.00112**	**J**	0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 12:36	1
Nickel	**0.00101**		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 12:36	1
Potassium	**4.17**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 12:36	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 12:36	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 12:36	1
Sodium	**92.8**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 12:36	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 0.5-T1-END
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-11
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.000211	J	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 12:36	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 12:36	1
Zinc	0.00356	J	0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 12:36	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000313		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:50	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000251		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:17	1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T2-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-12

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41.4**		1.00	0.320	mg/L			12/22/20 17:41	1
Fluoride	**0.160**		0.100	0.0440	mg/L			12/22/20 17:41	1
Sulfate	**1030**		10.0	3.80	mg/L			12/22/20 17:57	10

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 12:39	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 12:39	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 12:39	1
Barium	**0.0110**		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 12:39	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 12:39	1
Boron	**1.34**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 12:39	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 12:39	1
Calcium	**372**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 12:39	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 12:39	1
Cobalt	**0.000901**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 12:39	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 12:39	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 12:39	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 12:39	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 12:39	1
Magnesium	**169**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 12:39	1
Manganese	**0.918**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 12:39	1
Molybdenum	**0.00104**	**J**	0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 12:39	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 12:39	1
Potassium	**4.05**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 12:39	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 12:39	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 12:39	1
Sodium	**88.7**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 12:39	1
Thallium	**0.000175**	**J**	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 12:39	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 12:39	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 12:39	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000156**	**J**	0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**309**		5.00	5.00	mg/L			12/18/20 18:11	1
Bicarbonate Alkalinity as CaCO3	**309**		5.00	5.00	mg/L			12/18/20 18:11	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 18:11	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/18/20 18:11	1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T3-END
Lab Sample ID: 180-115017-13
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	12.6		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 12:43	1
Antimony	0.000958	J	0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 12:43	1
Arsenic	0.00593		0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 12:43	1
Barium	0.0372		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 12:43	1
Beryllium	0.000577	J	0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 12:43	1
Boron	0.630		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 12:43	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 12:43	1
Calcium	478		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 12:43	1
Chromium	0.0103		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 12:43	1
Cobalt	0.00382		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 12:43	1
Copper	0.00681		0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 12:43	1
Iron	20.4		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 12:43	1
Lead	0.00535		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 12:43	1
Lithium	0.00467	J	0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 12:43	1
Magnesium	219		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 12:43	1
Manganese	0.264		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 12:43	1
Molybdenum	0.00413	J	0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 12:43	1
Nickel	0.00705		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 12:43	1
Potassium	4.86		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 12:43	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 12:43	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 12:43	1
Sodium	81.4		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 12:43	1
Thallium	0.000521	J	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 12:43	1
Vanadium	0.0253		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 12:43	1
Zinc	0.0264		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 12:43	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0183	J	0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 12:46	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 12:46	1
Arsenic	0.000426	J	0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 12:46	1
Barium	0.00977	J	0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 12:46	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 12:46	1
Boron	0.494		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 12:46	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 12:46	1
Calcium	468		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 12:46	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 12:46	1
Cobalt	0.000569		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 12:46	1
Copper	0.000642	J	0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 12:46	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 12:46	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 12:46	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 12:46	1
Magnesium	210		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 12:46	1
Manganese	0.132		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 12:46	1
Molybdenum	0.00254	J	0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 12:46	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 12:46	1
Potassium	5.17		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 12:46	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 12:46	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 12:46	1
Sodium	77.9		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 12:46	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 0.5-T3-END

Lab Sample ID: 180-115017-13

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.000237**	**J**	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 12:46	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 12:46	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 12:46	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:16	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:26	1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T4-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-14

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.04**		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:06	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:06	1
Arsenic	**0.000728**	**J**	0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:06	1
Barium	**0.0132**		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:06	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:06	1
Boron	**1.17**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:06	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:06	1
Calcium	**581**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:06	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:06	1
Cobalt	**0.00473**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:06	1
Copper	**0.00146**	**J**	0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:06	1
Iron	**1.50**		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:06	1
Lead	**0.000433**	**J**	0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:06	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:06	1
Magnesium	**201**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:06	1
Manganese	**2.78**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:06	1
Molybdenum	**0.00319**	**J**	0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:06	1
Nickel	**0.00342**		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:06	1
Potassium	**5.00**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:06	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:06	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:06	1
Sodium	**71.1**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:06	1
Thallium	**0.000305**	**J**	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:06	1
Vanadium	**0.00275**		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:06	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:06	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0229**	**J**	0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:09	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:09	1
Arsenic	**0.000423**	**J**	0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:09	1
Barium	**0.00964**	**J**	0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:09	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:09	1
Boron	**0.316**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:09	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:09	1
Calcium	**594**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:09	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:09	1
Cobalt	**0.000617**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:09	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:09	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:09	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:09	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:09	1
Magnesium	**237**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:09	1
Manganese	**0.0837**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:09	1
Molybdenum	**0.00466**	**J**	0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:09	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:09	1
Potassium	**3.50**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:09	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:09	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:09	1
Sodium	**77.3**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:09	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 0.5-T4-END
Lab Sample ID: 180-115017-14
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	**0.000179**	**J**	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:09	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:09	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:09	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000400	0.000260	mg/L		12/24/20 05:48	12/24/20 09:17	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:27	1

Client Sample ID: GAF-GW-1316-DOLO 0.5-T5-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-15

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**4.37**		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:12	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:12	1
Arsenic	**0.00266**		0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:12	1
Barium	**0.0180**		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:12	1
Beryllium	**0.000243**	**J**	0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:12	1
Boron	**0.601**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:12	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:12	1
Calcium	**585**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:12	1
Chromium	**0.00392**		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:12	1
Cobalt	**0.00319**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:12	1
Copper	**0.00364**		0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:12	1
Iron	**8.12**		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:12	1
Lead	**0.00196**		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:12	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:12	1
Magnesium	**185**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:12	1
Manganese	**0.477**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:12	1
Molybdenum	**0.00600**		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:12	1
Nickel	**0.00352**		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:12	1
Potassium	**8.40**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:12	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:12	1
Silver	**0.000239**	**J**	0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:12	1
Sodium	**73.5**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:12	1
Thallium	**0.000432**	**J**	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:12	1
Vanadium	**0.00941**		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:12	1
Zinc	**0.0177**		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:12	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.398**		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:16	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:16	1
Arsenic	**0.000600**	**J**	0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:16	1
Barium	**0.0108**		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:16	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:16	1
Boron	**0.284**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:16	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:16	1
Calcium	**586**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:16	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:16	1
Cobalt	**0.000727**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:16	1
Copper	**0.000688**	**J**	0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:16	1
Iron	**0.451**		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:16	1
Lead	**0.000184**	**J**	0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:16	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:16	1
Magnesium	**192**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:16	1
Manganese	**0.102**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:16	1
Molybdenum	**0.00613**		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:16	1
Nickel	**0.000449**	**J**	0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:16	1
Potassium	**3.57**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:16	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:16	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:16	1
Sodium	**75.6**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:16	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 0.5-T5-END

Lab Sample ID: 180-115017-15

Date Collected: 12/04/20 11:00

Matrix: Water

Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.000226	J	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:16	1
Vanadium	0.00106		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:16	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:16	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:18	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:28	1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T1-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-16

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.979**		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:19	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:19	1
Arsenic	**0.000940**	**J**	0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:19	1
Barium	**0.0128**		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:19	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:19	1
Boron	**0.836**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:19	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:19	1
Calcium	**309**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:19	1
Chromium	**0.00230**		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:19	1
Cobalt	**0.00125**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:19	1
Copper	**0.00160**	**J**	0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:19	1
Iron	**1.74**		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:19	1
Lead	**0.000391**	**J**	0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:19	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:19	1
Magnesium	**63.9**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:19	1
Manganese	**0.0287**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:19	1
Molybdenum	**0.00845**		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:19	1
Nickel	**0.000632**	**J**	0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:19	1
Potassium	**4.18**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:19	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:19	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:19	1
Sodium	**91.3**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:19	1
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:19	1
Vanadium	**0.00462**		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:19	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:19	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:22	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:22	1
Arsenic	**0.000421**	**J**	0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:22	1
Barium	**0.0100**		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:22	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:22	1
Boron	**0.875**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:22	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:22	1
Calcium	**308**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:22	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:22	1
Cobalt	**0.000870**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:22	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:22	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:22	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:22	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:22	1
Magnesium	**60.8**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:22	1
Manganese	**0.00182**	**J**	0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:22	1
Molybdenum	**0.00957**		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:22	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:22	1
Potassium	**4.05**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:22	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:22	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:22	1
Sodium	**90.5**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:22	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 1.0-T1-END
Lab Sample ID: 180-115017-16
Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:22	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:22	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:22	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:19	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:29	1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T2-END

Lab Sample ID: 180-115017-17

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**40.3**		1.00	0.320	mg/L			12/22/20 19:16	1
Fluoride	**0.274**		0.100	0.0440	mg/L			12/22/20 19:16	1
Sulfate	**1110**		10.0	3.80	mg/L			12/22/20 19:32	10

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0227**	**J**	0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:25	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:25	1
Arsenic	**0.000465**	**J**	0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:25	1
Barium	**0.00857**	**J**	0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:25	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:25	1
Boron	**0.723**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:25	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:25	1
Calcium	**243**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:25	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:25	1
Cobalt	**0.000555**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:25	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:25	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:25	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:25	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:25	1
Magnesium	**97.1**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:25	1
Manganese	**0.00915**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:25	1
Molybdenum	**0.00827**		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:25	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:25	1
Potassium	**3.24**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:25	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:25	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:25	1
Sodium	**84.3**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:25	1
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:25	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:25	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:25	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**25.1**		5.00	5.00	mg/L			12/18/20 18:17	1
Bicarbonate Alkalinity as CaCO3	**25.1**		5.00	5.00	mg/L			12/18/20 18:17	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 18:17	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/18/20 18:17	1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T3-END

Lab Sample ID: 180-115017-18

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.02**		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:29	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:29	1
Arsenic	**0.00115**		0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:29	1
Barium	**0.0142**		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:29	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:29	1
Boron	**0.440**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:29	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:29	1
Calcium	**536**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:29	1
Chromium	**0.00173**	**J**	0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:29	1
Cobalt	**0.000938**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:29	1
Copper	**0.00135**	**J**	0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:29	1
Iron	**2.67**		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:29	1
Lead	**0.000708**	**J**	0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:29	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:29	1
Magnesium	**184**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:29	1
Manganese	**0.0722**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:29	1
Molybdenum	**0.00555**		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:29	1
Nickel	**0.00116**		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:29	1
Potassium	**4.55**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:29	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:29	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:29	1
Sodium	**80.5**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:29	1
Thallium	**0.000183**	**J**	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:29	1
Vanadium	**0.00405**		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:29	1
Zinc	**0.00357**	**J**	0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:29	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0249**	**J**	0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:32	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:32	1
Arsenic	**0.000395**	**J**	0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:32	1
Barium	**0.0102**		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:32	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:32	1
Boron	**0.420**		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:32	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:32	1
Calcium	**545**		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:32	1
Chromium	**0.00164**	**J**	0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:32	1
Cobalt	**0.000507**		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:32	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:32	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:32	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:32	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:32	1
Magnesium	**190**		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:32	1
Manganese	**0.0611**		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:32	1
Molybdenum	**0.00557**		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:32	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:32	1
Potassium	**3.42**		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:32	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:32	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:32	1
Sodium	**82.4**		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:32	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 1.0-T3-END

Lab Sample ID: 180-115017-18

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:32	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:32	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:32	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:20	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:31	1

Client Sample ID: GAF-GW-1316-DOLO 1.0-T4-END

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-19

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	16.2		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:35	1
Antimony	0.000825	J	0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:35	1
Arsenic	0.00802		0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:35	1
Barium	0.0385		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:35	1
Beryllium	0.000936	J	0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:35	1
Boron	0.679		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:35	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:35	1
Calcium	657		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:35	1
Chromium	0.0135		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:35	1
Cobalt	0.00897		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:35	1
Copper	0.00902		0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:35	1
Iron	29.2		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:35	1
Lead	0.00602		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:35	1
Lithium	0.00486	J	0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:35	1
Magnesium	25.5		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:35	1
Manganese	0.373		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:35	1
Molybdenum	0.0159		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:35	1
Nickel	0.00870		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:35	1
Potassium	5.09		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:35	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:35	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:35	1
Sodium	67.3		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:35	1
Thallium	0.000456	J	0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:35	1
Vanadium	0.0340		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:35	1
Zinc	0.0364		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:35	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.109		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 13:45	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 13:45	1
Arsenic	0.00148		0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 13:45	1
Barium	0.00800	J	0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 13:45	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 13:45	1
Boron	0.188		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 13:45	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 13:45	1
Calcium	653		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 13:45	1
Chromium	0.00155	J	0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 13:45	1
Cobalt	0.00429		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 13:45	1
Copper	0.00104	J	0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 13:45	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 13:45	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 13:45	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 13:45	1
Magnesium	7.50		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 13:45	1
Manganese	ND		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 13:45	1
Molybdenum	0.0245		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 13:45	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 13:45	1
Potassium	2.99		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 13:45	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 13:45	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 13:45	1
Sodium	65.3		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 13:45	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 1.0-T4-END

Lab Sample ID: 180-115017-19

Date Collected: 12/04/20 11:00
Matrix: Water
Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 13:45	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 13:45	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 13:45	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:21	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000400	0.000260	mg/L		12/24/20 05:48	12/24/20 09:32	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 1.0-T5-END

Lab Sample ID: 180-115017-20

Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**9.54**		0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 16:33	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 16:33	1
Arsenic	**0.00505**		0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 16:33	1
Barium	**0.0275**		0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 16:33	1
Beryllium	**0.000427**	J	0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 16:33	1
Boron	**0.321**		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 09:44	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 16:33	1
Calcium	**631**		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 16:33	1
Chromium	**0.00835**		0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 16:33	1
Cobalt	**0.00714**		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 16:33	1
Copper	**0.00624**		0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 16:33	1
Iron	**14.2**		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 16:33	1
Lead	**0.00410**		0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 16:33	1
Lithium	**0.00353**	J	0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 16:33	1
Magnesium	**11.7**		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 16:33	1
Manganese	**0.102**		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 16:33	1
Molybdenum	**0.0218**		0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 16:33	1
Nickel	**0.00502**		0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 16:33	1
Potassium	**4.93**		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 16:33	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 16:33	1
Silver	**0.000184**	J	0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 16:33	1
Sodium	**49.2**		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 16:33	1
Thallium	**0.000604**	J	0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 16:33	1
Vanadium	**0.0190**		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 16:33	1
Zinc	**0.0162**		0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 16:33	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0576**		0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 16:37	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 16:37	1
Arsenic	**0.000900**	J	0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 16:37	1
Barium	**0.00926**	J	0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 16:37	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 16:37	1
Boron	**0.263**		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 09:47	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 16:37	1
Calcium	**610**		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 16:37	1
Chromium	**0.00194**	J	0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 16:37	1
Cobalt	**0.00247**		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 16:37	1
Copper	**0.000779**	J	0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 16:37	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 16:37	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 16:37	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 16:37	1
Magnesium	**109**		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 16:37	1
Manganese	**0.0417**		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 16:37	1
Molybdenum	**0.0128**		0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 16:37	1
Nickel	**0.000417**	J	0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 16:37	1
Potassium	**3.23**		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 16:37	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 16:37	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 16:37	1
Sodium	**62.8**		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 16:37	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1316-DOLO 1.0-T5-END
Date Collected: 12/04/20 11:00
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-20
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.000298	J	0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 16:37	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 16:37	1
Zinc	0.00420	J	0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 16:37	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:22	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:33	1

Client Sample ID: GAF-GW-1315-CONTROL-T14

Date Collected: 12/07/20 12:40
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-21

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**42.1**		1.00	0.320	mg/L			12/22/20 18:12	1
Fluoride	**0.212**		0.100	0.0440	mg/L			12/22/20 18:12	1
Sulfate	**752**		10.0	3.80	mg/L			12/22/20 18:28	10

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.458**		0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 16:40	1
Antimony	**0.000858**	**J**	0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 16:40	1
Arsenic	**0.000335**	**J**	0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 16:40	1
Barium	**0.0241**		0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 16:40	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 16:40	1
Boron	**1.90**		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 09:51	1
Cadmium	**0.000326**	**J**	0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 16:40	1
Calcium	**303**		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 16:40	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 16:40	1
Cobalt	**0.0119**		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 16:40	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 16:40	1
Iron	**0.559**		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 16:40	1
Lead	**0.000190**	**J**	0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 16:40	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 16:40	1
Magnesium	**34.2**		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 16:40	1
Manganese	**7.77**		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 16:40	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 16:40	1
Nickel	**0.00706**		0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 16:40	1
Potassium	**5.26**		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 16:40	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 16:40	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 16:40	1
Sodium	**94.8**		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 16:40	1
Thallium	**0.000856**	**J**	0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 16:40	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 16:40	1
Zinc	**0.00432**	**J**	0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 16:40	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0137**	**J**	0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 16:43	1
Antimony	**0.000781**	**J**	0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 16:43	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 16:43	1
Barium	**0.0210**		0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 16:43	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 16:43	1
Boron	**1.93**		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 09:55	1
Cadmium	**0.000340**	**J**	0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 16:43	1
Calcium	**294**		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 16:43	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 16:43	1
Cobalt	**0.0113**		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 16:43	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 16:43	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 16:43	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 16:43	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 16:43	1
Magnesium	**33.5**		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 16:43	1
Manganese	**7.45**		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 16:43	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1315-CONTROL-T14

Date Collected: 12/07/20 12:40
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-21

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 16:43	1
Nickel	**0.00626**		0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 16:43	1
Potassium	**5.94**		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 16:43	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 16:43	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 16:43	1
Sodium	**91.9**		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 16:43	1
Thallium	**0.000789**	**J**	0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 16:43	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 16:43	1
Zinc	**0.00372**	**J**	0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 16:43	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:37	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/29/20 12:14	12/31/20 17:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**312**		5.00	5.00	mg/L			12/18/20 18:57	1
Bicarbonate Alkalinity as CaCO3	**312**		5.00	5.00	mg/L			12/18/20 18:57	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 18:57	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/18/20 18:57	1

Client Sample ID: GAF-GW-1315-HI CAL 0.5-T14

Date Collected: 12/07/20 12:40
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-22

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41.1**		1.00	0.320	mg/L			12/22/20 19:47	1
Fluoride	**0.215**		0.100	0.0440	mg/L			12/22/20 19:47	1
Sulfate	**534**		10.0	3.80	mg/L			12/22/20 20:03	10

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.0487**		0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 16:47	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 16:47	1
Arsenic	**0.000465**	**J**	0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 16:47	1
Barium	**0.0231**		0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 16:47	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 16:47	1
Boron	**1.82**		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 09:58	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 16:47	1
Calcium	**293**		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 16:47	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 16:47	1
Cobalt	**0.00349**		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 16:47	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 16:47	1
Iron	**0.154**		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 16:47	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 16:47	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 16:47	1
Magnesium	**25.8**		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 16:47	1
Manganese	**2.01**		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 16:47	1
Molybdenum	**0.00119**	**J**	0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 16:47	1
Nickel	**0.00104**		0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 16:47	1
Potassium	**4.79**		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 16:47	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 16:47	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 16:47	1
Sodium	**93.5**		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 16:47	1
Thallium	**0.000195**	**J**	0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 16:47	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 16:47	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 16:47	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 16:50	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 16:50	1
Arsenic	**0.000346**	**J**	0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 16:50	1
Barium	**0.0218**		0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 16:50	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 16:50	1
Boron	**1.80**		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 10:02	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 16:50	1
Calcium	**283**		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 16:50	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 16:50	1
Cobalt	**0.00313**		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 16:50	1
Copper	**0.000740**	**J**	0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 16:50	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 16:50	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 16:50	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 16:50	1
Magnesium	**25.4**		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 16:50	1
Manganese	**1.60**		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 16:50	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1315-HI CAL 0.5-T14

Date Collected: 12/07/20 12:40
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-22

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	**0.00116**	**J**	0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 16:50	1
Nickel	**0.000816**	**J**	0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 16:50	1
Potassium	**4.79**		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 16:50	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 16:50	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 16:50	1
Sodium	**92.5**		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 16:50	1
Thallium	**0.000177**	**J**	0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 16:50	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 16:50	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 16:50	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:34	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**381**		5.00	5.00	mg/L			12/18/20 19:11	1
Bicarbonate Alkalinity as CaCO3	**381**		5.00	5.00	mg/L			12/18/20 19:11	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 19:11	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/18/20 19:11	1

Client Sample ID: GAF-GW-1315-DOLO 0.5-T14

Lab Sample ID: 180-115017-23

Date Collected: 12/07/20 12:40
Matrix: Water
Date Received: 12/16/20 10:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	42.6		1.00	0.320	mg/L			12/22/20 20:19	1
Fluoride	0.203		0.100	0.0440	mg/L			12/22/20 20:19	1
Sulfate	677		10.0	3.80	mg/L			12/22/20 20:35	10

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0778		0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 16:53	1
Antimony	0.000603	J	0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 16:53	1
Arsenic	0.000475	J	0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 16:53	1
Barium	0.0192		0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 16:53	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 16:53	1
Boron	1.69		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 10:20	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 16:53	1
Calcium	295		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 16:53	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 16:53	1
Cobalt	0.00951		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 16:53	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 16:53	1
Iron	0.330		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 16:53	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 16:53	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 16:53	1
Magnesium	55.5		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 16:53	1
Manganese	3.11		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 16:53	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 16:53	1
Nickel	0.00269		0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 16:53	1
Potassium	4.41		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 16:53	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 16:53	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 16:53	1
Sodium	92.0		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 16:53	1
Thallium	0.000173	J	0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 16:53	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 16:53	1
Zinc	0.00383	J	0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 16:53	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 16:56	1
Antimony	0.000628	J	0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 16:56	1
Arsenic	0.000318	J	0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 16:56	1
Barium	0.0183		0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 16:56	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 16:56	1
Boron	1.75		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 10:24	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 16:56	1
Calcium	279		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 16:56	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 16:56	1
Cobalt	0.00817		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 16:56	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 16:56	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 16:56	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 16:56	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 16:56	1
Magnesium	54.3		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 16:56	1
Manganese	2.62		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 16:56	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1315-DOLO 0.5-T14
Date Collected: 12/07/20 12:40
Date Received: 12/16/20 10:00

Lab Sample ID: 180-115017-23
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.000618	J	0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 16:56	1
Nickel	0.00260		0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 16:56	1
Potassium	4.34		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 16:56	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 16:56	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 16:56	1
Sodium	90.4		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 16:56	1
Thallium	0.000185	J	0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 16:56	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 16:56	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 16:56	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:38	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	397		5.00	5.00	mg/L			12/18/20 19:19	1
Bicarbonate Alkalinity as CaCO3	397		5.00	5.00	mg/L			12/18/20 19:19	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 19:19	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/18/20 19:19	1

Client Sample ID: GAF-GW-1315-DOLO 1.0-T14

Lab Sample ID: 180-115017-24

Date Collected: 12/07/20 12:40
Matrix: Water
Date Received: 12/16/20 10:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41.3**		1.00	0.320	mg/L			12/22/20 20:51	1
Fluoride	**0.192**		0.100	0.0440	mg/L			12/22/20 20:51	1
Sulfate	**642**		10.0	3.80	mg/L			12/22/20 21:07	10

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.236**		0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 17:06	1
Antimony	**0.00156**	**J**	0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 17:06	1
Arsenic	**0.000484**	**J**	0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 17:06	1
Barium	**0.0224**		0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 17:06	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 17:06	1
Boron	**1.74**		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 10:27	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 17:06	1
Calcium	**278**		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 17:06	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 17:06	1
Cobalt	**0.00615**		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 17:06	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 17:06	1
Iron	**0.405**		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 17:06	1
Lead	**0.000136**	**J**	0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 17:06	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 17:06	1
Magnesium	**46.7**		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 17:06	1
Manganese	**2.57**		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 17:06	1
Molybdenum	**0.00120**	**J**	0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 17:06	1
Nickel	**0.00228**		0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 17:06	1
Potassium	**4.75**		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 17:06	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 17:06	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 17:06	1
Sodium	**88.5**		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 17:06	1
Thallium	**0.000234**	**J**	0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 17:06	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 17:06	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 17:06	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 17:10	1
Antimony	**0.00143**	**J**	0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 17:10	1
Arsenic	**0.000355**	**J**	0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 17:10	1
Barium	**0.0207**		0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 17:10	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 17:10	1
Boron	**1.74**		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 10:31	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 17:10	1
Calcium	**267**		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 17:10	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 17:10	1
Cobalt	**0.00514**		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 17:10	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 17:10	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 17:10	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 17:10	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 17:10	1
Magnesium	**46.9**		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 17:10	1
Manganese	**2.18**		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 17:10	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115017-1
SDG: Treatability

Client Sample ID: GAF-GW-1315-DOLO 1.0-T14

Lab Sample ID: 180-115017-24

Date Collected: 12/07/20 12:40

Matrix: Water

Date Received: 12/16/20 10:00

Method: 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	**0.00124**	**J**	0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 17:10	1
Nickel	**0.00175**		0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 17:10	1
Potassium	**4.73**		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 17:10	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 17:10	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 17:10	1
Sodium	**88.6**		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 17:10	1
Thallium	**0.000228**	**J**	0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 17:10	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 17:10	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 17:10	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:39	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 11:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**345**		5.00	5.00	mg/L			12/18/20 19:26	1
Bicarbonate Alkalinity as CaCO3	**345**		5.00	5.00	mg/L			12/18/20 19:26	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 19:26	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/18/20 19:26	1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-341424/34
Matrix: Water
Analysis Batch: 341424

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00	0.320	mg/L			12/22/20 14:57	1
Fluoride	ND		0.100	0.0440	mg/L			12/22/20 14:57	1
Sulfate	ND		1.00	0.380	mg/L			12/22/20 14:57	1

Lab Sample ID: LCS 180-341424/33
Matrix: Water
Analysis Batch: 341424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.46		mg/L		101	80 - 120
Fluoride	2.50	2.608		mg/L		104	80 - 120
Sulfate	50.0	52.63		mg/L		105	80 - 120

Lab Sample ID: 180-115017-2 MS
Matrix: Water
Analysis Batch: 341424

Client Sample ID: GAF-GW-1316-CONTROL-T2-END
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	40.6		500	527.4		mg/L		97	80 - 120
Fluoride	ND		25.0	25.38		mg/L		102	80 - 120
Sulfate	877		500	1345		mg/L		94	80 - 120

Lab Sample ID: 180-115017-2 MSD
Matrix: Water
Analysis Batch: 341424

Client Sample ID: GAF-GW-1316-CONTROL-T2-END
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	40.6		500	544.8		mg/L		101	80 - 120	3	15
Fluoride	ND		25.0	26.41		mg/L		106	80 - 120	4	15
Sulfate	877		500	1395		mg/L		104	80 - 120	4	15

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-341297/1-A
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 341297

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/21/20 08:22	12/22/20 12:20	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:22	12/22/20 12:20	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:22	12/22/20 12:20	1
Barium	ND		0.0100	0.00160	mg/L		12/21/20 08:22	12/22/20 12:20	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:22	12/22/20 12:20	1
Boron	ND		0.0800	0.0386	mg/L		12/21/20 08:22	12/22/20 12:20	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:22	12/22/20 12:20	1
Calcium	ND		0.500	0.127	mg/L		12/21/20 08:22	12/22/20 12:20	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:22	12/22/20 12:20	1
Cobalt	ND		0.000500	0.000134	mg/L		12/21/20 08:22	12/22/20 12:20	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:22	12/22/20 12:20	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:22	12/22/20 12:20	1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-341297/1-A
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 341297

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:22	12/22/20 12:20	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:22	12/22/20 12:20	1
Magnesium	ND		0.500	0.0827	mg/L		12/21/20 08:22	12/22/20 12:20	1
Manganese	ND		0.00500	0.000866	mg/L		12/21/20 08:22	12/22/20 12:20	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:22	12/22/20 12:20	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:22	12/22/20 12:20	1
Potassium	ND		0.500	0.156	mg/L		12/21/20 08:22	12/22/20 12:20	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:22	12/22/20 12:20	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:22	12/22/20 12:20	1
Sodium	ND		0.500	0.348	mg/L		12/21/20 08:22	12/22/20 12:20	1
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:22	12/22/20 12:20	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:22	12/22/20 12:20	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:22	12/22/20 12:20	1

Lab Sample ID: LCS 180-341297/2-A
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 341297

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5.00	4.889		mg/L		98	80 - 120
Antimony	0.250	0.2378		mg/L		95	80 - 120
Arsenic	1.00	0.9971		mg/L		100	80 - 120
Barium	1.00	0.9963		mg/L		100	80 - 120
Beryllium	0.500	0.5100		mg/L		102	80 - 120
Boron	1.25	1.116		mg/L		89	80 - 120
Cadmium	0.500	0.5009		mg/L		100	80 - 120
Calcium	25.0	26.96		mg/L		108	80 - 120
Chromium	0.500	0.5026		mg/L		101	80 - 120
Cobalt	0.500	0.4968		mg/L		99	80 - 120
Copper	0.500	0.4953		mg/L		99	80 - 120
Iron	5.00	5.108		mg/L		102	80 - 120
Lead	0.500	0.5060		mg/L		101	80 - 120
Lithium	0.500	0.4882		mg/L		98	80 - 120
Magnesium	25.0	25.08		mg/L		100	80 - 120
Manganese	0.500	0.5018		mg/L		100	80 - 120
Molybdenum	0.500	0.5078		mg/L		102	80 - 120
Nickel	0.500	0.4870		mg/L		97	80 - 120
Potassium	25.0	24.73		mg/L		99	80 - 120
Selenium	1.00	1.016		mg/L		102	80 - 120
Silver	0.250	0.2499		mg/L		100	80 - 120
Sodium	25.0	25.39		mg/L		102	80 - 120
Thallium	1.00	1.039		mg/L		104	80 - 120
Vanadium	0.500	0.5036		mg/L		101	80 - 120
Zinc	0.250	0.2523		mg/L		101	80 - 120

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-114996-E-1-B MS
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 341297

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	ND		5.00	4.762		mg/L		95	75 - 125
Antimony	ND		0.250	0.2319		mg/L		93	75 - 125
Arsenic	ND		1.00	0.9401		mg/L		94	75 - 125
Barium	0.176		1.00	1.124		mg/L		95	75 - 125
Beryllium	ND		0.500	0.4594		mg/L		92	75 - 125
Boron	0.0510	J	1.25	1.039		mg/L		79	75 - 125
Cadmium	ND		0.500	0.4860		mg/L		97	75 - 125
Calcium	40.3		25.0	64.61		mg/L		97	75 - 125
Chromium	ND		0.500	0.4857		mg/L		97	75 - 125
Cobalt	ND		0.500	0.4750		mg/L		95	75 - 125
Copper	0.00464		0.500	0.4776		mg/L		95	75 - 125
Iron	ND		5.00	5.045		mg/L		101	75 - 125
Lead	0.000172	J	0.500	0.4887		mg/L		98	75 - 125
Lithium	0.0138		0.500	0.4613		mg/L		89	75 - 125
Magnesium	6.46		25.0	31.10		mg/L		99	75 - 125
Manganese	ND		0.500	0.4792		mg/L		96	75 - 125
Molybdenum	ND		0.500	0.4850		mg/L		97	75 - 125
Nickel	ND		0.500	0.4656		mg/L		93	75 - 125
Potassium	1.14		25.0	24.83		mg/L		95	75 - 125
Selenium	ND		1.00	0.9832		mg/L		98	75 - 125
Silver	ND		0.250	0.2445		mg/L		98	75 - 125
Sodium	8.93		25.0	33.46		mg/L		98	75 - 125
Thallium	ND		1.00	1.003		mg/L		100	75 - 125
Vanadium	ND		0.500	0.4847		mg/L		97	75 - 125
Zinc	ND		0.250	0.2472		mg/L		99	75 - 125

Lab Sample ID: 180-114996-E-1-C MSD
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 341297

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	ND		5.00	4.792		mg/L		96	75 - 125	1	20
Antimony	ND		0.250	0.2346		mg/L		94	75 - 125	1	20
Arsenic	ND		1.00	0.9528		mg/L		95	75 - 125	1	20
Barium	0.176		1.00	1.147		mg/L		97	75 - 125	2	20
Beryllium	ND		0.500	0.4708		mg/L		94	75 - 125	2	20
Boron	0.0510	J	1.25	1.128		mg/L		86	75 - 125	8	20
Cadmium	ND		0.500	0.4952		mg/L		99	75 - 125	2	20
Calcium	40.3		25.0	65.32		mg/L		100	75 - 125	1	20
Chromium	ND		0.500	0.4969		mg/L		99	75 - 125	2	20
Cobalt	ND		0.500	0.4787		mg/L		96	75 - 125	1	20
Copper	0.00464		0.500	0.4800		mg/L		95	75 - 125	0	20
Iron	ND		5.00	5.034		mg/L		101	75 - 125	0	20
Lead	0.000172	J	0.500	0.4961		mg/L		99	75 - 125	1	20
Lithium	0.0138		0.500	0.4739		mg/L		92	75 - 125	3	20
Magnesium	6.46		25.0	31.52		mg/L		100	75 - 125	1	20
Manganese	ND		0.500	0.4869		mg/L		97	75 - 125	2	20
Molybdenum	ND		0.500	0.4924		mg/L		98	75 - 125	2	20
Nickel	ND		0.500	0.4711		mg/L		94	75 - 125	1	20

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-114996-E-1-C MSD
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 341297

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Potassium	1.14		25.0	25.08		mg/L		96	75 - 125	1	20
Selenium	ND		1.00	0.9950		mg/L		100	75 - 125	1	20
Silver	ND		0.250	0.2455		mg/L		98	75 - 125	0	20
Sodium	8.93		25.0	33.91		mg/L		100	75 - 125	1	20
Thallium	ND		1.00	1.019		mg/L		102	75 - 125	2	20
Vanadium	ND		0.500	0.4935		mg/L		99	75 - 125	2	20
Zinc	ND		0.250	0.2439		mg/L		98	75 - 125	1	20

Lab Sample ID: MB 180-341300/1-A
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 341300

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/21/20 08:29	12/22/20 14:08	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:29	12/22/20 14:08	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:29	12/22/20 14:08	1
Barium	ND		0.0100	0.00160	mg/L		12/21/20 08:29	12/22/20 14:08	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:29	12/22/20 14:08	1
Boron	0.04397	J	0.0800	0.0386	mg/L		12/21/20 08:29	12/22/20 14:08	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:29	12/22/20 14:08	1
Calcium	ND		0.500	0.127	mg/L		12/21/20 08:29	12/22/20 14:08	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:29	12/22/20 14:08	1
Cobalt	ND		0.000500	0.000134	mg/L		12/21/20 08:29	12/22/20 14:08	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:29	12/22/20 14:08	1
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:29	12/22/20 14:08	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:29	12/22/20 14:08	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:29	12/22/20 14:08	1
Magnesium	ND		0.500	0.0827	mg/L		12/21/20 08:29	12/22/20 14:08	1
Manganese	ND		0.00500	0.000866	mg/L		12/21/20 08:29	12/22/20 14:08	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:29	12/22/20 14:08	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:29	12/22/20 14:08	1
Potassium	ND		0.500	0.156	mg/L		12/21/20 08:29	12/22/20 14:08	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:29	12/22/20 14:08	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:29	12/22/20 14:08	1
Sodium	ND		0.500	0.348	mg/L		12/21/20 08:29	12/22/20 14:08	1
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:29	12/22/20 14:08	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:29	12/22/20 14:08	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:29	12/22/20 14:08	1

Lab Sample ID: LCS 180-341300/2-A
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 341300

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5.00	4.883		mg/L		98	80 - 120
Antimony	0.250	0.2359		mg/L		94	80 - 120
Arsenic	1.00	0.9767		mg/L		98	80 - 120
Barium	1.00	0.9839		mg/L		98	80 - 120
Beryllium	0.500	0.4746		mg/L		95	80 - 120

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-341300/2-A
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 341300

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.25	1.056		mg/L		84	80 - 120
Cadmium	0.500	0.5000		mg/L		100	80 - 120
Calcium	25.0	26.72		mg/L		107	80 - 120
Chromium	0.500	0.5027		mg/L		101	80 - 120
Cobalt	0.500	0.4959		mg/L		99	80 - 120
Copper	0.500	0.4931		mg/L		99	80 - 120
Iron	5.00	5.173		mg/L		103	80 - 120
Lead	0.500	0.5026		mg/L		101	80 - 120
Lithium	0.500	0.4649		mg/L		93	80 - 120
Magnesium	25.0	25.62		mg/L		102	80 - 120
Manganese	0.500	0.4970		mg/L		99	80 - 120
Molybdenum	0.500	0.5029		mg/L		101	80 - 120
Nickel	0.500	0.4866		mg/L		97	80 - 120
Potassium	25.0	24.55		mg/L		98	80 - 120
Selenium	1.00	1.013		mg/L		101	80 - 120
Silver	0.250	0.2518		mg/L		101	80 - 120
Sodium	25.0	26.17		mg/L		105	80 - 120
Thallium	1.00	1.033		mg/L		103	80 - 120
Vanadium	0.500	0.5005		mg/L		100	80 - 120
Zinc	0.250	0.2512		mg/L		100	80 - 120

Lab Sample ID: 180-115022-A-13-B MS
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 341300

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	0.0167	J	5.00	4.913		mg/L		98	75 - 125
Antimony	ND		0.250	0.2360		mg/L		94	75 - 125
Arsenic	ND		1.00	0.9537		mg/L		95	75 - 125
Barium	0.217		1.00	1.189		mg/L		97	75 - 125
Beryllium	ND		0.500	0.4688		mg/L		94	75 - 125
Boron	0.0930	B	1.25	1.139		mg/L		84	75 - 125
Cadmium	ND		0.500	0.4928		mg/L		99	75 - 125
Calcium	13.6		25.0	39.57		mg/L		104	75 - 125
Chromium	ND		0.500	0.4897		mg/L		98	75 - 125
Cobalt	ND		0.500	0.4842		mg/L		97	75 - 125
Copper	ND		0.500	0.4860		mg/L		97	75 - 125
Iron	ND		5.00	5.090		mg/L		102	75 - 125
Lead	ND		0.500	0.4916		mg/L		98	75 - 125
Lithium	0.0172		0.500	0.4790		mg/L		92	75 - 125
Magnesium	1.53		25.0	27.03		mg/L		102	75 - 125
Manganese	0.0137		0.500	0.4940		mg/L		96	75 - 125
Molybdenum	ND		0.500	0.4907		mg/L		98	75 - 125
Nickel	ND		0.500	0.4738		mg/L		95	75 - 125
Potassium	1.92		25.0	26.02		mg/L		96	75 - 125
Selenium	ND		1.00	0.9880		mg/L		99	75 - 125
Silver	ND		0.250	0.2475		mg/L		99	75 - 125
Sodium	55.4		25.0	79.62		mg/L		97	75 - 125
Thallium	ND		1.00	1.026		mg/L		103	75 - 125

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-115022-A-13-B MS
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 341300

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Vanadium	ND		0.500	0.4898		mg/L		98	75 - 125
Zinc	ND		0.250	0.2593		mg/L		104	75 - 125

Lab Sample ID: 180-115022-A-13-C MSD
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 341300

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	0.0167	J	5.00	4.753		mg/L		95	75 - 125	3	20
Antimony	ND		0.250	0.2351		mg/L		94	75 - 125	0	20
Arsenic	ND		1.00	0.9596		mg/L		96	75 - 125	1	20
Barium	0.217		1.00	1.183		mg/L		97	75 - 125	0	20
Beryllium	ND		0.500	0.4616		mg/L		92	75 - 125	2	20
Boron	0.0930	B	1.25	1.166		mg/L		86	75 - 125	2	20
Cadmium	ND		0.500	0.4912		mg/L		98	75 - 125	0	20
Calcium	13.6		25.0	39.35		mg/L		103	75 - 125	1	20
Chromium	ND		0.500	0.4923		mg/L		98	75 - 125	1	20
Cobalt	ND		0.500	0.4848		mg/L		97	75 - 125	0	20
Copper	ND		0.500	0.4844		mg/L		97	75 - 125	0	20
Iron	ND		5.00	5.532		mg/L		111	75 - 125	8	20
Lead	ND		0.500	0.4907		mg/L		98	75 - 125	0	20
Lithium	0.0172		0.500	0.4714		mg/L		91	75 - 125	2	20
Magnesium	1.53		25.0	26.27		mg/L		99	75 - 125	3	20
Manganese	0.0137		0.500	0.4994		mg/L		97	75 - 125	1	20
Molybdenum	ND		0.500	0.4906		mg/L		98	75 - 125	0	20
Nickel	ND		0.500	0.4735		mg/L		95	75 - 125	0	20
Potassium	1.92		25.0	25.47		mg/L		94	75 - 125	2	20
Selenium	ND		1.00	0.9828		mg/L		98	75 - 125	1	20
Silver	ND		0.250	0.2479		mg/L		99	75 - 125	0	20
Sodium	55.4		25.0	78.95		mg/L		94	75 - 125	1	20
Thallium	ND		1.00	0.9968		mg/L		100	75 - 125	3	20
Vanadium	ND		0.500	0.4920		mg/L		98	75 - 125	0	20
Zinc	ND		0.250	0.2508		mg/L		100	75 - 125	3	20

Lab Sample ID: MB 180-341302/1-A
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 341302

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		12/21/20 08:33	12/22/20 16:17	1
Antimony	ND		0.00200	0.000378	mg/L		12/21/20 08:33	12/22/20 16:17	1
Arsenic	ND		0.00100	0.000313	mg/L		12/21/20 08:33	12/22/20 16:17	1
Barium	ND		0.0100	0.00160	mg/L		12/21/20 08:33	12/22/20 16:17	1
Beryllium	ND		0.00100	0.000182	mg/L		12/21/20 08:33	12/22/20 16:17	1
Cadmium	ND		0.00100	0.000217	mg/L		12/21/20 08:33	12/22/20 16:17	1
Calcium	ND		0.500	0.127	mg/L		12/21/20 08:33	12/22/20 16:17	1
Chromium	ND		0.00200	0.00153	mg/L		12/21/20 08:33	12/22/20 16:17	1
Cobalt	ND		0.000500	0.000134	mg/L		12/21/20 08:33	12/22/20 16:17	1
Copper	ND		0.00200	0.000627	mg/L		12/21/20 08:33	12/22/20 16:17	1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-341302/1-A
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 341302

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.0500	0.0195	mg/L		12/21/20 08:33	12/22/20 16:17	1
Lead	ND		0.00100	0.000128	mg/L		12/21/20 08:33	12/22/20 16:17	1
Lithium	ND		0.00500	0.00339	mg/L		12/21/20 08:33	12/22/20 16:17	1
Magnesium	ND		0.500	0.0827	mg/L		12/21/20 08:33	12/22/20 16:17	1
Manganese	ND		0.00500	0.000866	mg/L		12/21/20 08:33	12/22/20 16:17	1
Molybdenum	ND		0.00500	0.000610	mg/L		12/21/20 08:33	12/22/20 16:17	1
Nickel	ND		0.00100	0.000336	mg/L		12/21/20 08:33	12/22/20 16:17	1
Potassium	ND		0.500	0.156	mg/L		12/21/20 08:33	12/22/20 16:17	1
Selenium	ND		0.00500	0.00151	mg/L		12/21/20 08:33	12/22/20 16:17	1
Silver	ND		0.00100	0.000177	mg/L		12/21/20 08:33	12/22/20 16:17	1
Sodium	ND		0.500	0.348	mg/L		12/21/20 08:33	12/22/20 16:17	1
Thallium	ND		0.00100	0.000148	mg/L		12/21/20 08:33	12/22/20 16:17	1
Vanadium	ND		0.00100	0.000991	mg/L		12/21/20 08:33	12/22/20 16:17	1
Zinc	ND		0.00500	0.00322	mg/L		12/21/20 08:33	12/22/20 16:17	1

Lab Sample ID: MB 180-341302/1-A
Matrix: Water
Analysis Batch: 341798

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 341302

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.0800	0.0386	mg/L		12/21/20 08:33	12/23/20 10:16	1

Lab Sample ID: LCS 180-341302/2-A
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 341302

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5.00	4.884		mg/L		98	80 - 120
Antimony	0.250	0.2433		mg/L		97	80 - 120
Arsenic	1.00	0.9530		mg/L		95	80 - 120
Barium	1.00	1.002		mg/L		100	80 - 120
Beryllium	0.500	0.4812		mg/L		96	80 - 120
Cadmium	0.500	0.5175		mg/L		104	80 - 120
Calcium	25.0	26.87		mg/L		107	80 - 120
Chromium	0.500	0.5137		mg/L		103	80 - 120
Cobalt	0.500	0.4946		mg/L		99	80 - 120
Copper	0.500	0.4924		mg/L		98	80 - 120
Iron	5.00	5.287		mg/L		106	80 - 120
Lead	0.500	0.5088		mg/L		102	80 - 120
Lithium	0.500	0.4659		mg/L		93	80 - 120
Magnesium	25.0	26.04		mg/L		104	80 - 120
Manganese	0.500	0.5021		mg/L		100	80 - 120
Molybdenum	0.500	0.5025		mg/L		101	80 - 120
Nickel	0.500	0.4841		mg/L		97	80 - 120
Potassium	25.0	24.49		mg/L		98	80 - 120
Selenium	1.00	1.041		mg/L		104	80 - 120
Silver	0.250	0.2512		mg/L		100	80 - 120
Sodium	25.0	25.62		mg/L		102	80 - 120
Thallium	1.00	1.052		mg/L		105	80 - 120

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-341302/2-A
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 341302

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vanadium	0.500	0.5104		mg/L		102	80 - 120
Zinc	0.250	0.2470		mg/L		99	80 - 120

Lab Sample ID: LCS 180-341302/2-A
Matrix: Water
Analysis Batch: 341798

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 341302

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.25	1.161		mg/L		93	80 - 120

Lab Sample ID: 180-115022-A-2-B MS
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 341302

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	ND		5.00	4.806		mg/L		96	75 - 125
Antimony	ND		0.250	0.2394		mg/L		96	75 - 125
Arsenic	ND		1.00	0.9548		mg/L		95	75 - 125
Barium	0.0471		1.00	1.031		mg/L		98	75 - 125
Beryllium	ND		0.500	0.4793		mg/L		96	75 - 125
Cadmium	ND		0.500	0.5073		mg/L		101	75 - 125
Calcium	27.7		25.0	53.48		mg/L		103	75 - 125
Chromium	ND		0.500	0.5063		mg/L		101	75 - 125
Cobalt	0.00246		0.500	0.4877		mg/L		97	75 - 125
Copper	ND		0.500	0.4860		mg/L		97	75 - 125
Iron	0.405		5.00	5.579		mg/L		103	75 - 125
Lead	ND		0.500	0.5024		mg/L		100	75 - 125
Lithium	ND		0.500	0.4623		mg/L		92	75 - 125
Magnesium	8.83		25.0	34.21		mg/L		102	75 - 125
Manganese	3.09		0.500	3.567	4	mg/L		94	75 - 125
Molybdenum	ND		0.500	0.4970		mg/L		99	75 - 125
Nickel	0.00203		0.500	0.4793		mg/L		95	75 - 125
Potassium	4.61		25.0	28.57		mg/L		96	75 - 125
Selenium	ND		1.00	1.005		mg/L		100	75 - 125
Silver	ND		0.250	0.2469		mg/L		99	75 - 125
Sodium	37.1		25.0	60.28		mg/L		93	75 - 125
Thallium	ND		1.00	1.046		mg/L		105	75 - 125
Vanadium	ND		0.500	0.5038		mg/L		101	75 - 125
Zinc	0.00371	J	0.250	0.2452		mg/L		97	75 - 125

Lab Sample ID: 180-115022-A-2-B MS
Matrix: Water
Analysis Batch: 341798

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 341302

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.07		1.25	2.099		mg/L		82	75 - 125

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-115022-A-2-C MSD
Matrix: Water
Analysis Batch: 341583

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 341302

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	ND		5.00	4.849		mg/L		97	75 - 125	1	20
Antimony	ND		0.250	0.2363		mg/L		95	75 - 125	1	20
Arsenic	ND		1.00	0.9518		mg/L		95	75 - 125	0	20
Barium	0.0471		1.00	1.020		mg/L		97	75 - 125	1	20
Beryllium	ND		0.500	0.4769		mg/L		95	75 - 125	0	20
Cadmium	ND		0.500	0.5023		mg/L		100	75 - 125	1	20
Calcium	27.7		25.0	53.89		mg/L		105	75 - 125	1	20
Chromium	ND		0.500	0.5053		mg/L		101	75 - 125	0	20
Cobalt	0.00246		0.500	0.4844		mg/L		96	75 - 125	1	20
Copper	ND		0.500	0.4834		mg/L		97	75 - 125	1	20
Iron	0.405		5.00	5.531		mg/L		103	75 - 125	1	20
Lead	ND		0.500	0.4968		mg/L		99	75 - 125	1	20
Lithium	ND		0.500	0.4592		mg/L		92	75 - 125	1	20
Magnesium	8.83		25.0	34.84		mg/L		104	75 - 125	2	20
Manganese	3.09		0.500	3.617	4	mg/L		104	75 - 125	1	20
Molybdenum	ND		0.500	0.4957		mg/L		99	75 - 125	0	20
Nickel	0.00203		0.500	0.4739		mg/L		94	75 - 125	1	20
Potassium	4.61		25.0	28.99		mg/L		98	75 - 125	1	20
Selenium	ND		1.00	1.005		mg/L		100	75 - 125	0	20
Silver	ND		0.250	0.2464		mg/L		99	75 - 125	0	20
Sodium	37.1		25.0	61.33		mg/L		97	75 - 125	2	20
Thallium	ND		1.00	1.024		mg/L		102	75 - 125	2	20
Vanadium	ND		0.500	0.5027		mg/L		101	75 - 125	0	20
Zinc	0.00371	J	0.250	0.2430		mg/L		96	75 - 125	1	20

Lab Sample ID: 180-115022-A-2-C MSD
Matrix: Water
Analysis Batch: 341798

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 341302

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	1.07		1.25	2.113		mg/L		83	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-341475/1-A
Matrix: Water
Analysis Batch: 341658

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 341475

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:03	12/23/20 10:32	1

Lab Sample ID: LCS 180-341475/2-A
Matrix: Water
Analysis Batch: 341658

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 341475

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00250	0.002575		mg/L		103	80 - 120		

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 180-115017-22 MS
Matrix: Water
Analysis Batch: 341658

Client Sample ID: GAF-GW-1315-HI CAL 0.5-T14
Prep Type: Total/NA
Prep Batch: 341475

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00100	0.0009300		mg/L		93	75 - 125

Lab Sample ID: 180-115017-22 MSD
Matrix: Water
Analysis Batch: 341658

Client Sample ID: GAF-GW-1315-HI CAL 0.5-T14
Prep Type: Total/NA
Prep Batch: 341475

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.0009370		mg/L		94	75 - 125	1	20

Lab Sample ID: MB 180-341476/1-A
Matrix: Water
Analysis Batch: 341658

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 341476

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/22/20 09:05	12/23/20 10:58	1

Lab Sample ID: LCS 180-341476/2-A
Matrix: Water
Analysis Batch: 341658

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 341476

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.002607		mg/L		104	80 - 120

Lab Sample ID: MB 180-341715/1-A
Matrix: Water
Analysis Batch: 341765

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 341715

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/24/20 05:48	12/24/20 09:07	1

Lab Sample ID: LCS 180-341715/2-A
Matrix: Water
Analysis Batch: 341765

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 341715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.002522		mg/L		101	80 - 120

Lab Sample ID: MB 180-342043/1-A
Matrix: Water
Analysis Batch: 342315

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 342043

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		12/29/20 12:14	12/31/20 17:08	1

Lab Sample ID: LCS 180-342043/2-A
Matrix: Water
Analysis Batch: 342315

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 342043

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.002707		mg/L		108	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: 180-115017-24 MS
Matrix: Water
Analysis Batch: 341658

Client Sample ID: GAF-GW-1315-DOLO 1.0-T14
Prep Type: Dissolved
Prep Batch: 341476

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00100	0.0009340		mg/L		93	75 - 125

Lab Sample ID: 180-115017-24 MSD
Matrix: Water
Analysis Batch: 341658

Client Sample ID: GAF-GW-1315-DOLO 1.0-T14
Prep Type: Dissolved
Prep Batch: 341476

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.0008900		mg/L		89	75 - 125	5	20

Lab Sample ID: 180-114361-C-10-B MS
Matrix: Water
Analysis Batch: 341765

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 341715

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00100	0.0008620		mg/L		86	75 - 125

Lab Sample ID: 180-114361-C-10-C MSD
Matrix: Water
Analysis Batch: 341765

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 341715

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.0007890		mg/L		79	75 - 125	9	20

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-341258/54
Matrix: Water
Analysis Batch: 341258

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	ND		5.00	5.00	mg/L			12/18/20 16:10	1
Bicarbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 16:10	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 16:10	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/18/20 16:10	1

Lab Sample ID: MB 180-341258/78
Matrix: Water
Analysis Batch: 341258

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	ND		5.00	5.00	mg/L			12/18/20 18:50	1
Bicarbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 18:50	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			12/18/20 18:50	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			12/18/20 18:50	1

Method: SM2320 B - Alkalinity, Total (Continued)

Lab Sample ID: LCS 180-341258/53
Matrix: Water
Analysis Batch: 341258

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity as CaCO3 to pH 4.5	250	240.8		mg/L		96	90 - 110

Lab Sample ID: LCS 180-341258/77
Matrix: Water
Analysis Batch: 341258

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity as CaCO3 to pH 4.5	250	238.9		mg/L		96	90 - 110

Lab Sample ID: LLCS 180-341258/52
Matrix: Water
Analysis Batch: 341258

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity as CaCO3 to pH 4.5	20.0	20.68		mg/L		103	90 - 110

Lab Sample ID: 180-114998-A-1 DU
Matrix: Water
Analysis Batch: 341258

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	175		185.4		mg/L		6	20
Bicarbonate Alkalinity as CaCO3	175		185.4		mg/L		6	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Hydroxide Alkalinity	ND		ND		mg/L		NC	20

Lab Sample ID: 180-115017-21 DU
Matrix: Water
Analysis Batch: 341258

Client Sample ID: GAF-GW-1315-CONTROL-T14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	312		324.5		mg/L		4	20
Bicarbonate Alkalinity as CaCO3	312		324.5		mg/L		4	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Hydroxide Alkalinity	ND		ND		mg/L		NC	20

HPLC/IC

Analysis Batch: 341424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-2	GAF-GW-1316-CONTROL-T2-END	Total/NA	Water	EPA 9056A	
180-115017-2	GAF-GW-1316-CONTROL-T2-END	Total/NA	Water	EPA 9056A	
180-115017-7	GAF-GW-1316-HI-CAL-T2-END	Total/NA	Water	EPA 9056A	
180-115017-7	GAF-GW-1316-HI-CAL-T2-END	Total/NA	Water	EPA 9056A	
180-115017-12	GAF-GW-1316-DOLO 0.5-T2-END	Total/NA	Water	EPA 9056A	
180-115017-12	GAF-GW-1316-DOLO 0.5-T2-END	Total/NA	Water	EPA 9056A	
180-115017-17	GAF-GW-1316-DOLO 1.0-T2-END	Total/NA	Water	EPA 9056A	
180-115017-17	GAF-GW-1316-DOLO 1.0-T2-END	Total/NA	Water	EPA 9056A	
180-115017-21	GAF-GW-1315-CONTROL-T14	Total/NA	Water	EPA 9056A	
180-115017-21	GAF-GW-1315-CONTROL-T14	Total/NA	Water	EPA 9056A	
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Total/NA	Water	EPA 9056A	
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Total/NA	Water	EPA 9056A	
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Total/NA	Water	EPA 9056A	
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Total/NA	Water	EPA 9056A	
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Total/NA	Water	EPA 9056A	
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Total/NA	Water	EPA 9056A	
MB 180-341424/34	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-341424/33	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-115017-2 MS	GAF-GW-1316-CONTROL-T2-END	Total/NA	Water	EPA 9056A	
180-115017-2 MSD	GAF-GW-1316-CONTROL-T2-END	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 341297

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-10	GAF-GW-1316-HI-CAL-T5-END	Dissolved	Water	3005A	
180-115017-10	GAF-GW-1316-HI-CAL-T5-END	Total Recoverable	Water	3005A	
180-115017-11	GAF-GW-1316-DOLO 0.5-T1-END	Dissolved	Water	3005A	
180-115017-11	GAF-GW-1316-DOLO 0.5-T1-END	Total Recoverable	Water	3005A	
180-115017-12	GAF-GW-1316-DOLO 0.5-T2-END	Dissolved	Water	3005A	
180-115017-13	GAF-GW-1316-DOLO 0.5-T3-END	Dissolved	Water	3005A	
180-115017-13	GAF-GW-1316-DOLO 0.5-T3-END	Total Recoverable	Water	3005A	
180-115017-14	GAF-GW-1316-DOLO 0.5-T4-END	Dissolved	Water	3005A	
180-115017-14	GAF-GW-1316-DOLO 0.5-T4-END	Total Recoverable	Water	3005A	
180-115017-15	GAF-GW-1316-DOLO 0.5-T5-END	Dissolved	Water	3005A	
180-115017-15	GAF-GW-1316-DOLO 0.5-T5-END	Total Recoverable	Water	3005A	
180-115017-16	GAF-GW-1316-DOLO 1.0-T1-END	Dissolved	Water	3005A	
180-115017-16	GAF-GW-1316-DOLO 1.0-T1-END	Total Recoverable	Water	3005A	
180-115017-17	GAF-GW-1316-DOLO 1.0-T2-END	Dissolved	Water	3005A	
180-115017-18	GAF-GW-1316-DOLO 1.0-T3-END	Dissolved	Water	3005A	
180-115017-18	GAF-GW-1316-DOLO 1.0-T3-END	Total Recoverable	Water	3005A	
180-115017-19	GAF-GW-1316-DOLO 1.0-T4-END	Dissolved	Water	3005A	
180-115017-19	GAF-GW-1316-DOLO 1.0-T4-END	Total Recoverable	Water	3005A	
MB 180-341297/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-341297/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-114996-E-1-B MS	Matrix Spike	Total Recoverable	Water	3005A	
180-114996-E-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Prep Batch: 341300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Dissolved	Water	3005A	

Metals (Continued)

Prep Batch: 341300 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Total Recoverable	Water	3005A	
180-115017-2	GAF-GW-1316-CONTROL-T2-END	Dissolved	Water	3005A	
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Dissolved	Water	3005A	
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Total Recoverable	Water	3005A	
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Dissolved	Water	3005A	
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Total Recoverable	Water	3005A	
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Dissolved	Water	3005A	
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Total Recoverable	Water	3005A	
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Dissolved	Water	3005A	
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Total Recoverable	Water	3005A	
180-115017-7	GAF-GW-1316-HI-CAL-T2-END	Dissolved	Water	3005A	
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Dissolved	Water	3005A	
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Total Recoverable	Water	3005A	
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Dissolved	Water	3005A	
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Total Recoverable	Water	3005A	
MB 180-341300/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-341300/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-115022-A-13-B MS	Matrix Spike	Total Recoverable	Water	3005A	
180-115022-A-13-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Prep Batch: 341302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Dissolved	Water	3005A	
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Total Recoverable	Water	3005A	
180-115017-21	GAF-GW-1315-CONTROL-T14	Dissolved	Water	3005A	
180-115017-21	GAF-GW-1315-CONTROL-T14	Total Recoverable	Water	3005A	
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Dissolved	Water	3005A	
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Total Recoverable	Water	3005A	
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Dissolved	Water	3005A	
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Total Recoverable	Water	3005A	
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Dissolved	Water	3005A	
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Total Recoverable	Water	3005A	
MB 180-341302/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-341302/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-115022-A-2-B MS	Matrix Spike	Total Recoverable	Water	3005A	
180-115022-A-2-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Prep Batch: 341475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Total/NA	Water	7470A	
180-115017-2	GAF-GW-1316-CONTROL-T2-END	Dissolved	Water	7470A	
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Total/NA	Water	7470A	
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Total/NA	Water	7470A	
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Total/NA	Water	7470A	
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Total/NA	Water	7470A	
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Total/NA	Water	7470A	
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Total/NA	Water	7470A	
180-115017-10	GAF-GW-1316-HI-CAL-T5-END	Total/NA	Water	7470A	
180-115017-11	GAF-GW-1316-DOLO 0.5-T1-END	Total/NA	Water	7470A	
180-115017-21	GAF-GW-1315-CONTROL-T14	Total/NA	Water	7470A	
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 341475 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Total/NA	Water	7470A	
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Total/NA	Water	7470A	
MB 180-341475/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-341475/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-115017-22 MS	GAF-GW-1315-HI CAL 0.5-T14	Total/NA	Water	7470A	
180-115017-22 MSD	GAF-GW-1315-HI CAL 0.5-T14	Total/NA	Water	7470A	

Prep Batch: 341476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Dissolved	Water	7470A	
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Dissolved	Water	7470A	
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Dissolved	Water	7470A	
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Dissolved	Water	7470A	
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Dissolved	Water	7470A	
180-115017-7	GAF-GW-1316-HI-CAL-T2-END	Dissolved	Water	7470A	
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Dissolved	Water	7470A	
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Dissolved	Water	7470A	
180-115017-10	GAF-GW-1316-HI-CAL-T5-END	Dissolved	Water	7470A	
180-115017-11	GAF-GW-1316-DOLO 0.5-T1-END	Dissolved	Water	7470A	
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Dissolved	Water	7470A	
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Dissolved	Water	7470A	
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Dissolved	Water	7470A	
MB 180-341476/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-341476/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-115017-24 MS	GAF-GW-1315-DOLO 1.0-T14	Dissolved	Water	7470A	
180-115017-24 MSD	GAF-GW-1315-DOLO 1.0-T14	Dissolved	Water	7470A	

Analysis Batch: 341583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Dissolved	Water	6020A	341300
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Total Recoverable	Water	6020A	341300
180-115017-2	GAF-GW-1316-CONTROL-T2-END	Dissolved	Water	6020A	341300
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Dissolved	Water	6020A	341300
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Total Recoverable	Water	6020A	341300
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Dissolved	Water	6020A	341300
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Total Recoverable	Water	6020A	341300
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Dissolved	Water	6020A	341300
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Total Recoverable	Water	6020A	341300
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Dissolved	Water	6020A	341300
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Total Recoverable	Water	6020A	341300
180-115017-7	GAF-GW-1316-HI-CAL-T2-END	Dissolved	Water	6020A	341300
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Dissolved	Water	6020A	341300
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Total Recoverable	Water	6020A	341300
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Dissolved	Water	6020A	341300
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Total Recoverable	Water	6020A	341300
180-115017-10	GAF-GW-1316-HI-CAL-T5-END	Dissolved	Water	6020A	341297
180-115017-10	GAF-GW-1316-HI-CAL-T5-END	Total Recoverable	Water	6020A	341297
180-115017-11	GAF-GW-1316-DOLO 0.5-T1-END	Dissolved	Water	6020A	341297
180-115017-11	GAF-GW-1316-DOLO 0.5-T1-END	Total Recoverable	Water	6020A	341297
180-115017-12	GAF-GW-1316-DOLO 0.5-T2-END	Dissolved	Water	6020A	341297
180-115017-13	GAF-GW-1316-DOLO 0.5-T3-END	Dissolved	Water	6020A	341297

Metals (Continued)

Analysis Batch: 341583 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-13	GAF-GW-1316-DOLO 0.5-T3-END	Total Recoverable	Water	6020A	341297
180-115017-14	GAF-GW-1316-DOLO 0.5-T4-END	Dissolved	Water	6020A	341297
180-115017-14	GAF-GW-1316-DOLO 0.5-T4-END	Total Recoverable	Water	6020A	341297
180-115017-15	GAF-GW-1316-DOLO 0.5-T5-END	Dissolved	Water	6020A	341297
180-115017-15	GAF-GW-1316-DOLO 0.5-T5-END	Total Recoverable	Water	6020A	341297
180-115017-16	GAF-GW-1316-DOLO 1.0-T1-END	Dissolved	Water	6020A	341297
180-115017-16	GAF-GW-1316-DOLO 1.0-T1-END	Total Recoverable	Water	6020A	341297
180-115017-17	GAF-GW-1316-DOLO 1.0-T2-END	Dissolved	Water	6020A	341297
180-115017-18	GAF-GW-1316-DOLO 1.0-T3-END	Dissolved	Water	6020A	341297
180-115017-18	GAF-GW-1316-DOLO 1.0-T3-END	Total Recoverable	Water	6020A	341297
180-115017-19	GAF-GW-1316-DOLO 1.0-T4-END	Dissolved	Water	6020A	341297
180-115017-19	GAF-GW-1316-DOLO 1.0-T4-END	Total Recoverable	Water	6020A	341297
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Dissolved	Water	6020A	341302
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Total Recoverable	Water	6020A	341302
180-115017-21	GAF-GW-1315-CONTROL-T14	Dissolved	Water	6020A	341302
180-115017-21	GAF-GW-1315-CONTROL-T14	Total Recoverable	Water	6020A	341302
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Dissolved	Water	6020A	341302
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Total Recoverable	Water	6020A	341302
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Dissolved	Water	6020A	341302
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Total Recoverable	Water	6020A	341302
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Dissolved	Water	6020A	341302
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Total Recoverable	Water	6020A	341302
MB 180-341297/1-A	Method Blank	Total Recoverable	Water	6020A	341297
MB 180-341300/1-A	Method Blank	Total Recoverable	Water	6020A	341300
MB 180-341302/1-A	Method Blank	Total Recoverable	Water	6020A	341302
LCS 180-341297/2-A	Lab Control Sample	Total Recoverable	Water	6020A	341297
LCS 180-341300/2-A	Lab Control Sample	Total Recoverable	Water	6020A	341300
LCS 180-341302/2-A	Lab Control Sample	Total Recoverable	Water	6020A	341302
180-114996-E-1-B MS	Matrix Spike	Total Recoverable	Water	6020A	341297
180-114996-E-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6020A	341297
180-115022-A-2-B MS	Matrix Spike	Total Recoverable	Water	6020A	341302
180-115022-A-2-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6020A	341302
180-115022-A-13-B MS	Matrix Spike	Total Recoverable	Water	6020A	341300
180-115022-A-13-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6020A	341300

Analysis Batch: 341658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Dissolved	Water	EPA 7470A	341476
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Total/NA	Water	EPA 7470A	341475
180-115017-2	GAF-GW-1316-CONTROL-T2-END	Dissolved	Water	EPA 7470A	341475
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Dissolved	Water	EPA 7470A	341476
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Total/NA	Water	EPA 7470A	341475
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Dissolved	Water	EPA 7470A	341476
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Total/NA	Water	EPA 7470A	341475
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Dissolved	Water	EPA 7470A	341476
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Total/NA	Water	EPA 7470A	341475
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Dissolved	Water	EPA 7470A	341476
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Total/NA	Water	EPA 7470A	341475
180-115017-7	GAF-GW-1316-HI-CAL-T2-END	Dissolved	Water	EPA 7470A	341476
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Dissolved	Water	EPA 7470A	341476
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Total/NA	Water	EPA 7470A	341475

Metals (Continued)

Analysis Batch: 341658 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Dissolved	Water	EPA 7470A	341476
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Total/NA	Water	EPA 7470A	341475
180-115017-10	GAF-GW-1316-HI-CAL-T5-END	Dissolved	Water	EPA 7470A	341476
180-115017-10	GAF-GW-1316-HI-CAL-T5-END	Total/NA	Water	EPA 7470A	341475
180-115017-11	GAF-GW-1316-DOLO 0.5-T1-END	Dissolved	Water	EPA 7470A	341476
180-115017-11	GAF-GW-1316-DOLO 0.5-T1-END	Total/NA	Water	EPA 7470A	341475
180-115017-21	GAF-GW-1315-CONTROL-T14	Total/NA	Water	EPA 7470A	341475
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Dissolved	Water	EPA 7470A	341476
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Total/NA	Water	EPA 7470A	341475
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Dissolved	Water	EPA 7470A	341476
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Total/NA	Water	EPA 7470A	341475
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Dissolved	Water	EPA 7470A	341476
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Total/NA	Water	EPA 7470A	341475
MB 180-341475/1-A	Method Blank	Total/NA	Water	EPA 7470A	341475
MB 180-341476/1-A	Method Blank	Total/NA	Water	EPA 7470A	341476
LCS 180-341475/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	341475
LCS 180-341476/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	341476
180-115017-22 MS	GAF-GW-1315-HI CAL 0.5-T14	Total/NA	Water	EPA 7470A	341475
180-115017-22 MSD	GAF-GW-1315-HI CAL 0.5-T14	Total/NA	Water	EPA 7470A	341475
180-115017-24 MS	GAF-GW-1315-DOLO 1.0-T14	Dissolved	Water	EPA 7470A	341476
180-115017-24 MSD	GAF-GW-1315-DOLO 1.0-T14	Dissolved	Water	EPA 7470A	341476

Prep Batch: 341715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-12	GAF-GW-1316-DOLO 0.5-T2-END	Dissolved	Water	7470A	
180-115017-13	GAF-GW-1316-DOLO 0.5-T3-END	Dissolved	Water	7470A	
180-115017-13	GAF-GW-1316-DOLO 0.5-T3-END	Total/NA	Water	7470A	
180-115017-14	GAF-GW-1316-DOLO 0.5-T4-END	Dissolved	Water	7470A	
180-115017-14	GAF-GW-1316-DOLO 0.5-T4-END	Total/NA	Water	7470A	
180-115017-15	GAF-GW-1316-DOLO 0.5-T5-END	Dissolved	Water	7470A	
180-115017-15	GAF-GW-1316-DOLO 0.5-T5-END	Total/NA	Water	7470A	
180-115017-16	GAF-GW-1316-DOLO 1.0-T1-END	Dissolved	Water	7470A	
180-115017-16	GAF-GW-1316-DOLO 1.0-T1-END	Total/NA	Water	7470A	
180-115017-17	GAF-GW-1316-DOLO 1.0-T2-END	Dissolved	Water	7470A	
180-115017-18	GAF-GW-1316-DOLO 1.0-T3-END	Dissolved	Water	7470A	
180-115017-18	GAF-GW-1316-DOLO 1.0-T3-END	Total/NA	Water	7470A	
180-115017-19	GAF-GW-1316-DOLO 1.0-T4-END	Dissolved	Water	7470A	
180-115017-19	GAF-GW-1316-DOLO 1.0-T4-END	Total/NA	Water	7470A	
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Dissolved	Water	7470A	
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Total/NA	Water	7470A	
MB 180-341715/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-341715/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-114361-C-10-B MS	Matrix Spike	Dissolved	Water	7470A	
180-114361-C-10-C MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	

Analysis Batch: 341765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-12	GAF-GW-1316-DOLO 0.5-T2-END	Dissolved	Water	EPA 7470A	341715
180-115017-13	GAF-GW-1316-DOLO 0.5-T3-END	Dissolved	Water	EPA 7470A	341715
180-115017-13	GAF-GW-1316-DOLO 0.5-T3-END	Total/NA	Water	EPA 7470A	341715
180-115017-14	GAF-GW-1316-DOLO 0.5-T4-END	Dissolved	Water	EPA 7470A	341715

Metals (Continued)

Analysis Batch: 341765 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-14	GAF-GW-1316-DOLO 0.5-T4-END	Total/NA	Water	EPA 7470A	341715
180-115017-15	GAF-GW-1316-DOLO 0.5-T5-END	Dissolved	Water	EPA 7470A	341715
180-115017-15	GAF-GW-1316-DOLO 0.5-T5-END	Total/NA	Water	EPA 7470A	341715
180-115017-16	GAF-GW-1316-DOLO 1.0-T1-END	Dissolved	Water	EPA 7470A	341715
180-115017-16	GAF-GW-1316-DOLO 1.0-T1-END	Total/NA	Water	EPA 7470A	341715
180-115017-17	GAF-GW-1316-DOLO 1.0-T2-END	Dissolved	Water	EPA 7470A	341715
180-115017-18	GAF-GW-1316-DOLO 1.0-T3-END	Dissolved	Water	EPA 7470A	341715
180-115017-18	GAF-GW-1316-DOLO 1.0-T3-END	Total/NA	Water	EPA 7470A	341715
180-115017-19	GAF-GW-1316-DOLO 1.0-T4-END	Dissolved	Water	EPA 7470A	341715
180-115017-19	GAF-GW-1316-DOLO 1.0-T4-END	Total/NA	Water	EPA 7470A	341715
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Dissolved	Water	EPA 7470A	341715
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Total/NA	Water	EPA 7470A	341715
MB 180-341715/1-A	Method Blank	Total/NA	Water	EPA 7470A	341715
LCS 180-341715/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	341715
180-114361-C-10-B MS	Matrix Spike	Dissolved	Water	EPA 7470A	341715
180-114361-C-10-C MSD	Matrix Spike Duplicate	Dissolved	Water	EPA 7470A	341715

Analysis Batch: 341798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Dissolved	Water	6020A	341300
180-115017-1	GAF-GW-1316-CONTROL-T1-END	Total Recoverable	Water	6020A	341300
180-115017-2	GAF-GW-1316-CONTROL-T2-END	Dissolved	Water	6020A	341300
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Dissolved	Water	6020A	341300
180-115017-3	GAF-GW-1316-CONTROL-T3-END	Total Recoverable	Water	6020A	341300
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Dissolved	Water	6020A	341300
180-115017-4	GAF-GW-1316-CONTROL-T4-END	Total Recoverable	Water	6020A	341300
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Dissolved	Water	6020A	341300
180-115017-5	GAF-GW-1316-CONTROL-T5-END	Total Recoverable	Water	6020A	341300
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Dissolved	Water	6020A	341300
180-115017-6	GAF-GW-1316-HI-CAL-T1-END	Total Recoverable	Water	6020A	341300
180-115017-7	GAF-GW-1316-HI-CAL-T2-END	Dissolved	Water	6020A	341300
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Dissolved	Water	6020A	341300
180-115017-8	GAF-GW-1316-HI-CAL-T3-END	Total Recoverable	Water	6020A	341300
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Dissolved	Water	6020A	341300
180-115017-9	GAF-GW-1316-HI-CAL-T4-END	Total Recoverable	Water	6020A	341300
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Dissolved	Water	6020A	341302
180-115017-20	GAF-GW-1316-DOLO 1.0-T5-END	Total Recoverable	Water	6020A	341302
180-115017-21	GAF-GW-1315-CONTROL-T14	Dissolved	Water	6020A	341302
180-115017-21	GAF-GW-1315-CONTROL-T14	Total Recoverable	Water	6020A	341302
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Dissolved	Water	6020A	341302
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Total Recoverable	Water	6020A	341302
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Dissolved	Water	6020A	341302
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Total Recoverable	Water	6020A	341302
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Dissolved	Water	6020A	341302
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Total Recoverable	Water	6020A	341302
MB 180-341302/1-A	Method Blank	Total Recoverable	Water	6020A	341302
LCS 180-341302/2-A	Lab Control Sample	Total Recoverable	Water	6020A	341302
180-115022-A-2-B MS	Matrix Spike	Total Recoverable	Water	6020A	341302
180-115022-A-2-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6020A	341302

Metals

Prep Batch: 342043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-21	GAF-GW-1315-CONTROL-T14	Dissolved	Water	7470A	
MB 180-342043/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-342043/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 342315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-21	GAF-GW-1315-CONTROL-T14	Dissolved	Water	EPA 7470A	342043
MB 180-342043/1-A	Method Blank	Total/NA	Water	EPA 7470A	342043
LCS 180-342043/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	342043

General Chemistry

Analysis Batch: 341258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115017-2	GAF-GW-1316-CONTROL-T2-END	Total/NA	Water	SM2320 B	
180-115017-7	GAF-GW-1316-HI-CAL-T2-END	Total/NA	Water	SM2320 B	
180-115017-12	GAF-GW-1316-DOLO 0.5-T2-END	Total/NA	Water	SM2320 B	
180-115017-17	GAF-GW-1316-DOLO 1.0-T2-END	Total/NA	Water	SM2320 B	
180-115017-21	GAF-GW-1315-CONTROL-T14	Total/NA	Water	SM2320 B	
180-115017-22	GAF-GW-1315-HI CAL 0.5-T14	Total/NA	Water	SM2320 B	
180-115017-23	GAF-GW-1315-DOLO 0.5-T14	Total/NA	Water	SM2320 B	
180-115017-24	GAF-GW-1315-DOLO 1.0-T14	Total/NA	Water	SM2320 B	
MB 180-341258/54	Method Blank	Total/NA	Water	SM2320 B	
MB 180-341258/78	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-341258/53	Lab Control Sample	Total/NA	Water	SM2320 B	
LCS 180-341258/77	Lab Control Sample	Total/NA	Water	SM2320 B	
LLCS 180-341258/52	Lab Control Sample	Total/NA	Water	SM2320 B	
180-114998-A-1 DU	Duplicate	Total/NA	Water	SM2320 B	
180-115017-21 DU	GAF-GW-1315-CONTROL-T14	Total/NA	Water	SM2320 B	

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CHAIN OF CUSTODY RECORD

301 Alpha Drive
Pittsburgh, PA 15238
(413) 789-9018

Special Handling:

☑ TAT - Date Needed: 14-day

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To:	Franciscos Barajas	Invoice To:	Craig MacPhee
	AECOM		AECOM
	9400 Amberglen Blvd		250 Apollo Dr.
	Austin, TX 78729		Chelmsford, MA 01824
Telephone #:	978-905-2299	P.O No.:	Quote #:
Project Mgr:	Craig MacPhee		

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Rachel Watkins, Craig Katkic

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= 12=

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= 1316 leachate X2=

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	6020 Totals -Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	6020 Dissolved-Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	9056A-Cl, F, SO4	2320B- Alkalinity (Total hydroxide, bicarbonate, carbonate)					
						Containers				List Preservative Code below:								
										4	4							
						Analysis												
	GAF-GW-1316-Control-T1-End	12/4/2020	11:00 AM	G	X1				2	x	x							
	GAF-GW-1316-Control-T2-End	12/4/2020	11:00 AM	G	X1				2		x	x	x					
	GAF-GW-1316-Control-T3-End	12/4/2020	11:00 AM	G	X1				2	x	x							
	GAF-GW-1316-Control-T4-End	12/4/2020	11:00 AM	G	X1				2	x	x							
	GAF-GW-1316-Control-T5-End	12/4/2020	11:00 AM	G	X1				2	x	x							
	GAF-GW-1316-Hi-Cal-T1-End	12/4/2020	11:00 AM	G	X1				2	x	x							
	GAF-GW-1316-Hi-Cal-T2-End	12/4/2020	11:00 AM	G	X1				2		x	x	x					
	GAF-GW-1316-Hi-Cal-T3-End	12/4/2020	11:00 AM	G	X1				2	x	x							
	GAF-GW-1316-Hi-Cal-T4-End	12/4/2020	11:00 AM	G	X1				2	x	x							
	GAF-GW-1316-Hi-Cal-T5-End	12/4/2020	11:00 AM	G	X1				2	x	x							

180-115017 Chain of Custody

QA/QC Reporting Notes:

QA/QC Reporting Level
☐ Level I ☐ Level II ☐ Level III ☐ Level IV
☐ Other:
State-specific reporting standards:

Relinquished by:	Received by:	Date:	Time:
Rachel Watkins		12/15/2020	1600
	Matthew Jones	12/16/20	1000

Temp °C
Observed
Correction Factor
Corrected
IR ID #

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Oil Jar Froze

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CHAIN OF CUSTODY RECORD

301 Alpha Drive
Pittsburgh, PA 15238
(413) 789-9018

Special Handling:

☑TAT - Date Needed: 14 day

All TATs subject to laboratory approval
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Report To: Franciscos Barajas
AECOM
9400 Amberglen Blvd
Austin, TX 78729
Telephone #: 978-905-2299
Project Mgr: Craig MacPhee

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr.
Chelmsford, MA 01824
P.O No.: Quote #:

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Rachel Watkins, Craig Katkic

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= 12=

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= 1316 leachate X2=

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		Analysis: 6020 Totals -Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	6020 Dissolved-Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	9056A-Cl, F, SO4	2320B- Alkalinity (Total hydroxide, bicarbonate, carbonate)					QA/QC Reporting Notes:
						List Preservative Code below:					4	4							
	GAF-GW-1316-Dolo 0.5-T1-End	12/4/2020	11:00 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 0.5-T2-End	12/4/2020	11:00 AM	G	X1				2			x	x	x					
	GAF-GW-1316-Dolo 0.5-T3-End	12/4/2020	11:00 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 0.5-T4-End	12/4/2020	11:00 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 0.5-T5-End	12/4/2020	11:00 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 1.0-T1-End	12/4/2020	11:00 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 1.0-T2-End	12/4/2020	11:00 AM	G	X1				2			x	x	x					
	GAF-GW-1316-Dolo 1.0-T3-End	12/4/2020	11:00 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 1.0-T4-End	12/4/2020	11:00 AM	G	X1				2		x	x							
	GAF-GW-1316-Dolo 1.0-T5-End	12/4/2020	11:00 AM	G	X1				2		x	x							

Relinquished by:	Received by:	Date:	Time:
Rachel Watkins		12/15/2020	1600
	[illegible]	12/16/20	1000

Temp °C
Observed
Correction Factor
Corrected
IR ID #

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☑ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Jar Frozen

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other:
State-specific reporting standards:

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CHAIN OF CUSTODY RECORD

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Special Handling:

☑ TAT - Date Needed: 14 day

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Samples disposed after 30 days unless otherwise instructed.

Report To:	Franciscos Barajas AECOM 9400 Amberglen Blvd Austin, TX 78729	Invoice To:	Craig MacPhee AECOM 250 Apollo Dr. Chelmsford, MA 01824
Telephone #:	978-905-2299	P.O No.:	Quote #:
Project Mgr:	Craig MacPhee		

Project No:	TVA Gallatin EIP
Site Name:	GAF-NRS-Treatability
Location:	State:
Sampler(s):	Rachel Watkins, Craig Katkic

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X1= 1316 leachate X2= 1315 leachate

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic		Analysis: 6020 Totals-Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	6020 Dissolved-Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	9056A-Cl, F, SO4	2320B- Alkalinity (Total hydroxide, bicarbonate, carbonate)					QA/QC Reporting Notes:
						List Preservative Code below:					4	4							
	GAF-GW-1315-Control-t14	12/7/2020	12:40 PM	G	X2				3		x	x	x	x					
	GAF-GW-1315-Hi Cal 0.5-t14	12/7/2020	12:40 PM	G	X2				3		x	x	x	x					
	GAF-GW-1315-Dolo 0.5-t14	12/7/2020	12:40 PM	G	X2				3		x	x	x	x					
	GAF-GW-1315-Dolo 1.0-t14	12/7/2020	12:40 PM	G	X2				3		x	x	x	x					

QA/QC Reporting Level
☐ Level I ☐ Level II ☐ Level III ☐ Level IV
☐ Other:
State-specific reporting standards:

Relinquished by:	Received by:	Date:	Time:
Rachel Watkins		12/15/2020	1600
	[signature]	12/16/20	1000

Temp °C	
Observed	
Correction Factor	
Corrected	
IR ID #	

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☑ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Jar Frozen

Login Sample Receipt Checklist

Client: Environmental Standards Inc.

Job Number: 180-115017-1
SDG Number: Treatability

Login Number: 115017
List Number: 1
Creator: Jodis, Matthew V

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-115551-1
Client Project/Site: GAF-NRS-Treatability

For:
Environmental Standards Inc.
1140 Valley Forge Road
PO BOX 810
Valley Forge, Pennsylvania 19482-0810

Attn: Jennifer N. Gable

Authorized for release by:
1/18/2021 3:07:51 PM

Jennifer Rumble, Project Manager I
(412)963-7058
Jennifer.Rumble@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

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Job ID: 180-115551-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-115551-1

Receipt
The samples were received on 1/6/2021 9:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 3.7º C, 4.1º C and 4.5º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method 3005A: The following samples were prepped at 20ml due to insufficient sample provided for preparation: GAF-GW-1316-Lean-T1-Mid (180-115551-1), GAF-GW-1316-Lean-T2-Mid (180-115551-2), GAF-GW-1316-Lean-T3-Mid (180-115551-3), GAF-GW-1316-Lean-T4-Mid (180-115551-4), GAF-GW-1316-Lean-T5-Mid (180-115551-5), GAF-GW-1316-Rich-T1-Mid (180-115551-6), GAF-GW-1316-Rich-T2-Mid (180-115551-7), GAF-GW-1316-Rich-T3-Mid (180-115551-8), GAF-GW-1316-Rich-T4-Mid (180-115551-9), GAF-GW-1316-Rich-T5-Mid (180-115551-10), GAF-GW-1316-Lean-T1-End (180-115551-11), GAF-GW-1316-Lean-T2-End (180-115551-12) and GAF-GW-1316-Lean-T3-End (180-115551-13).

Method 3005A: The following samples were prepped at 20ml due to insufficient sample provided for preparation: GAF-GW-1316-Lean-T3-End (180-115551-13), GAF-GW-1316-Lean-T4-End (180-115551-14), GAF-GW-1316-Lean-T5-End (180-115551-15), GAF-GW-1316-Rich-T1-End (180-115551-16), GAF-GW-1316-Rich-T2-End (180-115551-17), GAF-GW-1316-Rich-T3-End (180-115551-18), GAF-GW-1316-Rich-T4-End (180-115551-19), GAF-GW-1316-Rich-T5-End (180-115551-20), GAF-GW-1315-Control-t28 (180-115551-21), GAF-GW-1315-Hi Cal 0.5-t28 (180-115551-22), GAF-GW-1315-Dolo 0.5-t28 (180-115551-23) and GAF-GW-1315-Dolo 1.0-t28 (180-115551-24).

Method 6020A: The serial dilution performed for the following sample associated with batch 180-342917 was outside control limits: (180-115551-A-13-A SD ^5)

Method 6020A: The continuing calibration verification (CCV) associated with batch 180-343242 recovered above the upper control limit for beryllium. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: GAF-GW-1316-Rich-T3-End (180-115551-18), GAF-GW-1316-Rich-T4-End (180-115551-19), GAF-GW-1316-Rich-T5-End (180-115551-20) and (CCV 180-343242/66).

Method 6020A: The serial dilution performed for the following sample associated with batch 180-343414 was outside control limits for multiple analytes: GAF-GW-1315-Rich-t7 (180-115551-36)

Method 6020A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 180-342908 and analytical batch 180-343414 were outside control limits for arsenic and antimony. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 6020A: The post digestion spike % recovery for multiple analytes associated with batch 180-343414 was outside of control limits. The associated sample is: GAF-GW-1315-Rich-t7 (180-115551-36).

Method 7470A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 180-343277 and analytical batch 180-343644 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 7470A: Elevated reporting limits are provided for the following samples due to insufficient sample provided by the client for mercury preparation: GAF-GW-1316-Lean-T5-Mid (180-115551-5), GAF-GW-1316-Rich-T5-Mid (180-115551-10), GAF-GW-1316-Lean-T5-End (180-115551-15) and GAF-GW-1316-Rich-T5-End (180-115551-20).

Method 7470A: Elevated reporting limits are provided for the following samples due to insufficient sample provided by the client for mercury preparation: GAF-GW-1316-Lean-T4-Mid (180-115551-4), GAF-GW-1316-Rich-T4-Mid (180-115551-9),

Job ID: 180-115551-1 (Continued)

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

GAF-GW-1316-Lean-T4-End (180-115551-14) and GAF-GW-1316-Rich-T4-End (180-115551-19).

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Environmental Standards Inc. Job ID: 180-115551-1
Project/Site: GAF-NRS-Treatability

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Environmental Standards Inc.
Job ID: 180-115551-1
Project/Site: GAF-NRS-Treatability

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20 *
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20 *
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20 *
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Water	12/29/20 13:00	01/06/21 09:00	
180-115551-2	GAF-GW-1316-Lean-T2-Mid	Water	12/29/20 13:00	01/06/21 09:00	
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Water	12/29/20 13:00	01/06/21 09:00	
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Water	12/29/20 13:00	01/06/21 09:00	
180-115551-5	GAF-GW-1316-Lean-T5-Mid	Water	12/29/20 13:00	01/06/21 09:00	
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Water	12/29/20 13:00	01/06/21 09:00	
180-115551-7	GAF-GW-1316-Rich-T2-Mid	Water	12/29/20 13:00	01/06/21 09:00	
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Water	12/29/20 13:00	01/06/21 09:00	
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Water	12/29/20 13:00	01/06/21 09:00	
180-115551-10	GAF-GW-1316-Rich-T5-Mid	Water	12/29/20 13:00	01/06/21 09:00	
180-115551-11	GAF-GW-1316-Lean-T1-End	Water	12/30/20 13:00	01/06/21 09:00	
180-115551-12	GAF-GW-1316-Lean-T2-End	Water	12/30/20 13:00	01/06/21 09:00	
180-115551-13	GAF-GW-1316-Lean-T3-End	Water	12/30/20 13:00	01/06/21 09:00	
180-115551-14	GAF-GW-1316-Lean-T4-End	Water	12/30/20 13:00	01/06/21 09:00	
180-115551-15	GAF-GW-1316-Lean-T5-End	Water	12/30/20 13:00	01/06/21 09:00	
180-115551-16	GAF-GW-1316-Rich-T1-End	Water	12/30/20 13:00	01/06/21 09:00	
180-115551-17	GAF-GW-1316-Rich-T2-End	Water	12/30/20 13:00	01/06/21 09:00	
180-115551-18	GAF-GW-1316-Rich-T3-End	Water	12/30/20 13:00	01/06/21 09:00	
180-115551-19	GAF-GW-1316-Rich-T4-End	Water	12/30/20 13:00	01/06/21 09:00	
180-115551-20	GAF-GW-1316-Rich-T5-End	Water	12/30/20 13:00	01/06/21 09:00	
180-115551-21	GAF-GW-1315-Control-t28	Water	12/21/20 12:40	01/06/21 09:00	
180-115551-22	GAF-GW-1315-Hi Cal 0.5-t28	Water	12/21/20 12:40	01/06/21 09:00	
180-115551-23	GAF-GW-1315-Dolo 0.5-t28	Water	12/21/20 12:40	01/06/21 09:00	
180-115551-24	GAF-GW-1315-Dolo 1.0-t28	Water	12/21/20 12:40	01/06/21 09:00	
180-115551-25	GAF-GW-1315-Control-t42	Water	01/04/21 12:40	01/06/21 09:00	
180-115551-26	GAF-GW-1315-Hi Cal 0.5-t42	Water	01/04/21 12:40	01/06/21 09:00	
180-115551-27	GAF-GW-1315-Dolo 0.5-t42	Water	01/04/21 12:40	01/06/21 09:00	
180-115551-28	GAF-GW-1315-Dolo 1.0-t42	Water	01/04/21 12:40	01/06/21 09:00	
180-115551-29	GAF-GW-1315-Lean-t2hr	Water	12/16/20 14:00	01/06/21 09:00	
180-115551-30	GAF-GW-1315-Rich-t2hr	Water	12/16/20 14:00	01/06/21 09:00	
180-115551-31	GAF-GW-1315-Lean-t48hr	Water	12/17/20 13:00	01/06/21 09:00	
180-115551-32	GAF-GW-1315-Rich-t48hr	Water	12/17/20 13:00	01/06/21 09:00	
180-115551-33	GAF-GW-1315-Lean-t 1day	Water	12/18/20 12:00	01/06/21 09:00	
180-115551-34	GAF-GW-1315-Rich-t 1 day	Water	12/18/20 12:00	01/06/21 09:00	
180-115551-35	GAF-GW-1315-Lean-t7	Water	12/23/20 12:00	01/06/21 09:00	
180-115551-36	GAF-GW-1315-Rich-t7	Water	12/23/20 12:00	01/06/21 09:00	
180-115551-37	GAF-GW-1315-Lean-t14	Water	12/30/20 12:00	01/06/21 09:00	
180-115551-38	GAF-GW-1315-Rich-t14	Water	12/30/20 12:00	01/06/21 09:00	

Method Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM2320 B	Alkalinity, Total	SM18	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T1-Mid

Lab Sample ID: 180-115551-1

Date Collected: 12/29/20 13:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			342917	01/09/21 08:45	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 12:37	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			342917	01/09/21 08:41	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 12:33	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:29	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:03	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Lean-T2-Mid

Lab Sample ID: 180-115551-2

Date Collected: 12/29/20 13:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1.0 mL	342705	01/07/21 18:27	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		5			342705	01/07/21 18:43	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		1			343126	01/12/21 17:54	SAT	TAL PIT
	Instrument ID: INTEGRION									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			342917	01/09/21 08:48	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 12:40	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:30	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	SM2320 B		1			342807	01/07/21 16:33	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-Lean-T3-Mid

Lab Sample ID: 180-115551-3

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			342917	01/09/21 08:55	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 12:48	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			342917	01/09/21 08:52	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 12:44	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:34	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:04	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Lean-T4-Mid

Lab Sample ID: 180-115551-4

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			342917	01/09/21 09:10	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 13:02	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			342917	01/09/21 08:59	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 12:51	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			10 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:35	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:05	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Lean-T5-Mid

Lab Sample ID: 180-115551-5

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			342917	01/09/21 09:13	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 13:06	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			10 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:06	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Rich-T1-Mid

Lab Sample ID: 180-115551-6

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			342917	01/09/21 09:21	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 13:13	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			342917	01/09/21 09:17	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 13:09	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:36	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:07	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Rich-T2-Mid

Lab Sample ID: 180-115551-7

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1.0 mL	342705	01/07/21 17:21	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		1			343126	01/12/21 17:12	SAT	TAL PIT
	Instrument ID: INTEGRION									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			342917	01/09/21 09:24	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1316-Rich-T2-Mid

Lab Sample ID: 180-115551-7

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 13:16	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:37	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	SM2320 B		1			342807	01/07/21 16:26	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-Rich-T3-Mid

Lab Sample ID: 180-115551-8

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			342917	01/09/21 09:32	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 13:24	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			342917	01/09/21 09:28	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 13:20	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:38	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:08	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Rich-T4-Mid

Lab Sample ID: 180-115551-9

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			342917	01/09/21 09:39	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 13:31	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1316-Rich-T4-Mid

Lab Sample ID: 180-115551-9

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			342917	01/09/21 09:35	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 13:27	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			10 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:39	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:09	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Rich-T5-Mid

Lab Sample ID: 180-115551-10

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			342917	01/09/21 09:42	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 13:34	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			10 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:10	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Lean-T1-End

Lab Sample ID: 180-115551-11

Date Collected: 12/30/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			342917	01/09/21 09:57	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 13:49	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			342917	01/09/21 09:53	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 13:45	RSK	TAL PIT
	Instrument ID: A									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T1-End

Lab Sample ID: 180-115551-11
Matrix: Water
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:40	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:15	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Lean-T2-End

Lab Sample ID: 180-115551-12
Matrix: Water
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1.0 mL	342705	01/07/21 17:54	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		5			342705	01/07/21 18:10	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		1			343126	01/12/21 17:33	SAT	TAL PIT
	Instrument ID: INTEGRION									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			342917	01/09/21 10:00	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 13:52	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:41	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	SM2320 B		1			342807	01/07/21 16:18	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-Lean-T3-End

Lab Sample ID: 180-115551-13
Matrix: Water
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 14:25	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			342917	01/09/21 10:04	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342883	01/08/21 14:51	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 13:56	RSK	TAL PIT
	Instrument ID: A									

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T3-End

Lab Sample ID: 180-115551-13
Matrix: Water
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:42	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:16	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Lean-T4-End

Lab Sample ID: 180-115551-14
Matrix: Water
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 14:32	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 14:29	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			10 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:43	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:17	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Lean-T5-End

Lab Sample ID: 180-115551-15
Matrix: Water
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 14:36	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			10 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:18	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Rich-T1-End

Lab Sample ID: 180-115551-16
Matrix: Water
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 14:43	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1316-Rich-T1-End

Lab Sample ID: 180-115551-16

Date Collected: 12/30/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 14:39	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:47	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:19	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Rich-T2-End

Lab Sample ID: 180-115551-17

Date Collected: 12/30/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			342705	01/07/21 16:49	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			342705	01/07/21 17:05	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		1	1 mL	1.0 mL	343126	01/12/21 16:51	SAT	TAL PIT
	Instrument ID: INTEGRION									
Dissolved	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 14:47	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:48	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	SM2320 B		1			342807	01/07/21 16:11	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1316-Rich-T3-End

Lab Sample ID: 180-115551-18

Date Collected: 12/30/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 15:01	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 14:50	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:49	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Rich-T3-End

Lab Sample ID: 180-115551-18

Date Collected: 12/30/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:20	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Rich-T4-End

Lab Sample ID: 180-115551-19

Date Collected: 12/30/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 15:08	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 15:05	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			10 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:50	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:21	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1316-Rich-T5-End

Lab Sample ID: 180-115551-20

Date Collected: 12/30/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 15:12	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			10 mL	25 mL	343277	01/13/21 08:56	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 15:22	KEM	TAL PIT
	Instrument ID: HGY									

Client Sample ID: GAF-GW-1315-Control-t28

Lab Sample ID: 180-115551-21

Date Collected: 12/21/20 12:40

Matrix: Water

Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 15:19	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 15:15	RSK	TAL PIT
	Instrument ID: A									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Hi Cal 0.5-t28

Lab Sample ID: 180-115551-22
Date Collected: 12/21/20 12:40
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 15:26	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 15:23	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Dolo 0.5-t28

Lab Sample ID: 180-115551-23
Date Collected: 12/21/20 12:40
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 15:33	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 15:30	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Dolo 1.0-t28

Lab Sample ID: 180-115551-24
Date Collected: 12/21/20 12:40
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 15:48	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			20 mL	20 mL	342888	01/08/21 15:04	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 15:44	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Control-t42

Lab Sample ID: 180-115551-25
Date Collected: 01/04/21 12:40
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 16:17	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 16:13	RSK	TAL PIT
	Instrument ID: A									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Hi Cal 0.5-t42

Lab Sample ID: 180-115551-26
Date Collected: 01/04/21 12:40
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 17:00	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 16:20	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Dolo 0.5-t42

Lab Sample ID: 180-115551-27
Date Collected: 01/04/21 12:40
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 17:14	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 17:04	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Dolo 1.0-t42

Lab Sample ID: 180-115551-28
Date Collected: 01/04/21 12:40
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 17:22	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 17:18	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Lean-t2hr

Lab Sample ID: 180-115551-29
Date Collected: 12/16/20 14:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 17:29	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 17:25	RSK	TAL PIT
	Instrument ID: A									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Rich-t2hr

Lab Sample ID: 180-115551-30
Date Collected: 12/16/20 14:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 17:36	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 17:32	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Lean-t48hr

Lab Sample ID: 180-115551-31
Date Collected: 12/17/20 13:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 17:43	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 17:40	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Rich-t48hr

Lab Sample ID: 180-115551-32
Date Collected: 12/17/20 13:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 17:58	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 17:47	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Lean-t 1day

Lab Sample ID: 180-115551-33
Date Collected: 12/18/20 12:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 18:05	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 18:01	RSK	TAL PIT
	Instrument ID: A									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Rich-t 1 day
Lab Sample ID: 180-115551-34
Date Collected: 12/18/20 12:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343242	01/09/21 18:12	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342890	01/08/21 15:09	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343242	01/09/21 18:08	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Lean-t7
Lab Sample ID: 180-115551-35
Date Collected: 12/23/20 12:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342908	01/09/21 09:56	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343414	01/13/21 14:42	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342908	01/09/21 09:56	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343414	01/13/21 14:38	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Rich-t7
Lab Sample ID: 180-115551-36
Date Collected: 12/23/20 12:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	342908	01/09/21 09:56	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343414	01/13/21 15:14	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342908	01/09/21 09:56	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343414	01/13/21 14:45	RSK	TAL PIT
	Instrument ID: A									

Client Sample ID: GAF-GW-1315-Lean-t14
Lab Sample ID: 180-115551-37
Date Collected: 12/30/20 12:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			342705	01/07/21 19:31	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			342705	01/07/21 19:47	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		1			343126	01/12/21 15:49	SAT	TAL PIT
	Instrument ID: INTEGRION									
Dissolved	Prep	3005A			50 mL	50 mL	342908	01/09/21 09:56	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343414	01/13/21 15:39	RSK	TAL PIT
	Instrument ID: A									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Lean-t14

Lab Sample ID: 180-115551-37

Date Collected: 12/30/20 12:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	342908	01/09/21 09:56	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343414	01/13/21 15:36	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 09:02	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:51	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 14:24	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	SM2320 B		1			342807	01/07/21 16:03	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1315-Rich-t14

Lab Sample ID: 180-115551-38

Date Collected: 12/30/20 12:00
Matrix: Water
Date Received: 01/06/21 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			342705	01/07/21 18:59	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10			342705	01/07/21 19:16	SAT	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		1			343126	01/12/21 18:56	SAT	TAL PIT
	Instrument ID: INTEGRION									
Dissolved	Prep	3005A			50 mL	50 mL	342908	01/09/21 09:56	KHM	TAL PIT
Dissolved	Analysis	EPA 6020A		1			343414	01/13/21 15:47	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	342908	01/09/21 09:56	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			343414	01/13/21 15:43	RSK	TAL PIT
	Instrument ID: A									
Dissolved	Prep	7470A			25 mL	25 mL	343278	01/13/21 09:02	RJR	TAL PIT
Dissolved	Analysis	EPA 7470A		1			343644	01/15/21 14:53	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	343278	01/13/21 08:59	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			343644	01/15/21 14:27	KEM	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	SM2320 B		1			342807	01/07/21 15:48	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KHM = Kyle Mucroski
RJR = Ron Rosenbaum
TJO = Tyler Oliver

Batch Type: Analysis

AVS = Abbey Smith
KEM = Kimberly Mahoney
RSK = Robert Kurtz
SAT = Stephen Tallam

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T1-Mid

Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-1

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.642**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 08:41	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 08:41	1
Arsenic	**0.00278**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 08:41	1
Barium	**0.0257**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 08:41	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 08:41	1
Boron	**0.891**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 08:41	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 08:41	1
Calcium	**250**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 08:41	1
Chromium	**0.0771**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 08:41	1
Cobalt	**0.00221**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 08:41	1
Copper	**0.00161**	**J**	0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 08:41	1
Iron	**0.313**		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 08:41	1
Lead	**0.000163**	**J**	0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 08:41	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 08:41	1
Magnesium	**0.221**	**J**	0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 08:41	1
Manganese	**0.00419**	**J**	0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 08:41	1
Molybdenum	**0.0271**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 08:41	1
Nickel	**0.000814**	**J**	0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 08:41	1
Potassium	**11.9**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 08:41	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 08:41	1
Silver	**0.000830**	**J**	0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 08:41	1
Sodium	**80.6**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 08:41	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 08:41	1
Vanadium	**0.0436**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 12:33	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 08:41	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.365**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 08:45	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 08:45	1
Arsenic	**0.00254**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 08:45	1
Barium	**0.0250**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 08:45	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 08:45	1
Boron	**0.895**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 08:45	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 08:45	1
Calcium	**253**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 08:45	1
Chromium	**0.0787**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 08:45	1
Cobalt	**0.00214**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 08:45	1
Copper	**0.00160**	**J**	0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 08:45	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 08:45	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 08:45	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 08:45	1
Magnesium	**0.185**	**J**	0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 08:45	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 08:45	1
Molybdenum	**0.0279**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 08:45	1
Nickel	**0.000613**	**J**	0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 08:45	1
Potassium	**11.8**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 08:45	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 08:45	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 08:45	1
Sodium	**81.7**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 08:45	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T1-Mid
Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-1
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 08:45	1
Vanadium	**0.0427**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 12:37	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 08:45	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:03	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:29	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T2-Mid

Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-2

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	41.2		1.00	0.713	mg/L			01/07/21 18:27	1
Fluoride	0.347		0.100	0.0260	mg/L			01/12/21 17:54	1
Sulfate	387		5.00	3.78	mg/L			01/07/21 18:43	5

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.567		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 08:48	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 08:48	1
Arsenic	0.00360		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 08:48	1
Barium	0.0271		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 08:48	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 08:48	1
Boron	0.578		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 08:48	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 08:48	1
Calcium	254		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 08:48	1
Chromium	0.118		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 08:48	1
Cobalt	0.00360		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 08:48	1
Copper	0.00220		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 08:48	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 08:48	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 08:48	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 08:48	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 08:48	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 08:48	1
Molybdenum	0.0475		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 08:48	1
Nickel	0.00174		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 08:48	1
Potassium	5.71		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 08:48	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 08:48	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 08:48	1
Sodium	80.9		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 08:48	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 08:48	1
Vanadium	0.0474		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 12:40	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 08:48	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	64.9		5.00	5.00	mg/L			01/07/21 16:33	1
Bicarbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/07/21 16:33	1
Carbonate Alkalinity as CaCO3	32.5		5.00	5.00	mg/L			01/07/21 16:33	1
Hydroxide Alkalinity	32.5		5.00	5.00	mg/L			01/07/21 16:33	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T3-Mid

Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-3

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**6.93**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 08:52	1
Antimony	**0.000908**	**J**	0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 08:52	1
Arsenic	**0.00651**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 08:52	1
Barium	**0.0400**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 08:52	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 08:52	1
Boron	**0.231**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 08:52	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 08:52	1
Calcium	**240**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 08:52	1
Chromium	**0.188**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 08:52	1
Cobalt	**0.00812**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 08:52	1
Copper	**0.00617**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 08:52	1
Iron	**7.31**		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 08:52	1
Lead	**0.00291**		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 08:52	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 08:52	1
Magnesium	**0.402**	**J**	0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 08:52	1
Manganese	**0.0434**		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 08:52	1
Molybdenum	**0.0924**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 08:52	1
Nickel	**0.00459**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 08:52	1
Potassium	**8.94**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 08:52	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 08:52	1
Silver	**0.000485**	**J**	0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 08:52	1
Sodium	**70.5**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 08:52	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 08:52	1
Vanadium	**0.0497**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 12:44	1
Zinc	**0.0158**		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 08:52	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.706**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 08:55	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 08:55	1
Arsenic	**0.00514**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 08:55	1
Barium	**0.0229**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 08:55	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 08:55	1
Boron	**0.175**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 08:55	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 08:55	1
Calcium	**235**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 08:55	1
Chromium	**0.189**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 08:55	1
Cobalt	**0.00719**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 08:55	1
Copper	**0.00297**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 08:55	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 08:55	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 08:55	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 08:55	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 08:55	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 08:55	1
Molybdenum	**0.0948**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 08:55	1
Nickel	**0.00131**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 08:55	1
Potassium	**4.29**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 08:55	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 08:55	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 08:55	1
Sodium	**71.0**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 08:55	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T3-Mid
Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-3
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 08:55	1
Vanadium	**0.0409**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 12:48	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 08:55	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:04	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:34	1

Client Sample ID: GAF-GW-1316-Lean-T4-Mid

Lab Sample ID: 180-115551-4

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.15**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 08:59	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 08:59	1
Arsenic	**0.00706**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 08:59	1
Barium	**0.0330**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 08:59	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 08:59	1
Boron	**0.102**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 08:59	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 08:59	1
Calcium	**293**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 08:59	1
Chromium	**0.314**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 08:59	1
Cobalt	**0.0127**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 08:59	1
Copper	**0.00543**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 08:59	1
Iron	**4.64**		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 08:59	1
Lead	**0.00130**		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 08:59	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 08:59	1
Magnesium	**0.184**	**J**	0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 08:59	1
Manganese	**0.0266**		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 08:59	1
Molybdenum	**0.156**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 08:59	1
Nickel	**0.00347**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 08:59	1
Potassium	**4.75**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 08:59	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 08:59	1
Silver	**0.000190**	**J**	0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 08:59	1
Sodium	**59.3**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 08:59	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 08:59	1
Vanadium	**0.0380**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 12:51	1
Zinc	**0.00535**		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 08:59	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.775**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:10	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:10	1
Arsenic	**0.00651**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:10	1
Barium	**0.0243**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:10	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:10	1
Boron	**0.0596**	**J**	0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:10	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:10	1
Calcium	**272**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:10	1
Chromium	**0.330**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:10	1
Cobalt	**0.0125**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:10	1
Copper	**0.00421**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:10	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:10	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:10	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:10	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:10	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:10	1
Molybdenum	**0.163**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:10	1
Nickel	**0.00203**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:10	1
Potassium	**4.08**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:10	1
Selenium	**0.00151**	**J**	0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:10	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:10	1
Sodium	**58.3**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:10	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T4-Mid
Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-4
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:10	1
Vanadium	**0.0338**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:02	1
Zinc	**0.0137**		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:10	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:05	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000500	0.000325	mg/L		01/13/21 08:59	01/15/21 14:35	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T5-Mid

Lab Sample ID: 180-115551-5

Date Collected: 12/29/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.69**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:13	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:13	1
Arsenic	**0.00854**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:13	1
Barium	**0.0318**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:13	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:13	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:13	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:13	1
Calcium	**233**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:13	1
Chromium	**0.504**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:13	1
Cobalt	**0.0203**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:13	1
Copper	**0.00774**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:13	1
Iron	**5.16**		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:13	1
Lead	**0.00135**		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:13	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:13	1
Magnesium	**0.258**	**J**	0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:13	1
Manganese	**0.0381**		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:13	1
Molybdenum	**0.236**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:13	1
Nickel	**0.00502**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:13	1
Potassium	**7.05**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:13	1
Selenium	**0.00190**	**J**	0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:13	1
Silver	**0.00109**		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:13	1
Sodium	**41.1**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:13	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:13	1
Vanadium	**0.0373**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:06	1
Zinc	**0.00586**		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:13	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000500	0.000325	mg/L		01/13/21 08:56	01/15/21 15:06	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T1-Mid

Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-6

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.77**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:17	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:17	1
Arsenic	**0.00223**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:17	1
Barium	**0.0399**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:17	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:17	1
Boron	**0.632**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:17	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:17	1
Calcium	**260**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:17	1
Chromium	**0.120**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:17	1
Cobalt	**0.00183**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:17	1
Copper	**0.00204**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:17	1
Iron	**0.639**		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:17	1
Lead	**0.000229**	**J**	0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:17	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:17	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:17	1
Manganese	**0.00702**		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:17	1
Molybdenum	**0.0265**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:17	1
Nickel	**0.00161**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:17	1
Potassium	**7.48**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:17	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:17	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:17	1
Sodium	**87.5**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:17	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:17	1
Vanadium	**0.0337**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:09	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:17	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.24**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:21	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:21	1
Arsenic	**0.00203**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:21	1
Barium	**0.0364**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:21	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:21	1
Boron	**0.618**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:21	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:21	1
Calcium	**243**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:21	1
Chromium	**0.114**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:21	1
Cobalt	**0.00167**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:21	1
Copper	**0.00161**	**J**	0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:21	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:21	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:21	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:21	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:21	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:21	1
Molybdenum	**0.0255**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:21	1
Nickel	**0.000451**	**J**	0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:21	1
Potassium	**6.97**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:21	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:21	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:21	1
Sodium	**82.6**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:21	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T1-Mid
Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-6
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:21	1
Vanadium	**0.0304**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:13	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:21	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:07	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:36	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T2-Mid

Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-7

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.0		1.00	0.713	mg/L			01/07/21 17:21	1
Fluoride	0.434		0.100	0.0260	mg/L			01/12/21 17:12	1
Sulfate	170		1.00	0.756	mg/L			01/07/21 17:21	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1.38		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:24	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:24	1
Arsenic	0.00165		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:24	1
Barium	0.0397		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:24	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:24	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:24	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:24	1
Calcium	157		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:24	1
Chromium	0.184		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:24	1
Cobalt	0.00367		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:24	1
Copper	0.00199	J	0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:24	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:24	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:24	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:24	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:24	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:24	1
Molybdenum	0.0475		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:24	1
Nickel	0.000668	J	0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:24	1
Potassium	8.31		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:24	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:24	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:24	1
Sodium	83.8		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:24	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:24	1
Vanadium	0.0107		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:16	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:24	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	281		5.00	5.00	mg/L			01/07/21 16:26	1
Bicarbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/07/21 16:26	1
Carbonate Alkalinity as CaCO3	51.0		5.00	5.00	mg/L			01/07/21 16:26	1
Hydroxide Alkalinity	230		5.00	5.00	mg/L			01/07/21 16:26	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T3-Mid

Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-8

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.53**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:28	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:28	1
Arsenic	**0.00218**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:28	1
Barium	**0.0375**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:28	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:28	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:28	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:28	1
Calcium	**152**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:28	1
Chromium	**0.178**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:28	1
Cobalt	**0.00617**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:28	1
Copper	**0.00304**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:28	1
Iron	**0.564**		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:28	1
Lead	**0.000243**	**J**	0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:28	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:28	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:28	1
Manganese	**0.00451**	**J**	0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:28	1
Molybdenum	**0.0601**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:28	1
Nickel	**0.00109**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:28	1
Potassium	**9.01**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:28	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:28	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:28	1
Sodium	**75.5**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:28	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:28	1
Vanadium	**0.00709**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:20	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:28	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.50**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:32	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:32	1
Arsenic	**0.00199**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:32	1
Barium	**0.0378**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:32	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:32	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:32	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:32	1
Calcium	**151**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:32	1
Chromium	**0.178**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:32	1
Cobalt	**0.00665**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:32	1
Copper	**0.00291**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:32	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:32	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:32	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:32	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:32	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:32	1
Molybdenum	**0.0628**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:32	1
Nickel	**0.00305**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:32	1
Potassium	**9.56**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:32	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:32	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:32	1
Sodium	**78.0**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:32	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T3-Mid
Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-8
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:32	1
Vanadium	**0.00681**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:24	1
Zinc	**0.00377**	**J**	0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:32	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:08	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:38	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T4-Mid

Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-9

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.89**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:35	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:35	1
Arsenic	**0.00242**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:35	1
Barium	**0.0520**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:35	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:35	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:35	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:35	1
Calcium	**191**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:35	1
Chromium	**0.0958**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:35	1
Cobalt	**0.0106**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:35	1
Copper	**0.00408**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:35	1
Iron	**0.421**		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:35	1
Lead	**0.000131**	**J**	0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:35	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:35	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:35	1
Manganese	**0.00339**	**J**	0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:35	1
Molybdenum	**0.0464**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:35	1
Nickel	**0.00130**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:35	1
Potassium	**10.7**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:35	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:35	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:35	1
Sodium	**70.7**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:35	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:35	1
Vanadium	**0.00388**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:27	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:35	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.67**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:39	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:39	1
Arsenic	**0.00237**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:39	1
Barium	**0.0507**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:39	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:39	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:39	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:39	1
Calcium	**178**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:39	1
Chromium	**0.0894**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:39	1
Cobalt	**0.0100**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:39	1
Copper	**0.00317**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:39	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:39	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:39	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:39	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:39	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:39	1
Molybdenum	**0.0440**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:39	1
Nickel	**0.00111**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:39	1
Potassium	**10.2**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:39	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:39	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:39	1
Sodium	**66.5**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:39	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T4-Mid
Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-9
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:39	1
Vanadium	**0.00325**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:31	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:39	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:09	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000500	0.000325	mg/L		01/13/21 08:59	01/15/21 14:39	1

Client Sample ID: GAF-GW-1316-Rich-T5-Mid

Date Collected: 12/29/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-10

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	17.7		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:42	1
Antimony	0.00144	J	0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:42	1
Arsenic	0.00971		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:42	1
Barium	0.128		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:42	1
Beryllium	0.000607	J	0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:42	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:42	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:42	1
Calcium	227		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:42	1
Chromium	0.0847		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:42	1
Cobalt	0.0187		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:42	1
Copper	0.0138		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:42	1
Iron	24.4		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:42	1
Lead	0.00811		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:42	1
Lithium	0.00415	J	0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:42	1
Magnesium	1.50		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:42	1
Manganese	0.173		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:42	1
Molybdenum	0.0334		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:42	1
Nickel	0.0128		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:42	1
Potassium	14.4		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:42	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:42	1
Silver	0.000203	J	0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:42	1
Sodium	58.8		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:42	1
Thallium	0.000428	J	0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:42	1
Vanadium	0.0310		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:34	1
Zinc	0.0369		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:42	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000500	0.000325	mg/L		01/13/21 08:56	01/15/21 15:10	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T1-End

Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-11

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.529**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:53	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:53	1
Arsenic	**0.00277**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:53	1
Barium	**0.0253**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:53	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:53	1
Boron	**0.945**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:53	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:53	1
Calcium	**317**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:53	1
Chromium	**0.0683**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:53	1
Cobalt	**0.00224**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:53	1
Copper	**0.00179**	**J**	0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:53	1
Iron	**0.194**		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:53	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:53	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:53	1
Magnesium	**0.263**	**J**	0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:53	1
Manganese	**0.00271**	**J**	0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:53	1
Molybdenum	**0.0274**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:53	1
Nickel	**0.000626**	**J**	0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:53	1
Potassium	**4.63**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:53	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:53	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:53	1
Sodium	**87.4**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:53	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:53	1
Vanadium	**0.0396**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:45	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:53	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.297**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 09:57	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 09:57	1
Arsenic	**0.00272**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 09:57	1
Barium	**0.0239**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 09:57	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 09:57	1
Boron	**0.929**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 09:57	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 09:57	1
Calcium	**309**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 09:57	1
Chromium	**0.0675**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 09:57	1
Cobalt	**0.00214**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 09:57	1
Copper	**0.00153**	**J**	0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 09:57	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 09:57	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 09:57	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 09:57	1
Magnesium	**0.230**	**J**	0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 09:57	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 09:57	1
Molybdenum	**0.0267**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 09:57	1
Nickel	**0.000580**	**J**	0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 09:57	1
Potassium	**4.53**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 09:57	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 09:57	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 09:57	1
Sodium	**84.2**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 09:57	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T1-End
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-11
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 09:57	1
Vanadium	**0.0381**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:49	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 09:57	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:15	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:40	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T2-End

Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-12

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**43.0**		1.00	0.713	mg/L			01/07/21 17:54	1
Fluoride	**0.377**		0.100	0.0260	mg/L			01/12/21 17:33	1
Sulfate	**407**		5.00	3.78	mg/L			01/07/21 18:10	5

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.276**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 10:00	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 10:00	1
Arsenic	**0.00306**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 10:00	1
Barium	**0.0179**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 10:00	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 10:00	1
Boron	**0.735**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 10:00	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 10:00	1
Calcium	**255**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 10:00	1
Chromium	**0.0661**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 10:00	1
Cobalt	**0.00315**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 10:00	1
Copper	**0.00219**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 10:00	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 10:00	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 10:00	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 10:00	1
Magnesium	**0.169**	**J**	0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 10:00	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 10:00	1
Molybdenum	**0.0393**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 10:00	1
Nickel	**0.000639**	**J**	0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 10:00	1
Potassium	**3.59**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 10:00	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 10:00	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 10:00	1
Sodium	**81.2**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 10:00	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 10:00	1
Vanadium	**0.0282**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:52	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 10:00	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**34.0**		5.00	5.00	mg/L			01/07/21 16:18	1
Bicarbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/07/21 16:18	1
Carbonate Alkalinity as CaCO3	**33.9**		5.00	5.00	mg/L			01/07/21 16:18	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			01/07/21 16:18	1

Client Sample ID: GAF-GW-1316-Lean-T3-End

Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-13

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.18**		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 10:04	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 10:04	1
Arsenic	**0.00484**		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 10:04	1
Barium	**0.0272**		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 10:04	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 10:04	1
Boron	**0.193**		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 10:04	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 10:04	1
Calcium	**276**		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 10:04	1
Chromium	**0.193**		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 10:04	1
Cobalt	**0.00708**		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 10:04	1
Copper	**0.00345**		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 10:04	1
Iron	**0.548**		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 10:04	1
Lead	**0.000215**	**J**	0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 10:04	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 10:04	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 10:04	1
Manganese	**0.00364**	**J**	0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 10:04	1
Molybdenum	**0.0911**		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 10:04	1
Nickel	**0.00161**		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 10:04	1
Potassium	**4.02**		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 10:04	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 10:04	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 10:04	1
Sodium	**75.5**		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 10:04	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 10:04	1
Vanadium	**0.0432**		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 13:56	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 10:04	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.578**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 14:25	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 14:25	1
Arsenic	**0.00467**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 14:25	1
Barium	**0.0252**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 14:25	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 14:25	1
Boron	**0.186**		0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 14:25	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 14:25	1
Calcium	**268**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 14:25	1
Chromium	**0.191**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 14:25	1
Cobalt	**0.00698**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 14:25	1
Copper	**0.00348**		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 14:25	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 14:25	1
Lead	**0.000140**	**J**	0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 14:25	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 14:25	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 14:25	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 14:25	1
Molybdenum	**0.0893**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 14:25	1
Nickel	**0.00134**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 14:25	1
Potassium	**3.77**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 14:25	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 14:25	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 14:25	1
Sodium	**74.9**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 14:25	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T3-End
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-13
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	0.000357	J	0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 14:25	1
Vanadium	0.0419		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 14:25	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 14:25	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:16	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:42	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T4-End

Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-14

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.842**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 14:29	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 14:29	1
Arsenic	**0.00651**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 14:29	1
Barium	**0.0283**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 14:29	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 14:29	1
Boron	**0.0611**	**J**	0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 14:29	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 14:29	1
Calcium	**308**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 14:29	1
Chromium	**0.302**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 14:29	1
Cobalt	**0.0123**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 14:29	1
Copper	**0.00495**		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 14:29	1
Iron	**0.265**		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 14:29	1
Lead	**0.000192**	**J**	0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 14:29	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 14:29	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 14:29	1
Manganese	**0.00188**	**J**	0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 14:29	1
Molybdenum	**0.172**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 14:29	1
Nickel	**0.00244**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 14:29	1
Potassium	**3.86**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 14:29	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 14:29	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 14:29	1
Sodium	**63.7**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 14:29	1
Thallium	**0.000171**	**J**	0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 14:29	1
Vanadium	**0.0350**		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 14:29	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 14:29	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.626**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 14:32	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 14:32	1
Arsenic	**0.00634**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 14:32	1
Barium	**0.0245**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 14:32	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 14:32	1
Boron	**0.0393**	**J**	0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 14:32	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 14:32	1
Calcium	**286**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 14:32	1
Chromium	**0.297**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 14:32	1
Cobalt	**0.0116**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 14:32	1
Copper	**0.00433**		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 14:32	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 14:32	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 14:32	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 14:32	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 14:32	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 14:32	1
Molybdenum	**0.167**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 14:32	1
Nickel	**0.00199**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 14:32	1
Potassium	**3.77**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 14:32	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 14:32	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 14:32	1
Sodium	**62.1**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 14:32	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T4-End
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-14
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 14:32	1
Vanadium	**0.0343**		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 14:32	1
Zinc	**0.00446**	**J**	0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 14:32	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:17	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000500	0.000325	mg/L		01/13/21 08:59	01/15/21 14:43	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Lean-T5-End

Lab Sample ID: 180-115551-15

Date Collected: 12/30/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.62**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 14:36	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 14:36	1
Arsenic	**0.00824**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 14:36	1
Barium	**0.0259**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 14:36	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 14:36	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 14:36	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 14:36	1
Calcium	**225**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 14:36	1
Chromium	**0.430**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 14:36	1
Cobalt	**0.0200**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 14:36	1
Copper	**0.00781**		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 14:36	1
Iron	**4.24**		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 14:36	1
Lead	**0.00128**		0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 14:36	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 14:36	1
Magnesium	**0.253**	**J**	0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 14:36	1
Manganese	**0.0330**		0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 14:36	1
Molybdenum	**0.250**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 14:36	1
Nickel	**0.00497**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 14:36	1
Potassium	**3.49**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 14:36	1
Selenium	**0.00208**	**J**	0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 14:36	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 14:36	1
Sodium	**39.8**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 14:36	1
Thallium	**0.000206**	**J**	0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 14:36	1
Vanadium	**0.0355**		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 14:36	1
Zinc	**0.00589**		0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 14:36	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000500	0.000325	mg/L		01/13/21 08:56	01/15/21 15:18	1

Client Sample ID: GAF-GW-1316-Rich-T1-End

Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-16

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.35**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 14:39	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 14:39	1
Arsenic	**0.00187**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 14:39	1
Barium	**0.0378**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 14:39	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 14:39	1
Boron	**0.281**		0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 14:39	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 14:39	1
Calcium	**216**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 14:39	1
Chromium	**0.120**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 14:39	1
Cobalt	**0.00217**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 14:39	1
Copper	**0.00182**	**J**	0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 14:39	1
Iron	**0.0776**		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 14:39	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 14:39	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 14:39	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 14:39	1
Manganese	**0.00128**	**J**	0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 14:39	1
Molybdenum	**0.0257**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 14:39	1
Nickel	**0.000525**	**J**	0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 14:39	1
Potassium	**7.28**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 14:39	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 14:39	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 14:39	1
Sodium	**86.4**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 14:39	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 14:39	1
Vanadium	**0.0261**		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 14:39	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 14:39	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.26**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 14:43	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 14:43	1
Arsenic	**0.00170**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 14:43	1
Barium	**0.0370**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 14:43	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 14:43	1
Boron	**0.275**		0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 14:43	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 14:43	1
Calcium	**214**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 14:43	1
Chromium	**0.121**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 14:43	1
Cobalt	**0.00215**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 14:43	1
Copper	**0.00281**		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 14:43	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 14:43	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 14:43	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 14:43	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 14:43	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 14:43	1
Molybdenum	**0.0257**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 14:43	1
Nickel	**0.000423**	**J**	0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 14:43	1
Potassium	**7.32**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 14:43	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 14:43	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 14:43	1
Sodium	**87.2**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 14:43	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T1-End
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-16
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 14:43	1
Vanadium	**0.0261**		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 14:43	1
Zinc	**0.00335**	**J**	0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 14:43	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:19	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:47	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T2-End

Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-17

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	39.5		1.00	0.713	mg/L			01/07/21 16:49	1
Fluoride	0.395		0.100	0.0260	mg/L			01/12/21 16:51	1
Sulfate	239		10.0	7.56	mg/L			01/07/21 17:05	10

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.739		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 14:47	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 14:47	1
Arsenic	0.00155		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 14:47	1
Barium	0.0358		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 14:47	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 14:47	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 14:47	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 14:47	1
Calcium	157		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 14:47	1
Chromium	0.204		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 14:47	1
Cobalt	0.00355		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 14:47	1
Copper	0.00262		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 14:47	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 14:47	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 14:47	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 14:47	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 14:47	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 14:47	1
Molybdenum	0.0488		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 14:47	1
Nickel	0.000557	J	0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 14:47	1
Potassium	7.76		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 14:47	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 14:47	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 14:47	1
Sodium	86.5		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 14:47	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 14:47	1
Vanadium	0.0129		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 14:47	1
Zinc	0.00368	J	0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 14:47	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	237		5.00	5.00	mg/L			01/07/21 16:11	1
Bicarbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/07/21 16:11	1
Carbonate Alkalinity as CaCO3	46.8		5.00	5.00	mg/L			01/07/21 16:11	1
Hydroxide Alkalinity	190		5.00	5.00	mg/L			01/07/21 16:11	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T3-End

Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-18

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.80**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 14:50	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 14:50	1
Arsenic	**0.00197**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 14:50	1
Barium	**0.0412**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 14:50	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 14:50	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 14:50	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 14:50	1
Calcium	**171**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 14:50	1
Chromium	**0.140**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 14:50	1
Cobalt	**0.00692**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 14:50	1
Copper	**0.00326**		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 14:50	1
Iron	**0.458**		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 14:50	1
Lead	**0.000239**	**J**	0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 14:50	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 14:50	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 14:50	1
Manganese	**0.00313**	**J**	0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 14:50	1
Molybdenum	**0.0519**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 14:50	1
Nickel	**0.00107**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 14:50	1
Potassium	**9.34**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 14:50	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 14:50	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 14:50	1
Sodium	**83.8**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 14:50	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 14:50	1
Vanadium	**0.00586**		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 14:50	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 14:50	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.59**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 15:01	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 15:01	1
Arsenic	**0.00206**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 15:01	1
Barium	**0.0398**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 15:01	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:01	1
Boron	ND	^+	0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 15:01	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:01	1
Calcium	**160**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 15:01	1
Chromium	**0.135**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 15:01	1
Cobalt	**0.00669**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 15:01	1
Copper	**0.00424**		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 15:01	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 15:01	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 15:01	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:01	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 15:01	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 15:01	1
Molybdenum	**0.0508**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 15:01	1
Nickel	**0.00104**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:01	1
Potassium	**9.18**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 15:01	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 15:01	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 15:01	1
Sodium	**79.3**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 15:01	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T3-End
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-18
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 15:01	1
Vanadium	**0.00514**		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 15:01	1
Zinc	**0.0145**		0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 15:01	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:20	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:49	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T4-End

Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-19

Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**4.64**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 15:05	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 15:05	1
Arsenic	**0.00263**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 15:05	1
Barium	**0.0699**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 15:05	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:05	1
Boron	ND	^+	0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 15:05	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:05	1
Calcium	**203**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 15:05	1
Chromium	**0.0707**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 15:05	1
Cobalt	**0.0105**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 15:05	1
Copper	**0.00447**		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 15:05	1
Iron	**2.47**		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 15:05	1
Lead	**0.000886**	**J**	0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 15:05	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:05	1
Magnesium	**0.120**	**J**	0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 15:05	1
Manganese	**0.0166**		0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 15:05	1
Molybdenum	**0.0335**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 15:05	1
Nickel	**0.00215**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:05	1
Potassium	**11.2**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 15:05	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 15:05	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 15:05	1
Sodium	**70.8**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 15:05	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 15:05	1
Vanadium	**0.00500**		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 15:05	1
Zinc	**0.00354**	**J**	0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 15:05	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.95**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 15:08	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 15:08	1
Arsenic	**0.00175**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 15:08	1
Barium	**0.0524**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 15:08	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:08	1
Boron	ND	^+	0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 15:08	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:08	1
Calcium	**155**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 15:08	1
Chromium	**0.0603**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 15:08	1
Cobalt	**0.00820**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 15:08	1
Copper	**0.00302**		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 15:08	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 15:08	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 15:08	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:08	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 15:08	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 15:08	1
Molybdenum	**0.0280**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 15:08	1
Nickel	**0.000914**	**J**	0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:08	1
Potassium	**9.19**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 15:08	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 15:08	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 15:08	1
Sodium	**57.6**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 15:08	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T4-End
Date Collected: 12/30/20 13:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-19
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 15:08	1
Vanadium	**0.00206**		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 15:08	1
Zinc	**0.00441**	**J**	0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 15:08	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 15:21	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000500	0.000325	mg/L		01/13/21 08:59	01/15/21 14:50	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1316-Rich-T5-End

Lab Sample ID: 180-115551-20

Date Collected: 12/30/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**7.86**		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 15:12	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 15:12	1
Arsenic	**0.00482**		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 15:12	1
Barium	**0.0544**		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 15:12	1
Beryllium	**0.000187**	**J**	0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:12	1
Boron	ND	^+	0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 15:12	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:12	1
Calcium	**169**		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 15:12	1
Chromium	**0.115**		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 15:12	1
Cobalt	**0.0167**		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 15:12	1
Copper	**0.00661**		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 15:12	1
Iron	**5.86**		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 15:12	1
Lead	**0.00200**		0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 15:12	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:12	1
Magnesium	**0.367**	**J**	0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 15:12	1
Manganese	**0.0421**		0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 15:12	1
Molybdenum	**0.0506**		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 15:12	1
Nickel	**0.00410**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:12	1
Potassium	**10.1**		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 15:12	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 15:12	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 15:12	1
Sodium	**55.0**		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 15:12	1
Thallium	**0.000155**	**J**	0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 15:12	1
Vanadium	**0.0123**		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 15:12	1
Zinc	**0.00892**		0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 15:12	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000500	0.000325	mg/L		01/13/21 08:56	01/15/21 15:22	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Control-t28

Lab Sample ID: 180-115551-21

Date Collected: 12/21/20 12:40

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:15	1
Cadmium	**0.000440**	**J**	0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:15	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:15	1
Nickel	**0.00801**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:15	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:19	1
Cadmium	**0.000476**	**J**	0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:19	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:19	1
Nickel	**0.00760**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:19	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Hi Cal 0.5-t28

Lab Sample ID: 180-115551-22

Date Collected: 12/21/20 12:40

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:23	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:23	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:23	1
Nickel	**0.000808**	**J**	0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:23	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:26	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:26	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:26	1
Nickel	**0.000573**	**J**	0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:26	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Dolo 0.5-t28

Lab Sample ID: 180-115551-23

Date Collected: 12/21/20 12:40

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:30	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:30	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:30	1
Nickel	**0.00251**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:30	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:33	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:33	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:33	1
Nickel	**0.00225**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:33	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Dolo 1.0-t28

Lab Sample ID: 180-115551-24

Date Collected: 12/21/20 12:40

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:44	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:44	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:44	1
Nickel	**0.00141**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:44	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 15:48	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 15:48	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 15:48	1
Nickel	**0.00118**		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 15:48	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Control-t42
Date Collected: 01/04/21 12:40
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-25
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 16:13	1
Cadmium	**0.000466**	**J**	0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 16:13	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 16:13	1
Nickel	**0.00476**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 16:13	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 16:17	1
Cadmium	**0.000396**	**J**	0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 16:17	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 16:17	1
Nickel	**0.00488**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 16:17	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Hi Cal 0.5-t42

Lab Sample ID: 180-115551-26

Date Collected: 01/04/21 12:40

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 16:20	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 16:20	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 16:20	1
Nickel	**0.00111**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 16:20	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:00	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:00	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:00	1
Nickel	**0.00113**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:00	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Dolo 0.5-t42

Lab Sample ID: 180-115551-27

Date Collected: 01/04/21 12:40

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:04	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:04	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:04	1
Nickel	**0.00232**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:04	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:14	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:14	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:14	1
Nickel	**0.00216**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:14	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Dolo 1.0-t42

Lab Sample ID: 180-115551-28

Date Collected: 01/04/21 12:40

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:18	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:18	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:18	1
Nickel	**0.00134**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:18	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:22	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:22	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:22	1
Nickel	**0.00190**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:22	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Lean-t2hr

Lab Sample ID: 180-115551-29

Date Collected: 12/16/20 14:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:25	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:25	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:25	1
Nickel	**0.00458**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:25	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:29	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:29	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:29	1
Nickel	**0.00451**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:29	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Rich-t2hr

Lab Sample ID: 180-115551-30

Date Collected: 12/16/20 14:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:32	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:32	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:32	1
Nickel	**0.00443**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:32	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:36	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:36	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:36	1
Nickel	**0.00422**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:36	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Lean-t48hr

Lab Sample ID: 180-115551-31

Date Collected: 12/17/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:40	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:40	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:40	1
Nickel	**0.00515**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:40	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:43	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:43	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:43	1
Nickel	**0.00431**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:43	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Rich-t48hr

Lab Sample ID: 180-115551-32

Date Collected: 12/17/20 13:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:47	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:47	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:47	1
Nickel	**0.00532**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:47	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 17:58	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 17:58	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 17:58	1
Nickel	**0.00490**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 17:58	1

Client Sample Results

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Lean-t 1day

Lab Sample ID: 180-115551-33

Date Collected: 12/18/20 12:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 18:01	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 18:01	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 18:01	1
Nickel	**0.00386**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 18:01	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 18:05	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 18:05	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 18:05	1
Nickel	**0.00354**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 18:05	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Rich-t 1 day

Lab Sample ID: 180-115551-34

Date Collected: 12/18/20 12:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 18:08	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 18:08	1
Lithium	**0.00388**	**J**	0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 18:08	1
Nickel	**0.00325**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 18:08	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 18:12	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 18:12	1
Lithium	**0.00366**	**J**	0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 18:12	1
Nickel	**0.00306**		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 18:12	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Lean-t7

Lab Sample ID: 180-115551-35

Date Collected: 12/23/20 12:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/09/21 09:56	01/13/21 14:38	1
Cadmium	ND		0.00100	0.000217	mg/L		01/09/21 09:56	01/13/21 14:38	1
Lithium	ND		0.00500	0.00339	mg/L		01/09/21 09:56	01/13/21 14:38	1
Nickel	**0.00292**		0.00100	0.000336	mg/L		01/09/21 09:56	01/13/21 14:38	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/09/21 09:56	01/13/21 14:42	1
Cadmium	ND		0.00100	0.000217	mg/L		01/09/21 09:56	01/13/21 14:42	1
Lithium	ND		0.00500	0.00339	mg/L		01/09/21 09:56	01/13/21 14:42	1
Nickel	**0.00235**		0.00100	0.000336	mg/L		01/09/21 09:56	01/13/21 14:42	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Rich-t7

Lab Sample ID: 180-115551-36

Date Collected: 12/23/20 12:00

Matrix: Water

Date Received: 01/06/21 09:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/09/21 09:56	01/13/21 14:45	1
Cadmium	ND		0.00100	0.000217	mg/L		01/09/21 09:56	01/13/21 14:45	1
Lithium	**0.00417**	**J**	0.00500	0.00339	mg/L		01/09/21 09:56	01/13/21 14:45	1
Nickel	**0.00348**		0.00100	0.000336	mg/L		01/09/21 09:56	01/13/21 14:45	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/09/21 09:56	01/13/21 15:14	1
Cadmium	ND		0.00100	0.000217	mg/L		01/09/21 09:56	01/13/21 15:14	1
Lithium	**0.00416**	**J**	0.00500	0.00339	mg/L		01/09/21 09:56	01/13/21 15:14	1
Nickel	**0.00305**		0.00100	0.000336	mg/L		01/09/21 09:56	01/13/21 15:14	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Lean-t14
Date Collected: 12/30/20 12:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-37
Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	43.2		1.00	0.713	mg/L			01/07/21 19:31	1
Fluoride	0.299		0.100	0.0260	mg/L			01/12/21 15:49	1
Sulfate	559		10.0	7.56	mg/L			01/07/21 19:47	10

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1.40		0.0300	0.0125	mg/L		01/09/21 09:56	01/13/21 15:36	1
Antimony	0.000827	J	0.00200	0.000378	mg/L		01/09/21 09:56	01/13/21 15:36	1
Arsenic	0.00153		0.00100	0.000313	mg/L		01/09/21 09:56	01/13/21 15:36	1
Barium	0.0369		0.0100	0.00160	mg/L		01/09/21 09:56	01/13/21 15:36	1
Beryllium	ND		0.00100	0.000182	mg/L		01/09/21 09:56	01/13/21 15:36	1
Boron	1.51	B	0.0800	0.0386	mg/L		01/09/21 09:56	01/13/21 15:36	1
Cadmium	ND		0.00100	0.000217	mg/L		01/09/21 09:56	01/13/21 15:36	1
Calcium	251		0.500	0.127	mg/L		01/09/21 09:56	01/13/21 15:36	1
Chromium	0.0521		0.00200	0.00153	mg/L		01/09/21 09:56	01/13/21 15:36	1
Cobalt	0.00384		0.000500	0.000134	mg/L		01/09/21 09:56	01/13/21 15:36	1
Copper	0.00102	J	0.00200	0.000627	mg/L		01/09/21 09:56	01/13/21 15:36	1
Iron	2.78		0.0500	0.0195	mg/L		01/09/21 09:56	01/13/21 15:36	1
Lead	0.000875	J	0.00100	0.000128	mg/L		01/09/21 09:56	01/13/21 15:36	1
Lithium	ND		0.00500	0.00339	mg/L		01/09/21 09:56	01/13/21 15:36	1
Magnesium	15.9		0.500	0.0827	mg/L		01/09/21 09:56	01/13/21 15:36	1
Manganese	1.35		0.00500	0.000866	mg/L		01/09/21 09:56	01/13/21 15:36	1
Molybdenum	0.0177		0.00500	0.000610	mg/L		01/09/21 09:56	01/13/21 15:36	1
Nickel	0.00270		0.00100	0.000336	mg/L		01/09/21 09:56	01/13/21 15:36	1
Potassium	5.33		0.500	0.156	mg/L		01/09/21 09:56	01/13/21 15:36	1
Selenium	ND		0.00500	0.00151	mg/L		01/09/21 09:56	01/13/21 15:36	1
Silver	ND		0.00100	0.000177	mg/L		01/09/21 09:56	01/13/21 15:36	1
Sodium	96.5		0.500	0.348	mg/L		01/09/21 09:56	01/13/21 15:36	1
Thallium	0.000201	J	0.00100	0.000148	mg/L		01/09/21 09:56	01/13/21 15:36	1
Vanadium	0.00448		0.00100	0.000991	mg/L		01/09/21 09:56	01/13/21 15:36	1
Zinc	0.00712		0.00500	0.00322	mg/L		01/09/21 09:56	01/13/21 15:36	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0226	J	0.0300	0.0125	mg/L		01/09/21 09:56	01/13/21 15:39	1
Antimony	0.000524	J	0.00200	0.000378	mg/L		01/09/21 09:56	01/13/21 15:39	1
Arsenic	0.000847	J	0.00100	0.000313	mg/L		01/09/21 09:56	01/13/21 15:39	1
Barium	0.0294		0.0100	0.00160	mg/L		01/09/21 09:56	01/13/21 15:39	1
Beryllium	ND		0.00100	0.000182	mg/L		01/09/21 09:56	01/13/21 15:39	1
Boron	1.58	B	0.0800	0.0386	mg/L		01/09/21 09:56	01/13/21 15:39	1
Cadmium	ND		0.00100	0.000217	mg/L		01/09/21 09:56	01/13/21 15:39	1
Calcium	247		0.500	0.127	mg/L		01/09/21 09:56	01/13/21 15:39	1
Chromium	0.0508		0.00200	0.00153	mg/L		01/09/21 09:56	01/13/21 15:39	1
Cobalt	0.00246		0.000500	0.000134	mg/L		01/09/21 09:56	01/13/21 15:39	1
Copper	ND		0.00200	0.000627	mg/L		01/09/21 09:56	01/13/21 15:39	1
Iron	0.0305	J	0.0500	0.0195	mg/L		01/09/21 09:56	01/13/21 15:39	1
Lead	ND		0.00100	0.000128	mg/L		01/09/21 09:56	01/13/21 15:39	1
Lithium	ND		0.00500	0.00339	mg/L		01/09/21 09:56	01/13/21 15:39	1
Magnesium	15.8		0.500	0.0827	mg/L		01/09/21 09:56	01/13/21 15:39	1
Manganese	1.18		0.00500	0.000866	mg/L		01/09/21 09:56	01/13/21 15:39	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Lean-t14
Date Collected: 12/30/20 12:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-37
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.0180		0.00500	0.000610	mg/L		01/09/21 09:56	01/13/21 15:39	1
Nickel	0.00104		0.00100	0.000336	mg/L		01/09/21 09:56	01/13/21 15:39	1
Potassium	5.10		0.500	0.156	mg/L		01/09/21 09:56	01/13/21 15:39	1
Selenium	ND		0.00500	0.00151	mg/L		01/09/21 09:56	01/13/21 15:39	1
Silver	ND		0.00100	0.000177	mg/L		01/09/21 09:56	01/13/21 15:39	1
Sodium	97.0		0.500	0.348	mg/L		01/09/21 09:56	01/13/21 15:39	1
Thallium	ND		0.00100	0.000148	mg/L		01/09/21 09:56	01/13/21 15:39	1
Vanadium	0.00211		0.00100	0.000991	mg/L		01/09/21 09:56	01/13/21 15:39	1
Zinc	ND		0.00500	0.00322	mg/L		01/09/21 09:56	01/13/21 15:39	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:24	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 09:02	01/15/21 14:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	264		5.00	5.00	mg/L			01/07/21 16:03	1
Bicarbonate Alkalinity as CaCO3	264		5.00	5.00	mg/L			01/07/21 16:03	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/07/21 16:03	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			01/07/21 16:03	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Rich-t14

Date Collected: 12/30/20 12:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-38

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.2		1.00	0.713	mg/L			01/07/21 18:59	1
Fluoride	0.211		0.100	0.0260	mg/L			01/12/21 18:56	1
Sulfate	494		10.0	7.56	mg/L			01/07/21 19:16	10

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.167		0.0300	0.0125	mg/L		01/09/21 09:56	01/13/21 15:43	1
Antimony	0.000541	J	0.00200	0.000378	mg/L		01/09/21 09:56	01/13/21 15:43	1
Arsenic	0.000964	J	0.00100	0.000313	mg/L		01/09/21 09:56	01/13/21 15:43	1
Barium	0.0433		0.0100	0.00160	mg/L		01/09/21 09:56	01/13/21 15:43	1
Beryllium	ND		0.00100	0.000182	mg/L		01/09/21 09:56	01/13/21 15:43	1
Boron	1.93	B	0.0800	0.0386	mg/L		01/09/21 09:56	01/13/21 15:43	1
Cadmium	ND		0.00100	0.000217	mg/L		01/09/21 09:56	01/13/21 15:43	1
Calcium	248		0.500	0.127	mg/L		01/09/21 09:56	01/13/21 15:43	1
Chromium	0.00656		0.00200	0.00153	mg/L		01/09/21 09:56	01/13/21 15:43	1
Cobalt	0.00372		0.000500	0.000134	mg/L		01/09/21 09:56	01/13/21 15:43	1
Copper	ND		0.00200	0.000627	mg/L		01/09/21 09:56	01/13/21 15:43	1
Iron	0.827		0.0500	0.0195	mg/L		01/09/21 09:56	01/13/21 15:43	1
Lead	0.000142	J	0.00100	0.000128	mg/L		01/09/21 09:56	01/13/21 15:43	1
Lithium	ND		0.00500	0.00339	mg/L		01/09/21 09:56	01/13/21 15:43	1
Magnesium	28.9		0.500	0.0827	mg/L		01/09/21 09:56	01/13/21 15:43	1
Manganese	1.23		0.00500	0.000866	mg/L		01/09/21 09:56	01/13/21 15:43	1
Molybdenum	0.00206	J	0.00500	0.000610	mg/L		01/09/21 09:56	01/13/21 15:43	1
Nickel	0.00243		0.00100	0.000336	mg/L		01/09/21 09:56	01/13/21 15:43	1
Potassium	7.52		0.500	0.156	mg/L		01/09/21 09:56	01/13/21 15:43	1
Selenium	ND		0.00500	0.00151	mg/L		01/09/21 09:56	01/13/21 15:43	1
Silver	ND		0.00100	0.000177	mg/L		01/09/21 09:56	01/13/21 15:43	1
Sodium	105		0.500	0.348	mg/L		01/09/21 09:56	01/13/21 15:43	1
Thallium	0.000167	J	0.00100	0.000148	mg/L		01/09/21 09:56	01/13/21 15:43	1
Vanadium	0.00418		0.00100	0.000991	mg/L		01/09/21 09:56	01/13/21 15:43	1
Zinc	ND		0.00500	0.00322	mg/L		01/09/21 09:56	01/13/21 15:43	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0175	J	0.0300	0.0125	mg/L		01/09/21 09:56	01/13/21 15:47	1
Antimony	ND		0.00200	0.000378	mg/L		01/09/21 09:56	01/13/21 15:47	1
Arsenic	0.000844	J	0.00100	0.000313	mg/L		01/09/21 09:56	01/13/21 15:47	1
Barium	0.0393		0.0100	0.00160	mg/L		01/09/21 09:56	01/13/21 15:47	1
Beryllium	ND		0.00100	0.000182	mg/L		01/09/21 09:56	01/13/21 15:47	1
Boron	1.90	B	0.0800	0.0386	mg/L		01/09/21 09:56	01/13/21 15:47	1
Cadmium	ND		0.00100	0.000217	mg/L		01/09/21 09:56	01/13/21 15:47	1
Calcium	233		0.500	0.127	mg/L		01/09/21 09:56	01/13/21 15:47	1
Chromium	0.00649		0.00200	0.00153	mg/L		01/09/21 09:56	01/13/21 15:47	1
Cobalt	0.00284		0.000500	0.000134	mg/L		01/09/21 09:56	01/13/21 15:47	1
Copper	ND		0.00200	0.000627	mg/L		01/09/21 09:56	01/13/21 15:47	1
Iron	ND		0.0500	0.0195	mg/L		01/09/21 09:56	01/13/21 15:47	1
Lead	ND		0.00100	0.000128	mg/L		01/09/21 09:56	01/13/21 15:47	1
Lithium	ND		0.00500	0.00339	mg/L		01/09/21 09:56	01/13/21 15:47	1
Magnesium	28.3		0.500	0.0827	mg/L		01/09/21 09:56	01/13/21 15:47	1
Manganese	0.956		0.00500	0.000866	mg/L		01/09/21 09:56	01/13/21 15:47	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Client Sample ID: GAF-GW-1315-Rich-t14
Date Collected: 12/30/20 12:00
Date Received: 01/06/21 09:00

Lab Sample ID: 180-115551-38
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.00198	J	0.00500	0.000610	mg/L		01/09/21 09:56	01/13/21 15:47	1
Nickel	0.00222		0.00100	0.000336	mg/L		01/09/21 09:56	01/13/21 15:47	1
Potassium	7.41		0.500	0.156	mg/L		01/09/21 09:56	01/13/21 15:47	1
Selenium	ND		0.00500	0.00151	mg/L		01/09/21 09:56	01/13/21 15:47	1
Silver	ND		0.00100	0.000177	mg/L		01/09/21 09:56	01/13/21 15:47	1
Sodium	103		0.500	0.348	mg/L		01/09/21 09:56	01/13/21 15:47	1
Thallium	ND		0.00100	0.000148	mg/L		01/09/21 09:56	01/13/21 15:47	1
Vanadium	0.00300		0.00100	0.000991	mg/L		01/09/21 09:56	01/13/21 15:47	1
Zinc	ND		0.00500	0.00322	mg/L		01/09/21 09:56	01/13/21 15:47	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:27	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 09:02	01/15/21 14:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	336		5.00	5.00	mg/L			01/07/21 15:48	1
Bicarbonate Alkalinity as CaCO3	336		5.00	5.00	mg/L			01/07/21 15:48	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/07/21 15:48	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			01/07/21 15:48	1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-342705/6
Matrix: Water
Analysis Batch: 342705

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00	0.713	mg/L			01/07/21 09:32	1
Sulfate	ND		1.00	0.756	mg/L			01/07/21 09:32	1

Lab Sample ID: LCS 180-342705/5
Matrix: Water
Analysis Batch: 342705

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			50.0	52.04		mg/L		104	80 - 120		
Sulfate			50.0	52.17		mg/L		104	80 - 120		

Lab Sample ID: 180-115550-D-1 MS
Matrix: Water
Analysis Batch: 342705

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	ND		50.0	48.04		mg/L		96	80 - 120		
Sulfate	12.8		50.0	58.55		mg/L		92	80 - 120		

Lab Sample ID: 180-115550-D-1 MSD
Matrix: Water
Analysis Batch: 342705

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		50.0	48.39		mg/L		97	80 - 120	1	15
Sulfate	12.8		50.0	59.08		mg/L		93	80 - 120	1	15

Lab Sample ID: MB 180-343126/6
Matrix: Water
Analysis Batch: 343126

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.100	0.0260	mg/L			01/12/21 15:07	1

Lab Sample ID: LCS 180-343126/5
Matrix: Water
Analysis Batch: 343126

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			2.50	2.335		mg/L		93	80 - 120		

Lab Sample ID: 180-115551-37 MS
Matrix: Water
Analysis Batch: 343126

Client Sample ID: GAF-GW-1315-Lean-t14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	0.299		2.50	2.545		mg/L		90	80 - 120		

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 180-115551-37 MSD
Matrix: Water
Analysis Batch: 343126

Client Sample ID: GAF-GW-1315-Lean-t14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.299		2.50	2.615		mg/L		93	80 - 120	3	15

Lab Sample ID: 180-115551-38 MS
Matrix: Water
Analysis Batch: 343126

Client Sample ID: GAF-GW-1315-Rich-t14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.211		2.50	2.593		mg/L		95	80 - 120

Lab Sample ID: 180-115551-38 MSD
Matrix: Water
Analysis Batch: 343126

Client Sample ID: GAF-GW-1315-Rich-t14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.211		2.50	2.559		mg/L		94	80 - 120	1	15

Method: EPA 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-342883/1-A
Matrix: Water
Analysis Batch: 342917

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 342883

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		01/08/21 14:51	01/09/21 08:27	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 14:51	01/09/21 08:27	1
Arsenic	ND		0.00100	0.000313	mg/L		01/08/21 14:51	01/09/21 08:27	1
Barium	ND		0.0100	0.00160	mg/L		01/08/21 14:51	01/09/21 08:27	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 14:51	01/09/21 08:27	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 14:51	01/09/21 08:27	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 14:51	01/09/21 08:27	1
Calcium	ND		0.500	0.127	mg/L		01/08/21 14:51	01/09/21 08:27	1
Chromium	ND		0.00200	0.00153	mg/L		01/08/21 14:51	01/09/21 08:27	1
Cobalt	ND		0.000500	0.000134	mg/L		01/08/21 14:51	01/09/21 08:27	1
Copper	ND		0.00200	0.000627	mg/L		01/08/21 14:51	01/09/21 08:27	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 14:51	01/09/21 08:27	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 14:51	01/09/21 08:27	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 14:51	01/09/21 08:27	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 14:51	01/09/21 08:27	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 14:51	01/09/21 08:27	1
Molybdenum	ND		0.00500	0.000610	mg/L		01/08/21 14:51	01/09/21 08:27	1
Nickel	ND		0.00100	0.000336	mg/L		01/08/21 14:51	01/09/21 08:27	1
Potassium	ND		0.500	0.156	mg/L		01/08/21 14:51	01/09/21 08:27	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 14:51	01/09/21 08:27	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 14:51	01/09/21 08:27	1
Sodium	ND		0.500	0.348	mg/L		01/08/21 14:51	01/09/21 08:27	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 14:51	01/09/21 08:27	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 14:51	01/09/21 08:27	1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-342883/1-A
Matrix: Water
Analysis Batch: 343242

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 342883

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	ND		0.00100	0.000991	mg/L		01/08/21 14:51	01/09/21 12:19	1

Lab Sample ID: LCS 180-342883/2-A
Matrix: Water
Analysis Batch: 342917

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 342883

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5.00	4.698		mg/L		94	80 - 120
Antimony	0.250	0.2294		mg/L		92	80 - 120
Arsenic	1.00	1.007		mg/L		101	80 - 120
Barium	1.00	0.9659		mg/L		97	80 - 120
Beryllium	0.500	0.4549		mg/L		91	80 - 120
Boron	1.25	1.050		mg/L		84	80 - 120
Cadmium	0.500	0.4885		mg/L		98	80 - 120
Calcium	25.0	26.17		mg/L		105	80 - 120
Chromium	0.500	0.4840		mg/L		97	80 - 120
Cobalt	0.500	0.4948		mg/L		99	80 - 120
Copper	0.500	0.4898		mg/L		98	80 - 120
Iron	5.00	5.054		mg/L		101	80 - 120
Lead	0.500	0.4919		mg/L		98	80 - 120
Lithium	0.500	0.4366		mg/L		87	80 - 120
Magnesium	25.0	23.81		mg/L		95	80 - 120
Manganese	0.500	0.4896		mg/L		98	80 - 120
Molybdenum	0.500	0.4982		mg/L		100	80 - 120
Nickel	0.500	0.4807		mg/L		96	80 - 120
Potassium	25.0	24.23		mg/L		97	80 - 120
Selenium	1.00	0.9958		mg/L		100	80 - 120
Silver	0.250	0.2464		mg/L		99	80 - 120
Sodium	25.0	24.28		mg/L		97	80 - 120
Thallium	1.00	1.009		mg/L		101	80 - 120
Zinc	0.250	0.2550		mg/L		102	80 - 120

Lab Sample ID: LCS 180-342883/2-A
Matrix: Water
Analysis Batch: 343242

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 342883

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vanadium	0.500	0.4837		mg/L		97	80 - 120

Lab Sample ID: LCSD 180-342883/3-A
Matrix: Water
Analysis Batch: 342917

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 342883

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	5.00	4.676		mg/L		94	80 - 120	0	20
Antimony	0.250	0.2279		mg/L		91	80 - 120	1	20
Arsenic	1.00	0.9957		mg/L		100	80 - 120	1	20
Barium	1.00	0.9536		mg/L		95	80 - 120	1	20
Beryllium	0.500	0.4579		mg/L		92	80 - 120	1	20

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 180-342883/3-A
Matrix: Water
Analysis Batch: 342917

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 342883

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	1.25	1.117		mg/L		89	80 - 120	6	20
Cadmium	0.500	0.4833		mg/L		97	80 - 120	1	20
Calcium	25.0	26.09		mg/L		104	80 - 120	0	20
Chromium	0.500	0.4801		mg/L		96	80 - 120	1	20
Cobalt	0.500	0.4855		mg/L		97	80 - 120	2	20
Copper	0.500	0.4797		mg/L		96	80 - 120	2	20
Iron	5.00	5.031		mg/L		101	80 - 120	0	20
Lead	0.500	0.4903		mg/L		98	80 - 120	0	20
Lithium	0.500	0.4289		mg/L		86	80 - 120	2	20
Magnesium	25.0	23.74		mg/L		95	80 - 120	0	20
Manganese	0.500	0.4876		mg/L		98	80 - 120	0	20
Molybdenum	0.500	0.4893		mg/L		98	80 - 120	2	20
Nickel	0.500	0.4775		mg/L		96	80 - 120	1	20
Potassium	25.0	24.11		mg/L		96	80 - 120	0	20
Selenium	1.00	0.9921		mg/L		99	80 - 120	0	20
Silver	0.250	0.2461		mg/L		98	80 - 120	0	20
Sodium	25.0	24.09		mg/L		96	80 - 120	1	20
Thallium	1.00	1.008		mg/L		101	80 - 120	0	20
Zinc	0.250	0.2583		mg/L		103	80 - 120	1	20

Lab Sample ID: LCSD 180-342883/3-A
Matrix: Water
Analysis Batch: 343242

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 342883

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Vanadium	0.500	0.4791		mg/L		96	80 - 120	1	20

Lab Sample ID: MB 180-342888/1-A
Matrix: Water
Analysis Batch: 343242

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 342888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		01/08/21 15:04	01/09/21 14:03	1
Antimony	ND		0.00200	0.000378	mg/L		01/08/21 15:04	01/09/21 14:03	1
Arsenic	ND		0.00100	0.000313	mg/L		01/08/21 15:04	01/09/21 14:03	1
Barium	ND		0.0100	0.00160	mg/L		01/08/21 15:04	01/09/21 14:03	1
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:04	01/09/21 14:03	1
Boron	ND		0.0800	0.0386	mg/L		01/08/21 15:04	01/09/21 14:03	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:04	01/09/21 14:03	1
Calcium	ND		0.500	0.127	mg/L		01/08/21 15:04	01/09/21 14:03	1
Chromium	ND		0.00200	0.00153	mg/L		01/08/21 15:04	01/09/21 14:03	1
Cobalt	ND		0.000500	0.000134	mg/L		01/08/21 15:04	01/09/21 14:03	1
Copper	ND		0.00200	0.000627	mg/L		01/08/21 15:04	01/09/21 14:03	1
Iron	ND		0.0500	0.0195	mg/L		01/08/21 15:04	01/09/21 14:03	1
Lead	ND		0.00100	0.000128	mg/L		01/08/21 15:04	01/09/21 14:03	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:04	01/09/21 14:03	1
Magnesium	ND		0.500	0.0827	mg/L		01/08/21 15:04	01/09/21 14:03	1
Manganese	ND		0.00500	0.000866	mg/L		01/08/21 15:04	01/09/21 14:03	1
Molybdenum	ND		0.00500	0.000610	mg/L		01/08/21 15:04	01/09/21 14:03	1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-342888/1-A
Matrix: Water
Analysis Batch: 343242

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 342888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		0.00100	0.000336	mg/L		01/08/21 15:04	01/09/21 14:03	1
Potassium	ND		0.500	0.156	mg/L		01/08/21 15:04	01/09/21 14:03	1
Selenium	ND		0.00500	0.00151	mg/L		01/08/21 15:04	01/09/21 14:03	1
Silver	ND		0.00100	0.000177	mg/L		01/08/21 15:04	01/09/21 14:03	1
Sodium	ND		0.500	0.348	mg/L		01/08/21 15:04	01/09/21 14:03	1
Thallium	ND		0.00100	0.000148	mg/L		01/08/21 15:04	01/09/21 14:03	1
Vanadium	ND		0.00100	0.000991	mg/L		01/08/21 15:04	01/09/21 14:03	1
Zinc	ND		0.00500	0.00322	mg/L		01/08/21 15:04	01/09/21 14:03	1

Lab Sample ID: LCS 180-342888/2-A
Matrix: Water
Analysis Batch: 343242

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 342888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5.00	4.742		mg/L		95	80 - 120
Antimony	0.250	0.2326		mg/L		93	80 - 120
Arsenic	1.00	0.9722		mg/L		97	80 - 120
Barium	1.00	0.9922		mg/L		99	80 - 120
Beryllium	0.500	0.5010		mg/L		100	80 - 120
Boron	1.25	1.104		mg/L		88	80 - 120
Cadmium	0.500	0.4972		mg/L		99	80 - 120
Calcium	25.0	26.72		mg/L		107	80 - 120
Chromium	0.500	0.4864		mg/L		97	80 - 120
Cobalt	0.500	0.4895		mg/L		98	80 - 120
Copper	0.500	0.4897		mg/L		98	80 - 120
Iron	5.00	5.058		mg/L		101	80 - 120
Lead	0.500	0.4954		mg/L		99	80 - 120
Lithium	0.500	0.4876		mg/L		98	80 - 120
Magnesium	25.0	24.60		mg/L		98	80 - 120
Manganese	0.500	0.4830		mg/L		97	80 - 120
Molybdenum	0.500	0.4976		mg/L		100	80 - 120
Nickel	0.500	0.4821		mg/L		96	80 - 120
Potassium	25.0	24.27		mg/L		97	80 - 120
Selenium	1.00	0.9837		mg/L		98	80 - 120
Silver	0.250	0.2449		mg/L		98	80 - 120
Sodium	25.0	25.60		mg/L		102	80 - 120
Thallium	1.00	1.032		mg/L		103	80 - 120
Vanadium	0.500	0.4889		mg/L		98	80 - 120
Zinc	0.250	0.2484		mg/L		99	80 - 120

Lab Sample ID: LCSD 180-342888/3-A
Matrix: Water
Analysis Batch: 343242

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 342888

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	5.00	4.949		mg/L		99	80 - 120	4	20
Antimony	0.250	0.2320		mg/L		93	80 - 120	0	20
Arsenic	1.00	0.9860		mg/L		99	80 - 120	1	20
Barium	1.00	1.000		mg/L		100	80 - 120	1	20

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 180-342888/3-A
Matrix: Water
Analysis Batch: 343242

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 342888

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Beryllium	0.500	0.4998		mg/L		100	80 - 120	0	20
Boron	1.25	1.146		mg/L		92	80 - 120	4	20
Cadmium	0.500	0.5005		mg/L		100	80 - 120	1	20
Calcium	25.0	27.18		mg/L		109	80 - 120	2	20
Chromium	0.500	0.5028		mg/L		101	80 - 120	3	20
Cobalt	0.500	0.4956		mg/L		99	80 - 120	1	20
Copper	0.500	0.4955		mg/L		99	80 - 120	1	20
Iron	5.00	5.049		mg/L		101	80 - 120	0	20
Lead	0.500	0.5004		mg/L		100	80 - 120	1	20
Lithium	0.500	0.4850		mg/L		97	80 - 120	1	20
Magnesium	25.0	25.33		mg/L		101	80 - 120	3	20
Manganese	0.500	0.4994		mg/L		100	80 - 120	3	20
Molybdenum	0.500	0.5047		mg/L		101	80 - 120	1	20
Nickel	0.500	0.4845		mg/L		97	80 - 120	0	20
Potassium	25.0	24.96		mg/L		100	80 - 120	3	20
Selenium	1.00	0.9919		mg/L		99	80 - 120	1	20
Silver	0.250	0.2471		mg/L		99	80 - 120	1	20
Sodium	25.0	26.47		mg/L		106	80 - 120	3	20
Thallium	1.00	1.031		mg/L		103	80 - 120	0	20
Vanadium	0.500	0.5043		mg/L		101	80 - 120	3	20
Zinc	0.250	0.2452		mg/L		98	80 - 120	1	20

Lab Sample ID: MB 180-342890/1-A
Matrix: Water
Analysis Batch: 343242

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 342890

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.00100	0.000182	mg/L		01/08/21 15:09	01/09/21 15:55	1
Cadmium	ND		0.00100	0.000217	mg/L		01/08/21 15:09	01/09/21 15:55	1
Lithium	ND		0.00500	0.00339	mg/L		01/08/21 15:09	01/09/21 15:55	1
Nickel	ND		0.00100	0.000336	mg/L		01/08/21 15:09	01/09/21 15:55	1

Lab Sample ID: LCS 180-342890/2-A
Matrix: Water
Analysis Batch: 343242

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 342890

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	0.500	0.5146		mg/L		103	80 - 120
Cadmium	0.500	0.4994		mg/L		100	80 - 120
Lithium	0.500	0.4870		mg/L		97	80 - 120
Nickel	0.500	0.4884		mg/L		98	80 - 120

Lab Sample ID: 180-115551-26 MS
Matrix: Water
Analysis Batch: 343242

Client Sample ID: GAF-GW-1315-Hi Cal 0.5-t42
Prep Type: Total Recoverable
Prep Batch: 342890

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	ND		0.500	0.5163		mg/L		103	75 - 125
Cadmium	ND		0.500	0.5005		mg/L		100	75 - 125

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-115551-26 MS
Matrix: Water
Analysis Batch: 343242

Client Sample ID: GAF-GW-1315-Hi Cal 0.5-t42
Prep Type: Total Recoverable
Prep Batch: 342890

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	ND		0.500	0.4974		mg/L		99	75 - 125
Nickel	0.00111		0.500	0.4953		mg/L		99	75 - 125

Lab Sample ID: 180-115551-26 MSD
Matrix: Water
Analysis Batch: 343242

Client Sample ID: GAF-GW-1315-Hi Cal 0.5-t42
Prep Type: Total Recoverable
Prep Batch: 342890

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Beryllium	ND		0.500	0.5115		mg/L		102	75 - 125	1	20
Cadmium	ND		0.500	0.5038		mg/L		101	75 - 125	1	20
Lithium	ND		0.500	0.4947		mg/L		99	75 - 125	1	20
Nickel	0.00111		0.500	0.4932		mg/L		98	75 - 125	0	20

Lab Sample ID: MB 180-342908/1-A
Matrix: Water
Analysis Batch: 343414

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 342908

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		01/09/21 09:56	01/13/21 14:13	1
Antimony	ND		0.00200	0.000378	mg/L		01/09/21 09:56	01/13/21 14:13	1
Arsenic	ND		0.00100	0.000313	mg/L		01/09/21 09:56	01/13/21 14:13	1
Barium	ND		0.0100	0.00160	mg/L		01/09/21 09:56	01/13/21 14:13	1
Beryllium	ND		0.00100	0.000182	mg/L		01/09/21 09:56	01/13/21 14:13	1
Boron	0.04715	J	0.0800	0.0386	mg/L		01/09/21 09:56	01/13/21 14:13	1
Cadmium	ND		0.00100	0.000217	mg/L		01/09/21 09:56	01/13/21 14:13	1
Calcium	ND		0.500	0.127	mg/L		01/09/21 09:56	01/13/21 14:13	1
Chromium	ND		0.00200	0.00153	mg/L		01/09/21 09:56	01/13/21 14:13	1
Cobalt	ND		0.000500	0.000134	mg/L		01/09/21 09:56	01/13/21 14:13	1
Copper	ND		0.00200	0.000627	mg/L		01/09/21 09:56	01/13/21 14:13	1
Iron	ND		0.0500	0.0195	mg/L		01/09/21 09:56	01/13/21 14:13	1
Lead	ND		0.00100	0.000128	mg/L		01/09/21 09:56	01/13/21 14:13	1
Lithium	ND		0.00500	0.00339	mg/L		01/09/21 09:56	01/13/21 14:13	1
Magnesium	ND		0.500	0.0827	mg/L		01/09/21 09:56	01/13/21 14:13	1
Manganese	ND		0.00500	0.000866	mg/L		01/09/21 09:56	01/13/21 14:13	1
Molybdenum	ND		0.00500	0.000610	mg/L		01/09/21 09:56	01/13/21 14:13	1
Nickel	ND		0.00100	0.000336	mg/L		01/09/21 09:56	01/13/21 14:13	1
Potassium	ND		0.500	0.156	mg/L		01/09/21 09:56	01/13/21 14:13	1
Selenium	ND		0.00500	0.00151	mg/L		01/09/21 09:56	01/13/21 14:13	1
Silver	ND		0.00100	0.000177	mg/L		01/09/21 09:56	01/13/21 14:13	1
Sodium	ND		0.500	0.348	mg/L		01/09/21 09:56	01/13/21 14:13	1
Thallium	ND		0.00100	0.000148	mg/L		01/09/21 09:56	01/13/21 14:13	1
Vanadium	ND		0.00100	0.000991	mg/L		01/09/21 09:56	01/13/21 14:13	1
Zinc	ND		0.00500	0.00322	mg/L		01/09/21 09:56	01/13/21 14:13	1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-342908/2-A
Matrix: Water
Analysis Batch: 343414

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 342908

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5.00	4.938		mg/L		99	80 - 120
Antimony	0.250	0.2318		mg/L		93	80 - 120
Arsenic	1.00	0.9881		mg/L		99	80 - 120
Barium	1.00	0.9848		mg/L		98	80 - 120
Beryllium	0.500	0.5049		mg/L		101	80 - 120
Boron	1.25	1.155		mg/L		92	80 - 120
Cadmium	0.500	0.4952		mg/L		99	80 - 120
Calcium	25.0	26.87		mg/L		107	80 - 120
Chromium	0.500	0.4974		mg/L		99	80 - 120
Cobalt	0.500	0.5013		mg/L		100	80 - 120
Copper	0.500	0.4962		mg/L		99	80 - 120
Iron	5.00	5.083		mg/L		102	80 - 120
Lead	0.500	0.5053		mg/L		101	80 - 120
Lithium	0.500	0.4877		mg/L		98	80 - 120
Magnesium	25.0	26.03		mg/L		104	80 - 120
Manganese	0.500	0.4919		mg/L		98	80 - 120
Molybdenum	0.500	0.5040		mg/L		101	80 - 120
Nickel	0.500	0.4893		mg/L		98	80 - 120
Potassium	25.0	24.78		mg/L		99	80 - 120
Selenium	1.00	0.9970		mg/L		100	80 - 120
Silver	0.250	0.2477		mg/L		99	80 - 120
Sodium	25.0	26.77		mg/L		107	80 - 120
Thallium	1.00	1.059		mg/L		106	80 - 120
Vanadium	0.500	0.5033		mg/L		101	80 - 120
Zinc	0.250	0.2530		mg/L		101	80 - 120

Lab Sample ID: 180-115551-36 MS
Matrix: Water
Analysis Batch: 343414

Client Sample ID: GAF-GW-1315-Rich-t7
Prep Type: Total Recoverable
Prep Batch: 342908

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	0.0912		5.00	5.031		mg/L		99	75 - 125
Antimony	0.000511	J	0.250	0.2311		mg/L		92	75 - 125
Arsenic	0.000887	J	1.00	0.9980		mg/L		100	75 - 125
Barium	0.0475		1.00	1.009		mg/L		96	75 - 125
Beryllium	ND		0.500	0.5012		mg/L		100	75 - 125
Boron	1.79	B	1.25	2.767		mg/L		78	75 - 125
Cadmium	ND		0.500	0.4773		mg/L		95	75 - 125
Calcium	272		25.0	292.8	4	mg/L		84	75 - 125
Chromium	0.0195		0.500	0.5024		mg/L		97	75 - 125
Cobalt	0.00543		0.500	0.4985		mg/L		99	75 - 125
Copper	ND		0.500	0.4901		mg/L		98	75 - 125
Iron	0.353		5.00	5.292		mg/L		99	75 - 125
Lead	ND		0.500	0.4964		mg/L		99	75 - 125
Lithium	0.00417	J	0.500	0.4793		mg/L		95	75 - 125
Magnesium	25.7		25.0	51.16		mg/L		102	75 - 125
Manganese	2.33		0.500	2.765	4	mg/L		88	75 - 125
Molybdenum	0.00449	J	0.500	0.5056		mg/L		100	75 - 125
Nickel	0.00348		0.500	0.4851		mg/L		96	75 - 125

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-115551-36 MS
Matrix: Water
Analysis Batch: 343414

Client Sample ID: GAF-GW-1315-Rich-t7
Prep Type: Total Recoverable
Prep Batch: 342908

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Potassium	7.57		25.0	32.07		mg/L		98	75 - 125
Selenium	ND		1.00	0.9678		mg/L		97	75 - 125
Silver	ND		0.250	0.2495		mg/L		100	75 - 125
Sodium	102		25.0	127.8	4	mg/L		103	75 - 125
Thallium	ND		1.00	1.063		mg/L		106	75 - 125
Vanadium	0.00381		0.500	0.5058		mg/L		100	75 - 125
Zinc	ND		0.250	0.2557		mg/L		102	75 - 125

Lab Sample ID: 180-115551-36 MSD
Matrix: Water
Analysis Batch: 343414

Client Sample ID: GAF-GW-1315-Rich-t7
Prep Type: Total Recoverable
Prep Batch: 342908

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	0.0912		5.00	5.053		mg/L		99	75 - 125	0	20
Antimony	0.000511	J	0.250	0.2324		mg/L		93	75 - 125	1	20
Arsenic	0.000887	J	1.00	0.9956		mg/L		99	75 - 125	0	20
Barium	0.0475		1.00	1.027		mg/L		98	75 - 125	2	20
Beryllium	ND		0.500	0.4993		mg/L		100	75 - 125	0	20
Boron	1.79	B	1.25	2.864		mg/L		86	75 - 125	3	20
Cadmium	ND		0.500	0.4876		mg/L		98	75 - 125	2	20
Calcium	272		25.0	295.7	4	mg/L		96	75 - 125	1	20
Chromium	0.0195		0.500	0.5089		mg/L		98	75 - 125	1	20
Cobalt	0.00543		0.500	0.5017		mg/L		99	75 - 125	1	20
Copper	ND		0.500	0.4950		mg/L		99	75 - 125	1	20
Iron	0.353		5.00	5.397		mg/L		101	75 - 125	2	20
Lead	ND		0.500	0.5023		mg/L		100	75 - 125	1	20
Lithium	0.00417	J	0.500	0.4838		mg/L		96	75 - 125	1	20
Magnesium	25.7		25.0	51.40		mg/L		103	75 - 125	0	20
Manganese	2.33		0.500	2.805	4	mg/L		96	75 - 125	1	20
Molybdenum	0.00449	J	0.500	0.5082		mg/L		101	75 - 125	1	20
Nickel	0.00348		0.500	0.4883		mg/L		97	75 - 125	1	20
Potassium	7.57		25.0	31.99		mg/L		98	75 - 125	0	20
Selenium	ND		1.00	0.9774		mg/L		98	75 - 125	1	20
Silver	ND		0.250	0.2471		mg/L		99	75 - 125	1	20
Sodium	102		25.0	129.6	4	mg/L		110	75 - 125	1	20
Thallium	ND		1.00	1.049		mg/L		105	75 - 125	1	20
Vanadium	0.00381		0.500	0.5095		mg/L		101	75 - 125	1	20
Zinc	ND		0.250	0.2542		mg/L		102	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-343277/1-A
Matrix: Water
Analysis Batch: 343644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 343277

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:56	01/15/21 14:54	1

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 180-343277/2-A
Matrix: Water
Analysis Batch: 343644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 343277

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00250	0.002593		mg/L		104	80 - 120		

Lab Sample ID: 180-115793-F-1-E MS
Matrix: Water
Analysis Batch: 343644

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 343277

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND	F1	0.00100	0.001143		mg/L		114	75 - 125		

Lab Sample ID: 180-115793-F-1-F MSD
Matrix: Water
Analysis Batch: 343644

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 343277

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	F1	0.00100	0.001351	F1	mg/L		135	75 - 125	17	20

Lab Sample ID: MB 180-343278/1-A
Matrix: Water
Analysis Batch: 343644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 343278

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/13/21 08:59	01/15/21 14:22	1

Lab Sample ID: LCS 180-343278/2-A
Matrix: Water
Analysis Batch: 343644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 343278

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00250	0.002589		mg/L		104	80 - 120		

Lab Sample ID: 180-115551-37 MS
Matrix: Water
Analysis Batch: 343644

Client Sample ID: GAF-GW-1315-Lean-t14
Prep Type: Total/NA
Prep Batch: 343278

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		0.00100	0.0009220		mg/L		92	75 - 125		

Lab Sample ID: 180-115551-37 MSD
Matrix: Water
Analysis Batch: 343644

Client Sample ID: GAF-GW-1315-Lean-t14
Prep Type: Total/NA
Prep Batch: 343278

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.0009080		mg/L		91	75 - 125	2	20

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-342807/54
Matrix: Water
Analysis Batch: 342807

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	ND		5.00	5.00	mg/L			01/07/21 15:41	1
Bicarbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/07/21 15:41	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/07/21 15:41	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			01/07/21 15:41	1

Lab Sample ID: LCS 180-342807/53
Matrix: Water
Analysis Batch: 342807

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Alkalinity as CaCO3 to pH 4.5			250	241.5		mg/L		97	90 - 110		

Lab Sample ID: 180-115551-38 DU
Matrix: Water
Analysis Batch: 342807

Client Sample ID: GAF-GW-1315-Rich-t14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	336			334.2		mg/L				0.6	20
Bicarbonate Alkalinity as CaCO3	336			334.2		mg/L				0.6	20
Carbonate Alkalinity as CaCO3	ND			ND		mg/L				NC	20
Hydroxide Alkalinity	ND			ND		mg/L				NC	20

HPLC/IC

Analysis Batch: 342705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-2	GAF-GW-1316-Lean-T2-Mid	Total/NA	Water	EPA 9056A	
180-115551-2	GAF-GW-1316-Lean-T2-Mid	Total/NA	Water	EPA 9056A	
180-115551-7	GAF-GW-1316-Rich-T2-Mid	Total/NA	Water	EPA 9056A	
180-115551-12	GAF-GW-1316-Lean-T2-End	Total/NA	Water	EPA 9056A	
180-115551-12	GAF-GW-1316-Lean-T2-End	Total/NA	Water	EPA 9056A	
180-115551-17	GAF-GW-1316-Rich-T2-End	Total/NA	Water	EPA 9056A	
180-115551-17	GAF-GW-1316-Rich-T2-End	Total/NA	Water	EPA 9056A	
180-115551-37	GAF-GW-1315-Lean-t14	Total/NA	Water	EPA 9056A	
180-115551-37	GAF-GW-1315-Lean-t14	Total/NA	Water	EPA 9056A	
180-115551-38	GAF-GW-1315-Rich-t14	Total/NA	Water	EPA 9056A	
180-115551-38	GAF-GW-1315-Rich-t14	Total/NA	Water	EPA 9056A	
MB 180-342705/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-342705/5	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-115550-D-1 MS	Matrix Spike	Total/NA	Water	EPA 9056A	
180-115550-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 9056A	

Analysis Batch: 343126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-2	GAF-GW-1316-Lean-T2-Mid	Total/NA	Water	EPA 9056A	
180-115551-7	GAF-GW-1316-Rich-T2-Mid	Total/NA	Water	EPA 9056A	
180-115551-12	GAF-GW-1316-Lean-T2-End	Total/NA	Water	EPA 9056A	
180-115551-17	GAF-GW-1316-Rich-T2-End	Total/NA	Water	EPA 9056A	
180-115551-37	GAF-GW-1315-Lean-t14	Total/NA	Water	EPA 9056A	
180-115551-38	GAF-GW-1315-Rich-t14	Total/NA	Water	EPA 9056A	
MB 180-343126/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-343126/5	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-115551-37 MS	GAF-GW-1315-Lean-t14	Total/NA	Water	EPA 9056A	
180-115551-37 MSD	GAF-GW-1315-Lean-t14	Total/NA	Water	EPA 9056A	
180-115551-38 MS	GAF-GW-1315-Rich-t14	Total/NA	Water	EPA 9056A	
180-115551-38 MSD	GAF-GW-1315-Rich-t14	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 342883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Dissolved	Water	3005A	
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Total Recoverable	Water	3005A	
180-115551-2	GAF-GW-1316-Lean-T2-Mid	Dissolved	Water	3005A	
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Dissolved	Water	3005A	
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Total Recoverable	Water	3005A	
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Dissolved	Water	3005A	
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Total Recoverable	Water	3005A	
180-115551-5	GAF-GW-1316-Lean-T5-Mid	Total Recoverable	Water	3005A	
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Dissolved	Water	3005A	
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Total Recoverable	Water	3005A	
180-115551-7	GAF-GW-1316-Rich-T2-Mid	Dissolved	Water	3005A	
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Dissolved	Water	3005A	
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Total Recoverable	Water	3005A	
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Dissolved	Water	3005A	
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Total Recoverable	Water	3005A	
180-115551-10	GAF-GW-1316-Rich-T5-Mid	Total Recoverable	Water	3005A	

Metals (Continued)

Prep Batch: 342883 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-11	GAF-GW-1316-Lean-T1-End	Dissolved	Water	3005A	
180-115551-11	GAF-GW-1316-Lean-T1-End	Total Recoverable	Water	3005A	
180-115551-12	GAF-GW-1316-Lean-T2-End	Dissolved	Water	3005A	
180-115551-13	GAF-GW-1316-Lean-T3-End	Total Recoverable	Water	3005A	
MB 180-342883/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-342883/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 180-342883/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Prep Batch: 342888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-13	GAF-GW-1316-Lean-T3-End	Dissolved	Water	3005A	
180-115551-14	GAF-GW-1316-Lean-T4-End	Dissolved	Water	3005A	
180-115551-14	GAF-GW-1316-Lean-T4-End	Total Recoverable	Water	3005A	
180-115551-15	GAF-GW-1316-Lean-T5-End	Total Recoverable	Water	3005A	
180-115551-16	GAF-GW-1316-Rich-T1-End	Dissolved	Water	3005A	
180-115551-16	GAF-GW-1316-Rich-T1-End	Total Recoverable	Water	3005A	
180-115551-17	GAF-GW-1316-Rich-T2-End	Dissolved	Water	3005A	
180-115551-18	GAF-GW-1316-Rich-T3-End	Dissolved	Water	3005A	
180-115551-18	GAF-GW-1316-Rich-T3-End	Total Recoverable	Water	3005A	
180-115551-19	GAF-GW-1316-Rich-T4-End	Dissolved	Water	3005A	
180-115551-19	GAF-GW-1316-Rich-T4-End	Total Recoverable	Water	3005A	
180-115551-20	GAF-GW-1316-Rich-T5-End	Total Recoverable	Water	3005A	
180-115551-21	GAF-GW-1315-Control-t28	Dissolved	Water	3005A	
180-115551-21	GAF-GW-1315-Control-t28	Total Recoverable	Water	3005A	
180-115551-22	GAF-GW-1315-Hi Cal 0.5-t28	Dissolved	Water	3005A	
180-115551-22	GAF-GW-1315-Hi Cal 0.5-t28	Total Recoverable	Water	3005A	
180-115551-23	GAF-GW-1315-Dolo 0.5-t28	Dissolved	Water	3005A	
180-115551-23	GAF-GW-1315-Dolo 0.5-t28	Total Recoverable	Water	3005A	
180-115551-24	GAF-GW-1315-Dolo 1.0-t28	Dissolved	Water	3005A	
180-115551-24	GAF-GW-1315-Dolo 1.0-t28	Total Recoverable	Water	3005A	
MB 180-342888/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-342888/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 180-342888/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Prep Batch: 342890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-25	GAF-GW-1315-Control-t42	Dissolved	Water	3005A	
180-115551-25	GAF-GW-1315-Control-t42	Total Recoverable	Water	3005A	
180-115551-26	GAF-GW-1315-Hi Cal 0.5-t42	Dissolved	Water	3005A	
180-115551-26	GAF-GW-1315-Hi Cal 0.5-t42	Total Recoverable	Water	3005A	
180-115551-27	GAF-GW-1315-Dolo 0.5-t42	Dissolved	Water	3005A	
180-115551-27	GAF-GW-1315-Dolo 0.5-t42	Total Recoverable	Water	3005A	
180-115551-28	GAF-GW-1315-Dolo 1.0-t42	Dissolved	Water	3005A	
180-115551-28	GAF-GW-1315-Dolo 1.0-t42	Total Recoverable	Water	3005A	
180-115551-29	GAF-GW-1315-Lean-t2hr	Dissolved	Water	3005A	
180-115551-29	GAF-GW-1315-Lean-t2hr	Total Recoverable	Water	3005A	
180-115551-30	GAF-GW-1315-Rich-t2hr	Dissolved	Water	3005A	
180-115551-30	GAF-GW-1315-Rich-t2hr	Total Recoverable	Water	3005A	
180-115551-31	GAF-GW-1315-Lean-t48hr	Dissolved	Water	3005A	
180-115551-31	GAF-GW-1315-Lean-t48hr	Total Recoverable	Water	3005A	
180-115551-32	GAF-GW-1315-Rich-t48hr	Dissolved	Water	3005A	

Metals (Continued)

Prep Batch: 342890 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-32	GAF-GW-1315-Rich-t48hr	Total Recoverable	Water	3005A	
180-115551-33	GAF-GW-1315-Lean-t 1day	Dissolved	Water	3005A	
180-115551-33	GAF-GW-1315-Lean-t 1day	Total Recoverable	Water	3005A	
180-115551-34	GAF-GW-1315-Rich-t 1 day	Dissolved	Water	3005A	
180-115551-34	GAF-GW-1315-Rich-t 1 day	Total Recoverable	Water	3005A	
MB 180-342890/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-342890/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-115551-26 MS	GAF-GW-1315-Hi Cal 0.5-t42	Total Recoverable	Water	3005A	
180-115551-26 MSD	GAF-GW-1315-Hi Cal 0.5-t42	Total Recoverable	Water	3005A	

Prep Batch: 342908

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-35	GAF-GW-1315-Lean-t7	Dissolved	Water	3005A	
180-115551-35	GAF-GW-1315-Lean-t7	Total Recoverable	Water	3005A	
180-115551-36	GAF-GW-1315-Rich-t7	Dissolved	Water	3005A	
180-115551-36	GAF-GW-1315-Rich-t7	Total Recoverable	Water	3005A	
180-115551-37	GAF-GW-1315-Lean-t14	Dissolved	Water	3005A	
180-115551-37	GAF-GW-1315-Lean-t14	Total Recoverable	Water	3005A	
180-115551-38	GAF-GW-1315-Rich-t14	Dissolved	Water	3005A	
180-115551-38	GAF-GW-1315-Rich-t14	Total Recoverable	Water	3005A	
MB 180-342908/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-342908/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-115551-36 MS	GAF-GW-1315-Rich-t7	Total Recoverable	Water	3005A	
180-115551-36 MSD	GAF-GW-1315-Rich-t7	Total Recoverable	Water	3005A	

Analysis Batch: 342917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-2	GAF-GW-1316-Lean-T2-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-5	GAF-GW-1316-Lean-T5-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-7	GAF-GW-1316-Rich-T2-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-10	GAF-GW-1316-Rich-T5-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-11	GAF-GW-1316-Lean-T1-End	Dissolved	Water	EPA 6020A	342883
180-115551-11	GAF-GW-1316-Lean-T1-End	Total Recoverable	Water	EPA 6020A	342883
180-115551-12	GAF-GW-1316-Lean-T2-End	Dissolved	Water	EPA 6020A	342883
180-115551-13	GAF-GW-1316-Lean-T3-End	Total Recoverable	Water	EPA 6020A	342883
MB 180-342883/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	342883
LCS 180-342883/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	342883
LCSD 180-342883/3-A	Lab Control Sample Dup	Total Recoverable	Water	EPA 6020A	342883

QC Association Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-115551-1

Metals

Analysis Batch: 343242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-2	GAF-GW-1316-Lean-T2-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-5	GAF-GW-1316-Lean-T5-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-7	GAF-GW-1316-Rich-T2-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Dissolved	Water	EPA 6020A	342883
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-10	GAF-GW-1316-Rich-T5-Mid	Total Recoverable	Water	EPA 6020A	342883
180-115551-11	GAF-GW-1316-Lean-T1-End	Dissolved	Water	EPA 6020A	342883
180-115551-11	GAF-GW-1316-Lean-T1-End	Total Recoverable	Water	EPA 6020A	342883
180-115551-12	GAF-GW-1316-Lean-T2-End	Dissolved	Water	EPA 6020A	342883
180-115551-13	GAF-GW-1316-Lean-T3-End	Dissolved	Water	EPA 6020A	342888
180-115551-13	GAF-GW-1316-Lean-T3-End	Total Recoverable	Water	EPA 6020A	342883
180-115551-14	GAF-GW-1316-Lean-T4-End	Dissolved	Water	EPA 6020A	342888
180-115551-14	GAF-GW-1316-Lean-T4-End	Total Recoverable	Water	EPA 6020A	342888
180-115551-15	GAF-GW-1316-Lean-T5-End	Total Recoverable	Water	EPA 6020A	342888
180-115551-16	GAF-GW-1316-Rich-T1-End	Dissolved	Water	EPA 6020A	342888
180-115551-16	GAF-GW-1316-Rich-T1-End	Total Recoverable	Water	EPA 6020A	342888
180-115551-17	GAF-GW-1316-Rich-T2-End	Dissolved	Water	EPA 6020A	342888
180-115551-18	GAF-GW-1316-Rich-T3-End	Dissolved	Water	EPA 6020A	342888
180-115551-18	GAF-GW-1316-Rich-T3-End	Total Recoverable	Water	EPA 6020A	342888
180-115551-19	GAF-GW-1316-Rich-T4-End	Dissolved	Water	EPA 6020A	342888
180-115551-19	GAF-GW-1316-Rich-T4-End	Total Recoverable	Water	EPA 6020A	342888
180-115551-20	GAF-GW-1316-Rich-T5-End	Total Recoverable	Water	EPA 6020A	342888
180-115551-21	GAF-GW-1315-Control-t28	Dissolved	Water	EPA 6020A	342888
180-115551-21	GAF-GW-1315-Control-t28	Total Recoverable	Water	EPA 6020A	342888
180-115551-22	GAF-GW-1315-Hi Cal 0.5-t28	Dissolved	Water	EPA 6020A	342888
180-115551-22	GAF-GW-1315-Hi Cal 0.5-t28	Total Recoverable	Water	EPA 6020A	342888
180-115551-23	GAF-GW-1315-Dolo 0.5-t28	Dissolved	Water	EPA 6020A	342888
180-115551-23	GAF-GW-1315-Dolo 0.5-t28	Total Recoverable	Water	EPA 6020A	342888
180-115551-24	GAF-GW-1315-Dolo 1.0-t28	Dissolved	Water	EPA 6020A	342888
180-115551-24	GAF-GW-1315-Dolo 1.0-t28	Total Recoverable	Water	EPA 6020A	342888
180-115551-25	GAF-GW-1315-Control-t42	Dissolved	Water	EPA 6020A	342890
180-115551-25	GAF-GW-1315-Control-t42	Total Recoverable	Water	EPA 6020A	342890
180-115551-26	GAF-GW-1315-Hi Cal 0.5-t42	Dissolved	Water	EPA 6020A	342890
180-115551-26	GAF-GW-1315-Hi Cal 0.5-t42	Total Recoverable	Water	EPA 6020A	342890
180-115551-27	GAF-GW-1315-Dolo 0.5-t42	Dissolved	Water	EPA 6020A	342890
180-115551-27	GAF-GW-1315-Dolo 0.5-t42	Total Recoverable	Water	EPA 6020A	342890
180-115551-28	GAF-GW-1315-Dolo 1.0-t42	Dissolved	Water	EPA 6020A	342890
180-115551-28	GAF-GW-1315-Dolo 1.0-t42	Total Recoverable	Water	EPA 6020A	342890
180-115551-29	GAF-GW-1315-Lean-t2hr	Dissolved	Water	EPA 6020A	342890
180-115551-29	GAF-GW-1315-Lean-t2hr	Total Recoverable	Water	EPA 6020A	342890
180-115551-30	GAF-GW-1315-Rich-t2hr	Dissolved	Water	EPA 6020A	342890

Metals (Continued)

Analysis Batch: 343242 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-30	GAF-GW-1315-Rich-t2hr	Total Recoverable	Water	EPA 6020A	342890
180-115551-31	GAF-GW-1315-Lean-t48hr	Dissolved	Water	EPA 6020A	342890
180-115551-31	GAF-GW-1315-Lean-t48hr	Total Recoverable	Water	EPA 6020A	342890
180-115551-32	GAF-GW-1315-Rich-t48hr	Dissolved	Water	EPA 6020A	342890
180-115551-32	GAF-GW-1315-Rich-t48hr	Total Recoverable	Water	EPA 6020A	342890
180-115551-33	GAF-GW-1315-Lean-t 1day	Dissolved	Water	EPA 6020A	342890
180-115551-33	GAF-GW-1315-Lean-t 1day	Total Recoverable	Water	EPA 6020A	342890
180-115551-34	GAF-GW-1315-Rich-t 1 day	Dissolved	Water	EPA 6020A	342890
180-115551-34	GAF-GW-1315-Rich-t 1 day	Total Recoverable	Water	EPA 6020A	342890
MB 180-342883/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	342883
MB 180-342888/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	342888
MB 180-342890/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	342890
LCS 180-342883/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	342883
LCS 180-342888/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	342888
LCS 180-342890/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	342890
LCSD 180-342883/3-A	Lab Control Sample Dup	Total Recoverable	Water	EPA 6020A	342883
LCSD 180-342888/3-A	Lab Control Sample Dup	Total Recoverable	Water	EPA 6020A	342888
180-115551-26 MS	GAF-GW-1315-Hi Cal 0.5-t42	Total Recoverable	Water	EPA 6020A	342890
180-115551-26 MSD	GAF-GW-1315-Hi Cal 0.5-t42	Total Recoverable	Water	EPA 6020A	342890

Prep Batch: 343277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Total/NA	Water	7470A	
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Total/NA	Water	7470A	
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Total/NA	Water	7470A	
180-115551-5	GAF-GW-1316-Lean-T5-Mid	Total/NA	Water	7470A	
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Total/NA	Water	7470A	
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Total/NA	Water	7470A	
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Total/NA	Water	7470A	
180-115551-10	GAF-GW-1316-Rich-T5-Mid	Total/NA	Water	7470A	
180-115551-11	GAF-GW-1316-Lean-T1-End	Total/NA	Water	7470A	
180-115551-13	GAF-GW-1316-Lean-T3-End	Total/NA	Water	7470A	
180-115551-14	GAF-GW-1316-Lean-T4-End	Total/NA	Water	7470A	
180-115551-15	GAF-GW-1316-Lean-T5-End	Total/NA	Water	7470A	
180-115551-16	GAF-GW-1316-Rich-T1-End	Total/NA	Water	7470A	
180-115551-18	GAF-GW-1316-Rich-T3-End	Total/NA	Water	7470A	
180-115551-19	GAF-GW-1316-Rich-T4-End	Total/NA	Water	7470A	
180-115551-20	GAF-GW-1316-Rich-T5-End	Total/NA	Water	7470A	
MB 180-343277/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-343277/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-115793-F-1-E MS	Matrix Spike	Total/NA	Water	7470A	
180-115793-F-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Prep Batch: 343278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Dissolved	Water	7470A	
180-115551-2	GAF-GW-1316-Lean-T2-Mid	Dissolved	Water	7470A	
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Dissolved	Water	7470A	
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Dissolved	Water	7470A	
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Dissolved	Water	7470A	
180-115551-7	GAF-GW-1316-Rich-T2-Mid	Dissolved	Water	7470A	

Metals (Continued)

Prep Batch: 343278 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Dissolved	Water	7470A	
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Dissolved	Water	7470A	
180-115551-11	GAF-GW-1316-Lean-T1-End	Dissolved	Water	7470A	
180-115551-12	GAF-GW-1316-Lean-T2-End	Dissolved	Water	7470A	
180-115551-13	GAF-GW-1316-Lean-T3-End	Dissolved	Water	7470A	
180-115551-14	GAF-GW-1316-Lean-T4-End	Dissolved	Water	7470A	
180-115551-16	GAF-GW-1316-Rich-T1-End	Dissolved	Water	7470A	
180-115551-17	GAF-GW-1316-Rich-T2-End	Dissolved	Water	7470A	
180-115551-18	GAF-GW-1316-Rich-T3-End	Dissolved	Water	7470A	
180-115551-19	GAF-GW-1316-Rich-T4-End	Dissolved	Water	7470A	
180-115551-37	GAF-GW-1315-Lean-t14	Dissolved	Water	7470A	
180-115551-37	GAF-GW-1315-Lean-t14	Total/NA	Water	7470A	
180-115551-38	GAF-GW-1315-Rich-t14	Dissolved	Water	7470A	
180-115551-38	GAF-GW-1315-Rich-t14	Total/NA	Water	7470A	
MB 180-343278/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-343278/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-115551-37 MS	GAF-GW-1315-Lean-t14	Total/NA	Water	7470A	
180-115551-37 MSD	GAF-GW-1315-Lean-t14	Total/NA	Water	7470A	

Analysis Batch: 343414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-35	GAF-GW-1315-Lean-t7	Dissolved	Water	EPA 6020A	342908
180-115551-35	GAF-GW-1315-Lean-t7	Total Recoverable	Water	EPA 6020A	342908
180-115551-36	GAF-GW-1315-Rich-t7	Dissolved	Water	EPA 6020A	342908
180-115551-36	GAF-GW-1315-Rich-t7	Total Recoverable	Water	EPA 6020A	342908
180-115551-37	GAF-GW-1315-Lean-t14	Dissolved	Water	EPA 6020A	342908
180-115551-37	GAF-GW-1315-Lean-t14	Total Recoverable	Water	EPA 6020A	342908
180-115551-38	GAF-GW-1315-Rich-t14	Dissolved	Water	EPA 6020A	342908
180-115551-38	GAF-GW-1315-Rich-t14	Total Recoverable	Water	EPA 6020A	342908
MB 180-342908/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	342908
LCS 180-342908/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	342908
180-115551-36 MS	GAF-GW-1315-Rich-t7	Total Recoverable	Water	EPA 6020A	342908
180-115551-36 MSD	GAF-GW-1315-Rich-t7	Total Recoverable	Water	EPA 6020A	342908

Analysis Batch: 343644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Dissolved	Water	EPA 7470A	343278
180-115551-1	GAF-GW-1316-Lean-T1-Mid	Total/NA	Water	EPA 7470A	343277
180-115551-2	GAF-GW-1316-Lean-T2-Mid	Dissolved	Water	EPA 7470A	343278
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Dissolved	Water	EPA 7470A	343278
180-115551-3	GAF-GW-1316-Lean-T3-Mid	Total/NA	Water	EPA 7470A	343277
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Dissolved	Water	EPA 7470A	343278
180-115551-4	GAF-GW-1316-Lean-T4-Mid	Total/NA	Water	EPA 7470A	343277
180-115551-5	GAF-GW-1316-Lean-T5-Mid	Total/NA	Water	EPA 7470A	343277
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Dissolved	Water	EPA 7470A	343278
180-115551-6	GAF-GW-1316-Rich-T1-Mid	Total/NA	Water	EPA 7470A	343277
180-115551-7	GAF-GW-1316-Rich-T2-Mid	Dissolved	Water	EPA 7470A	343278
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Dissolved	Water	EPA 7470A	343278
180-115551-8	GAF-GW-1316-Rich-T3-Mid	Total/NA	Water	EPA 7470A	343277
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Dissolved	Water	EPA 7470A	343278
180-115551-9	GAF-GW-1316-Rich-T4-Mid	Total/NA	Water	EPA 7470A	343277

Metals (Continued)

Analysis Batch: 343644 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-10	GAF-GW-1316-Rich-T5-Mid	Total/NA	Water	EPA 7470A	343277
180-115551-11	GAF-GW-1316-Lean-T1-End	Dissolved	Water	EPA 7470A	343278
180-115551-11	GAF-GW-1316-Lean-T1-End	Total/NA	Water	EPA 7470A	343277
180-115551-12	GAF-GW-1316-Lean-T2-End	Dissolved	Water	EPA 7470A	343278
180-115551-13	GAF-GW-1316-Lean-T3-End	Dissolved	Water	EPA 7470A	343278
180-115551-13	GAF-GW-1316-Lean-T3-End	Total/NA	Water	EPA 7470A	343277
180-115551-14	GAF-GW-1316-Lean-T4-End	Dissolved	Water	EPA 7470A	343278
180-115551-14	GAF-GW-1316-Lean-T4-End	Total/NA	Water	EPA 7470A	343277
180-115551-15	GAF-GW-1316-Lean-T5-End	Total/NA	Water	EPA 7470A	343277
180-115551-16	GAF-GW-1316-Rich-T1-End	Dissolved	Water	EPA 7470A	343278
180-115551-16	GAF-GW-1316-Rich-T1-End	Total/NA	Water	EPA 7470A	343277
180-115551-17	GAF-GW-1316-Rich-T2-End	Dissolved	Water	EPA 7470A	343278
180-115551-18	GAF-GW-1316-Rich-T3-End	Dissolved	Water	EPA 7470A	343278
180-115551-18	GAF-GW-1316-Rich-T3-End	Total/NA	Water	EPA 7470A	343277
180-115551-19	GAF-GW-1316-Rich-T4-End	Dissolved	Water	EPA 7470A	343278
180-115551-19	GAF-GW-1316-Rich-T4-End	Total/NA	Water	EPA 7470A	343277
180-115551-20	GAF-GW-1316-Rich-T5-End	Total/NA	Water	EPA 7470A	343277
180-115551-37	GAF-GW-1315-Lean-t14	Dissolved	Water	EPA 7470A	343278
180-115551-37	GAF-GW-1315-Lean-t14	Total/NA	Water	EPA 7470A	343278
180-115551-38	GAF-GW-1315-Rich-t14	Dissolved	Water	EPA 7470A	343278
180-115551-38	GAF-GW-1315-Rich-t14	Total/NA	Water	EPA 7470A	343278
MB 180-343277/1-A	Method Blank	Total/NA	Water	EPA 7470A	343277
MB 180-343278/1-A	Method Blank	Total/NA	Water	EPA 7470A	343278
LCS 180-343277/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	343277
LCS 180-343278/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	343278
180-115551-37 MS	GAF-GW-1315-Lean-t14	Total/NA	Water	EPA 7470A	343278
180-115551-37 MSD	GAF-GW-1315-Lean-t14	Total/NA	Water	EPA 7470A	343278
180-115793-F-1-E MS	Matrix Spike	Total/NA	Water	EPA 7470A	343277
180-115793-F-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	343277

General Chemistry

Analysis Batch: 342807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-115551-2	GAF-GW-1316-Lean-T2-Mid	Total/NA	Water	SM2320 B	
180-115551-7	GAF-GW-1316-Rich-T2-Mid	Total/NA	Water	SM2320 B	
180-115551-12	GAF-GW-1316-Lean-T2-End	Total/NA	Water	SM2320 B	
180-115551-17	GAF-GW-1316-Rich-T2-End	Total/NA	Water	SM2320 B	
180-115551-37	GAF-GW-1315-Lean-t14	Total/NA	Water	SM2320 B	
180-115551-38	GAF-GW-1315-Rich-t14	Total/NA	Water	SM2320 B	
MB 180-342807/54	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-342807/53	Lab Control Sample	Total/NA	Water	SM2320 B	
180-115551-38 DU	GAF-GW-1315-Rich-t14	Total/NA	Water	SM2320 B	

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CHAIN OF CUSTO

301 Alpha Drive
Pittsburgh, PA 15238
(413) 789-9018

180-115551 Chain of Custody

Special Handling:

☑ TAT - Date Needed: 14-day TAT

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: Franciscos Barajas
AECOM
9400 Amberglen Blvd
Austin, TX 78729
Telephone #: 978-905-2299
Project Mgr: Craig MacPhee

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr.
Chelmsford, MA 01824
P.O No.: Quote #:

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Rachel Watkins, Craig Katkic

F=Field Filtered **1**=Na_2S2O_3 **2**=HCl **3**=H_2SO_4 **4**=HNO_3 **5**=NaOH **6**=Ascorbic Acid
7=CH3OH **8**=$NaHSO_4$ **9**=Deionized Water **10**=H_3PO_4 **11**= **12**=

DW=Drinking Water **GW**=Groundwater **SW**=Surface Water **WW**=Waste Water
O=Oil **SO**=Soil **SL**=Sludge **A**=Indoor/Ambient Air **SG**=Soil Gas
X1= 1316 leachate X2=

G= Grab **C**=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analysis: 6020 Totals -Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	6020 Dissolved-Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	9056A-Cl, F, SO4	2320B- Alkalinity (Total hydroixe, bicarbonate, carbonate)
						List Preservative Code below:				4	4		
	GAF-GW-1316-Lean-T1-Mid	12/29/2020	1:00 PM	G	X1				2	x	x		
	GAF-GW-1316-Lean-T2-Mid	12/29/2020	1:00 PM	G	X1				2		x	x	x
	GAF-GW-1316-Lean-T3-Mid	12/29/2020	1:00 PM	G	X1				2	x	x		
	GAF-GW-1316-Lean-T4-Mid	12/29/2020	1:00 PM	G	X1				2	x	x		
	GAF-GW-1316-Lean-T5-Mid	12/29/2020	1:00 PM	G	X1				2	x			
	GAF-GW-1316-Rich-T1-Mid	12/29/2020	1:00 PM	G	X1				2	x	x		
	GAF-GW-1316-Rich-T2-Mid	12/29/2020	1:00 PM	G	X1				2		x	x	x
	GAF-GW-1316-Rich-T3-Mid	12/29/2020	1:00 PM	G	X1				2	x	x		
	GAF-GW-1316-Rich-T4-Mid	12/29/2020	1:00 PM	G	X1				2	x	x		
	GAF-GW-1316-Rich-T5-Mid	12/29/2020	1:00 PM	G	X1				2	x			

QA/QC Reporting Notes:

QA/QC Reporting Level
☐ Level I ☐ Level II ☐ Level III ☐ Level IV
☐ Other
State-specific reporting standards:

Relinquished by:	Received by:	Date:	Time:
Rachel Watkins		1/5/2021	1500
	Craig	1/6/21	900

Temp °C: Observed; Correction Factor; Corrected; IR ID #

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Oil Jar Froze

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CHAIN OF CUSTODY RECORD

301 Alpha Drive
Pittsburgh, PA 15238
(413) 789-9018

Special Handling:

☑TAT - Date Needed: 14-day

All TATs subject to laboratory approval
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Report To: Franciscos Barajas
AECOM
9400 Amberglen Blvd
Austin, TX 78729
Telephone #: 978-905-2299
Project Mgr: Craig MacPhee

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr.
Chelmsford, MA 01824
P.O No.: Quote #:

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Rachel Watkins, Craig Katkic

F=Field Filtered **1**=Na_2S2O_3 **2**=HCl **3**=H_2SO_4 **4**=HNO_3 **5**=NaOH **6**=Ascorbic Acid
7=CH3OH **8**=$NaHSO_4$ **9**=Deionized Water **10**=H_3PO_4 **11**= **12**=

DW=Drinking Water **GW**=Groundwater **SW**=Surface Water **WW**=Waste Water
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Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	6020 Totals -Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	6020 Dissolved-Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	9056A-Cl, F, SO4	2320B- Alkalinity (Total hydroixe, bicarbonate, carbonate)					
						Containers				Analysis								
						List Preservative Code below:				4	4							
	GAF-GW-1316-Lean-T1-End	12/30/2020	1:00 PM	G	X1				2	x	x							
	GAF-GW-1316-Lean-T2-End	12/30/2020	1:00 PM	G	X1				2		x	x	x					
	GAF-GW-1316-Lean-T3-End	12/30/2020	1:00 PM	G	X1				2	x	x							
	GAF-GW-1316-Lean-T4-End	12/30/2020	1:00 PM	G	X1				2	x	x							
	GAF-GW-1316-Lean-T5-End	12/30/2020	1:00 PM	G	X1				2	x								
	GAF-GW-1316-Rich-T1-End	12/30/2020	1:00 PM	G	X1				2	x	x							
	GAF-GW-1316-Rich-T2-End	12/30/2020	1:00 PM	G	X1				2		x	x	x					
	GAF-GW-1316-Rich-T3-End	12/30/2020	1:00 PM	G	X1				2	x	x							
	GAF-GW-1316-Rich-T4-End	12/30/2020	1:00 PM	G	X1				2	x	x							
	GAF-GW-1316-Rich-T5-End	12/30/2020	1:00 PM	G	X1				2	x								

QA/QC Reporting Notes:

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other
State-specific reporting standards:

Relinquished by:	Received by:	Date:	Time:
Rachel Watkins		1/5/2021	1500
	My	1/6/21	900

Temp °C
Observed
Correction Factor
Corrected
IR ID #

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Froze

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CHAIN OF CUSTODY RECORD

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Pittsburgh, PA 15238
(413) 789-9018

Special Handling:

☑ TAT - Date Needed: 14-day

All TATs subject to laboratory approval
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Report To:	Franciscos Barajas
	AECOM
	9400 Amberglen Blvd
	Austin, TX 78729
Telephone #:	978-905-2299
Project Mgr:	Craig MacPhee

Invoice To:	Craig MacPhee
	AECOM
	250 Apollo Dr.
	Chelmsford, MA 01824
P.O No.:	
Quote #:	

Project No:	TVA Gallatin EIP
Site Name:	GAF-NRS-Treatability
Location:	State:
Sampler(s):	Rachel Watkins, Craig Katkic

F=Field Filtered **1**=Na_2S2O_3 **2**=HCl **3**=H_2SO_4 **4**=HNO_3 **5**=NaOH **6**=Ascorbic Acid
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X1= X2= 1315 leachate

G= Grab **C**=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analysis: 6020 Totals -Be, Cd, Li, Ni only	6020 Dissolved-Be, Cd, Li, Ni only						
						List Preservative Code below:				4	4						
	GAF-GW-1315-Control-t28	12/21/2020	12:40 PM	G	X2				2	x	x						
	GAF-GW-1315-Hi Cal 0.5-t28	12/21/2020	12:40 PM	G	X2				2	x	x						
	GAF-GW-1315-Dolo 0.5-t28	12/21/2020	12:40 PM	G	X2				2	x	x						
	GAF-GW-1315-Dolo 1.0-t28	12/21/2020	12:40 PM	G	X2				2	x	x						
	GAF-GW-1315-Control-t42	1/4/2021	12:40 PM	G	X2				2	x	x						
	GAF-GW-1315-Hi Cal 0.5-t42	1/4/2021	12:40 PM	G	X2				2	x	x						
	GAF-GW-1315-Dolo 0.5-t42	1/4/2021	12:40 PM	G	X2				2	x	x						
	GAF-GW-1315-Dolo 1.0-t42	1/4/2021	12:40 PM	G	X2				2	x	x						
	GAF-GW-1315-Lean-t2hr	12/16/2020	2:00 PM	G	X2				2	x	x						
	GAF-GW-1315-Rich-t2hr	12/16/2020	2:00 PM	G	X2				2	x	x						

QA/QC Reporting Notes:

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other
State-specific reporting standards

Relinquished by:	Received by:	Date:	Time:
Rachel Watkins		1/5/2021	1500
	MJ	1/6/21	900

Temp °C	
Observed	
Correction Factor	
Corrected	
IR ID #	

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Froze

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CHAIN OF CUS

180-115551 Chain of Custody

301 Alpha Drive
Pittsburgh, PA 15238
(413) 789-9018

Special Handling:

☑ TAT - Date Needed: 14-day

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Report To: Franciscos Barajas
AECOM
9400 Amberglen Blvd
Austin, TX 78729
Telephone #: 978-905-2299
Project Mgr: Craig MacPhee

Invoice To: Craig MacPhee
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250 Apollo Dr.
Chelmsford, MA 01824
P.O No.: Quote #:

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Rachel Watkins, Craig Katkic

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X1= X2= 1315 leachate

G= Grab **C**=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	6020 Totals -Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	6020 Dissolved-Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	9056A-Cl, F, SO4	2320B- Alkalinity (Total hydroxide, bicarbonate, carbonate)	6020 Totals- Be, Cd, Li and Ni only	6020 Dissolved - Be, Cd, Li, Ni only			QA/QC Reporting Notes:
						Containers				Analysis								
										List Preservative Code below:								
										4	4							
	GAF-GW-1315-Lean-t48hr	12/17/2020	1:00 PM	G	X2				2					x	x			
	GAF-GW-1315-Rich-t48hr	12/17/2020	1:00 PM	G	X2				2					x	x			
	GAF-GW-1315-Lean-t 1day	12/18/2020	12:00 PM	G	X2				2					x	x			
	GAF-GW-1315-Rich-t 1day	12/18/2020	12:00 PM	G	X2				2					x	x			
	GAF-GW-1315-Lean-t7	12/23/2020	12:00 PM	G	X2				2					x	x			
	GAF-GW-1315-Rich-t7	12/23/2020	12:00 PM	G	X2				2					x	x			
	GAF-GW-1315-Lean-t14	12/30/2020	12:00 PM	G	X2				3	x	x	x	x					
	GAF-GW-1315-Rich-t14	12/30/2020	12:00 PM	G	X2				3	x	x	x	x					

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other:
State-specific reporting standards

Relinquished by:	Received by:	Date:	Time:
Rachel Watkins		1/5/2021	1500
	MJ	1/6/2021	900

Temp °C
Observed
Correction Factor
Corrected
IR ID #

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Oil Jar Froze

Login Sample Receipt Checklist

Client: Environmental Standards Inc. Job Number: 180-115551-1

Login Number: 115551 **List Source: Eurofins TestAmerica, Pittsburgh**
List Number: 1
Creator: Abernathy, Eric

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-116485-1
Client Project/Site: GAF-NRS-Treatability

For:
Environmental Standards Inc.
1140 Valley Forge Road
PO BOX 810
Valley Forge, Pennsylvania 19482-0810

Attn: Jennifer N. Gable

Authorized for release by:
2/3/2021 2:36:46 PM

Jennifer Rumble, Project Manager I
(412)963-7058
Jennifer.Rumble@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

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Job ID: 180-116485-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-116485-1

Receipt
The samples were received on 1/27/2021 8:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.8º C.

GC Semi VOA
Method 9056A: The matrix spike and matrix spike duplicate (MS/MSD) recoveries for the following sample associated with analytical batch 180-344973 were outside control limits for Sulfate: (180-116485-A-4 MS) and (180-116485-A-4 MSD). The associated laboratory control sample (LCS) recovery met acceptance criteria.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Environmental Standards Inc. Job ID: 180-116485-1
Project/Site: GAF-NRS-Treatability

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Environmental Standards Inc. Job ID: 180-116485-1
Project/Site: GAF-NRS-Treatability

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-21
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20 *
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-21
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	01-31-22
Wisconsin	State	998027800	08-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-116485-1	GAF-GW-1315-CONTROL-T63	Water	01/25/21 12:40	01/27/21 08:30	
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Water	01/25/21 12:40	01/27/21 08:30	
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Water	01/25/21 12:40	01/27/21 08:30	
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Water	01/25/21 12:40	01/27/21 08:30	

Method Summary

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM2320 B	Alkalinity, Total	SM18	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Client Sample ID: GAF-GW-1315-CONTROL-T63

Lab Sample ID: 180-116485-1
Date Collected: 01/25/21 12:40
Matrix: Water
Date Received: 01/27/21 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			344973	01/29/21 14:23	EPS	TAL PIT
	Instrument ID: INTEGRION									
Total/NA	Analysis	EPA 9056A		10			344973	01/29/21 14:44	EPS	TAL PIT
	Instrument ID: INTEGRION									
Dissolved	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			345118	01/30/21 16:41	RJR	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			345350	02/02/21 11:57	RJR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			345118	01/30/21 16:27	RJR	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			345350	02/02/21 11:42	RJR	TAL PIT
	Instrument ID: NEMO									
Dissolved	Prep	7470A			25 mL	25 mL	345076	01/30/21 09:30	KHM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			345310	02/02/21 11:34	KHM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	345076	01/30/21 09:30	KHM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			345310	02/02/21 11:33	KHM	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	SM2320 B		1			345136	01/28/21 15:19	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1315-HI CAL 0.5-T63

Lab Sample ID: 180-116485-2
Date Collected: 01/25/21 12:40
Matrix: Water
Date Received: 01/27/21 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			344973	01/29/21 15:47	EPS	TAL PIT
	Instrument ID: INTEGRION									
Total/NA	Analysis	EPA 9056A		10			344973	01/29/21 16:08	EPS	TAL PIT
	Instrument ID: INTEGRION									
Dissolved	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			345118	01/30/21 16:45	RJR	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			345350	02/02/21 12:00	RJR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			345118	01/30/21 16:30	RJR	TAL PIT
	Instrument ID: DORY									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Client Sample ID: GAF-GW-1315-HI CAL 0.5-T63

Lab Sample ID: 180-116485-2
Date Collected: 01/25/21 12:40
Matrix: Water
Date Received: 01/27/21 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			345350	02/02/21 11:44	RJR	TAL PIT
	Instrument ID: NEMO									
Dissolved	Prep	7470A			25 mL	25 mL	345076	01/30/21 09:30	KHM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			345310	02/02/21 11:40	KHM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	345076	01/30/21 09:30	KHM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			345310	02/02/21 11:36	KHM	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	SM2320 B		1			345136	01/28/21 15:26	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Client Sample ID: GAF-GW-1315-DOLO 0.5-T63

Lab Sample ID: 180-116485-3
Date Collected: 01/25/21 12:40
Matrix: Water
Date Received: 01/27/21 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			344973	01/29/21 13:42	EPS	TAL PIT
	Instrument ID: INTEGRION									
Total/NA	Analysis	EPA 9056A		10			344973	01/29/21 14:02	EPS	TAL PIT
	Instrument ID: INTEGRION									
Dissolved	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			345118	01/30/21 16:48	RJR	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			345350	02/02/21 12:03	RJR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			345118	01/30/21 16:34	RJR	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			345350	02/02/21 11:47	RJR	TAL PIT
	Instrument ID: NEMO									
Dissolved	Prep	7470A			25 mL	25 mL	345076	01/30/21 09:30	KHM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			345310	02/02/21 11:42	KHM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	345076	01/30/21 09:30	KHM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			345310	02/02/21 11:41	KHM	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	SM2320 B		1			345136	01/28/21 15:46	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Lab Chronicle

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Client Sample ID: GAF-GW-1315-DOLO 1.0-T63

Date Collected: 01/25/21 12:40
Date Received: 01/27/21 08:30

Lab Sample ID: 180-116485-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			344973	01/29/21 12:18	EPS	TAL PIT
	Instrument ID: INTEGRION									
Total/NA	Analysis	EPA 9056A		10			344973	01/29/21 12:39	EPS	TAL PIT
	Instrument ID: INTEGRION									
Dissolved	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			345118	01/30/21 16:59	RJR	TAL PIT
	Instrument ID: DORY									
Dissolved	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Dissolved	Analysis	EPA 6020A		1			345350	02/02/21 12:05	RJR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			345118	01/30/21 16:38	RJR	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	345016	01/29/21 11:27	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			345350	02/02/21 11:50	RJR	TAL PIT
	Instrument ID: NEMO									
Dissolved	Prep	7470A			25 mL	25 mL	345076	01/30/21 09:30	KHM	TAL PIT
Dissolved	Analysis	EPA 7470A		1			345310	02/02/21 11:44	KHM	TAL PIT
	Instrument ID: HGY									
Total/NA	Prep	7470A			25 mL	25 mL	345076	01/30/21 09:30	KHM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			345310	02/02/21 11:43	KHM	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	SM2320 B		1			345136	01/28/21 16:00	AVS	TAL PIT
	Instrument ID: PCTITRATOR									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KHM = Kyle Mucroski
TJO = Tyler Oliver

Batch Type: Analysis

AVS = Abbey Smith
EPS = Evan Scheuer
KHM = Kyle Mucroski
RJR = Ron Rosenbaum

Client Sample ID: GAF-GW-1315-CONTROL-T63

Lab Sample ID: 180-116485-1

Date Collected: 01/25/21 12:40

Matrix: Water

Date Received: 01/27/21 08:30

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41.9**		1.00	0.713	mg/L			01/29/21 14:23	1
Fluoride	**0.228**		0.100	0.0260	mg/L			01/29/21 14:23	1
Sulfate	**770**		10.0	7.56	mg/L			01/29/21 14:44	10

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.273**		0.0300	0.0125	mg/L		01/29/21 11:27	01/30/21 16:27	1
Antimony	ND		0.00200	0.000378	mg/L		01/29/21 11:27	01/30/21 16:27	1
Arsenic	ND		0.00100	0.000313	mg/L		01/29/21 11:27	01/30/21 16:27	1
Barium	**0.0215**		0.0100	0.00160	mg/L		01/29/21 11:27	01/30/21 16:27	1
Beryllium	ND		0.00100	0.000182	mg/L		01/29/21 11:27	01/30/21 16:27	1
Boron	**1.52**		0.0800	0.0386	mg/L		01/29/21 11:27	02/02/21 11:42	1
Cadmium	ND		0.00100	0.000217	mg/L		01/29/21 11:27	01/30/21 16:27	1
Calcium	**268**		0.500	0.127	mg/L		01/29/21 11:27	01/30/21 16:27	1
Chromium	ND		0.00200	0.00153	mg/L		01/29/21 11:27	01/30/21 16:27	1
Cobalt	**0.00730**		0.000500	0.000134	mg/L		01/29/21 11:27	01/30/21 16:27	1
Copper	ND		0.00200	0.000627	mg/L		01/29/21 11:27	01/30/21 16:27	1
Iron	**0.530**		0.0500	0.0195	mg/L		01/29/21 11:27	01/30/21 16:27	1
Lead	**0.000169**	**J**	0.00100	0.000128	mg/L		01/29/21 11:27	01/30/21 16:27	1
Lithium	ND		0.00500	0.00339	mg/L		01/29/21 11:27	01/30/21 16:27	1
Magnesium	**31.9**		0.500	0.0827	mg/L		01/29/21 11:27	01/30/21 16:27	1
Manganese	**5.90**		0.00500	0.000866	mg/L		01/29/21 11:27	01/30/21 16:27	1
Molybdenum	ND		0.00500	0.000610	mg/L		01/29/21 11:27	01/30/21 16:27	1
Nickel	**0.00272**		0.00100	0.000336	mg/L		01/29/21 11:27	01/30/21 16:27	1
Potassium	**5.49**		0.500	0.156	mg/L		01/29/21 11:27	01/30/21 16:27	1
Selenium	ND		0.00500	0.00151	mg/L		01/29/21 11:27	01/30/21 16:27	1
Silver	ND		0.00100	0.000177	mg/L		01/29/21 11:27	01/30/21 16:27	1
Sodium	**98.0**		0.500	0.348	mg/L		01/29/21 11:27	01/30/21 16:27	1
Thallium	**0.000846**	**J**	0.00100	0.000148	mg/L		01/29/21 11:27	01/30/21 16:27	1
Vanadium	ND		0.00100	0.000991	mg/L		01/29/21 11:27	01/30/21 16:27	1
Zinc	**0.00410**	**J**	0.00500	0.00322	mg/L		01/29/21 11:27	01/30/21 16:27	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		01/29/21 11:27	01/30/21 16:41	1
Antimony	ND		0.00200	0.000378	mg/L		01/29/21 11:27	01/30/21 16:41	1
Arsenic	ND		0.00100	0.000313	mg/L		01/29/21 11:27	01/30/21 16:41	1
Barium	**0.0198**		0.0100	0.00160	mg/L		01/29/21 11:27	01/30/21 16:41	1
Beryllium	ND		0.00100	0.000182	mg/L		01/29/21 11:27	01/30/21 16:41	1
Boron	**1.54**		0.0800	0.0386	mg/L		01/29/21 11:27	02/02/21 11:57	1
Cadmium	ND		0.00100	0.000217	mg/L		01/29/21 11:27	01/30/21 16:41	1
Calcium	**246**		0.500	0.127	mg/L		01/29/21 11:27	01/30/21 16:41	1
Chromium	ND		0.00200	0.00153	mg/L		01/29/21 11:27	01/30/21 16:41	1
Cobalt	**0.00574**		0.000500	0.000134	mg/L		01/29/21 11:27	01/30/21 16:41	1
Copper	ND		0.00200	0.000627	mg/L		01/29/21 11:27	01/30/21 16:41	1
Iron	ND		0.0500	0.0195	mg/L		01/29/21 11:27	01/30/21 16:41	1
Lead	ND		0.00100	0.000128	mg/L		01/29/21 11:27	01/30/21 16:41	1
Lithium	ND		0.00500	0.00339	mg/L		01/29/21 11:27	01/30/21 16:41	1
Magnesium	**30.8**		0.500	0.0827	mg/L		01/29/21 11:27	01/30/21 16:41	1
Manganese	**5.05**		0.00500	0.000866	mg/L		01/29/21 11:27	01/30/21 16:41	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Client Sample ID: GAF-GW-1315-CONTROL-T63
Date Collected: 01/25/21 12:40
Date Received: 01/27/21 08:30

Lab Sample ID: 180-116485-1
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		0.00500	0.000610	mg/L		01/29/21 11:27	01/30/21 16:41	1
Nickel	**0.00213**		0.00100	0.000336	mg/L		01/29/21 11:27	01/30/21 16:41	1
Potassium	**5.32**		0.500	0.156	mg/L		01/29/21 11:27	01/30/21 16:41	1
Selenium	ND		0.00500	0.00151	mg/L		01/29/21 11:27	01/30/21 16:41	1
Silver	ND		0.00100	0.000177	mg/L		01/29/21 11:27	01/30/21 16:41	1
Sodium	**96.3**		0.500	0.348	mg/L		01/29/21 11:27	01/30/21 16:41	1
Thallium	**0.000757**	**J**	0.00100	0.000148	mg/L		01/29/21 11:27	01/30/21 16:41	1
Vanadium	ND		0.00100	0.000991	mg/L		01/29/21 11:27	01/30/21 16:41	1
Zinc	ND		0.00500	0.00322	mg/L		01/29/21 11:27	01/30/21 16:41	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000198**	**J**	0.000200	0.000130	mg/L		01/30/21 09:30	02/02/21 11:33	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.000161**	**J**	0.000200	0.000130	mg/L		01/30/21 09:30	02/02/21 11:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**262**		5.00	5.00	mg/L			01/28/21 15:19	1
Bicarbonate Alkalinity as CaCO3	**262**		5.00	5.00	mg/L			01/28/21 15:19	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/28/21 15:19	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			01/28/21 15:19	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Client Sample ID: GAF-GW-1315-HI CAL 0.5-T63

Date Collected: 01/25/21 12:40
Date Received: 01/27/21 08:30

Lab Sample ID: 180-116485-2

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	46.2		1.00	0.713	mg/L			01/29/21 15:47	1
Fluoride	0.215		0.100	0.0260	mg/L			01/29/21 15:47	1
Sulfate	628		10.0	7.56	mg/L			01/29/21 16:08	10

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.344		0.0300	0.0125	mg/L		01/29/21 11:27	01/30/21 16:30	1
Antimony	0.000457	J	0.00200	0.000378	mg/L		01/29/21 11:27	01/30/21 16:30	1
Arsenic	0.000444	J	0.00100	0.000313	mg/L		01/29/21 11:27	01/30/21 16:30	1
Barium	0.0254		0.0100	0.00160	mg/L		01/29/21 11:27	01/30/21 16:30	1
Beryllium	ND		0.00100	0.000182	mg/L		01/29/21 11:27	01/30/21 16:30	1
Boron	1.48		0.0800	0.0386	mg/L		01/29/21 11:27	02/02/21 11:44	1
Cadmium	ND		0.00100	0.000217	mg/L		01/29/21 11:27	01/30/21 16:30	1
Calcium	307		0.500	0.127	mg/L		01/29/21 11:27	01/30/21 16:30	1
Chromium	ND		0.00200	0.00153	mg/L		01/29/21 11:27	01/30/21 16:30	1
Cobalt	0.00386		0.000500	0.000134	mg/L		01/29/21 11:27	01/30/21 16:30	1
Copper	ND		0.00200	0.000627	mg/L		01/29/21 11:27	01/30/21 16:30	1
Iron	1.05		0.0500	0.0195	mg/L		01/29/21 11:27	01/30/21 16:30	1
Lead	0.000245	J	0.00100	0.000128	mg/L		01/29/21 11:27	01/30/21 16:30	1
Lithium	ND		0.00500	0.00339	mg/L		01/29/21 11:27	01/30/21 16:30	1
Magnesium	24.4		0.500	0.0827	mg/L		01/29/21 11:27	01/30/21 16:30	1
Manganese	2.70		0.00500	0.000866	mg/L		01/29/21 11:27	01/30/21 16:30	1
Molybdenum	0.00116	J	0.00500	0.000610	mg/L		01/29/21 11:27	01/30/21 16:30	1
Nickel	0.00144		0.00100	0.000336	mg/L		01/29/21 11:27	01/30/21 16:30	1
Potassium	6.12		0.500	0.156	mg/L		01/29/21 11:27	01/30/21 16:30	1
Selenium	ND		0.00500	0.00151	mg/L		01/29/21 11:27	01/30/21 16:30	1
Silver	0.000574	J	0.00100	0.000177	mg/L		01/29/21 11:27	01/30/21 16:30	1
Sodium	92.6		0.500	0.348	mg/L		01/29/21 11:27	01/30/21 16:30	1
Thallium	0.000211	J	0.00100	0.000148	mg/L		01/29/21 11:27	01/30/21 16:30	1
Vanadium	ND		0.00100	0.000991	mg/L		01/29/21 11:27	01/30/21 16:30	1
Zinc	0.00439	J	0.00500	0.00322	mg/L		01/29/21 11:27	01/30/21 16:30	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		01/29/21 11:27	01/30/21 16:45	1
Antimony	0.000396	J	0.00200	0.000378	mg/L		01/29/21 11:27	01/30/21 16:45	1
Arsenic	ND		0.00100	0.000313	mg/L		01/29/21 11:27	01/30/21 16:45	1
Barium	0.0220		0.0100	0.00160	mg/L		01/29/21 11:27	01/30/21 16:45	1
Beryllium	ND		0.00100	0.000182	mg/L		01/29/21 11:27	01/30/21 16:45	1
Boron	1.43		0.0800	0.0386	mg/L		01/29/21 11:27	02/02/21 12:00	1
Cadmium	ND		0.00100	0.000217	mg/L		01/29/21 11:27	01/30/21 16:45	1
Calcium	294		0.500	0.127	mg/L		01/29/21 11:27	01/30/21 16:45	1
Chromium	ND		0.00200	0.00153	mg/L		01/29/21 11:27	01/30/21 16:45	1
Cobalt	0.00202		0.000500	0.000134	mg/L		01/29/21 11:27	01/30/21 16:45	1
Copper	ND		0.00200	0.000627	mg/L		01/29/21 11:27	01/30/21 16:45	1
Iron	ND		0.0500	0.0195	mg/L		01/29/21 11:27	01/30/21 16:45	1
Lead	ND		0.00100	0.000128	mg/L		01/29/21 11:27	01/30/21 16:45	1
Lithium	ND		0.00500	0.00339	mg/L		01/29/21 11:27	01/30/21 16:45	1
Magnesium	24.6		0.500	0.0827	mg/L		01/29/21 11:27	01/30/21 16:45	1
Manganese	2.01		0.00500	0.000866	mg/L		01/29/21 11:27	01/30/21 16:45	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Client Sample ID: GAF-GW-1315-HI CAL 0.5-T63
Date Collected: 01/25/21 12:40
Date Received: 01/27/21 08:30

Lab Sample ID: 180-116485-2
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	**0.00110**	**J**	0.00500	0.000610	mg/L		01/29/21 11:27	01/30/21 16:45	1
Nickel	**0.000922**	**J**	0.00100	0.000336	mg/L		01/29/21 11:27	01/30/21 16:45	1
Potassium	**6.03**		0.500	0.156	mg/L		01/29/21 11:27	01/30/21 16:45	1
Selenium	ND		0.00500	0.00151	mg/L		01/29/21 11:27	01/30/21 16:45	1
Silver	ND		0.00100	0.000177	mg/L		01/29/21 11:27	01/30/21 16:45	1
Sodium	**92.7**		0.500	0.348	mg/L		01/29/21 11:27	01/30/21 16:45	1
Thallium	**0.000197**	**J**	0.00100	0.000148	mg/L		01/29/21 11:27	01/30/21 16:45	1
Vanadium	ND		0.00100	0.000991	mg/L		01/29/21 11:27	01/30/21 16:45	1
Zinc	ND		0.00500	0.00322	mg/L		01/29/21 11:27	01/30/21 16:45	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/30/21 09:30	02/02/21 11:36	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/30/21 09:30	02/02/21 11:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**367**		5.00	5.00	mg/L			01/28/21 15:26	1
Bicarbonate Alkalinity as CaCO3	**367**		5.00	5.00	mg/L			01/28/21 15:26	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/28/21 15:26	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			01/28/21 15:26	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Client Sample ID: GAF-GW-1315-DOLO 0.5-T63

Date Collected: 01/25/21 12:40
Date Received: 01/27/21 08:30

Lab Sample ID: 180-116485-3

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	46.3		1.00	0.713	mg/L			01/29/21 13:42	1
Fluoride	0.190		0.100	0.0260	mg/L			01/29/21 13:42	1
Sulfate	810		10.0	7.56	mg/L			01/29/21 14:02	10

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.422		0.0300	0.0125	mg/L		01/29/21 11:27	01/30/21 16:34	1
Antimony	ND		0.00200	0.000378	mg/L		01/29/21 11:27	01/30/21 16:34	1
Arsenic	0.000454	J	0.00100	0.000313	mg/L		01/29/21 11:27	01/30/21 16:34	1
Barium	0.0198		0.0100	0.00160	mg/L		01/29/21 11:27	01/30/21 16:34	1
Beryllium	ND		0.00100	0.000182	mg/L		01/29/21 11:27	01/30/21 16:34	1
Boron	1.47		0.0800	0.0386	mg/L		01/29/21 11:27	02/02/21 11:47	1
Cadmium	ND		0.00100	0.000217	mg/L		01/29/21 11:27	01/30/21 16:34	1
Calcium	319		0.500	0.127	mg/L		01/29/21 11:27	01/30/21 16:34	1
Chromium	ND		0.00200	0.00153	mg/L		01/29/21 11:27	01/30/21 16:34	1
Cobalt	0.00476		0.000500	0.000134	mg/L		01/29/21 11:27	01/30/21 16:34	1
Copper	ND		0.00200	0.000627	mg/L		01/29/21 11:27	01/30/21 16:34	1
Iron	0.854		0.0500	0.0195	mg/L		01/29/21 11:27	01/30/21 16:34	1
Lead	0.000302	J	0.00100	0.000128	mg/L		01/29/21 11:27	01/30/21 16:34	1
Lithium	ND		0.00500	0.00339	mg/L		01/29/21 11:27	01/30/21 16:34	1
Magnesium	62.7		0.500	0.0827	mg/L		01/29/21 11:27	01/30/21 16:34	1
Manganese	3.29		0.00500	0.000866	mg/L		01/29/21 11:27	01/30/21 16:34	1
Molybdenum	ND		0.00500	0.000610	mg/L		01/29/21 11:27	01/30/21 16:34	1
Nickel	0.00175		0.00100	0.000336	mg/L		01/29/21 11:27	01/30/21 16:34	1
Potassium	7.55		0.500	0.156	mg/L		01/29/21 11:27	01/30/21 16:34	1
Selenium	ND		0.00500	0.00151	mg/L		01/29/21 11:27	01/30/21 16:34	1
Silver	ND		0.00100	0.000177	mg/L		01/29/21 11:27	01/30/21 16:34	1
Sodium	94.7		0.500	0.348	mg/L		01/29/21 11:27	01/30/21 16:34	1
Thallium	0.000273	J	0.00100	0.000148	mg/L		01/29/21 11:27	01/30/21 16:34	1
Vanadium	0.00106		0.00100	0.000991	mg/L		01/29/21 11:27	01/30/21 16:34	1
Zinc	0.00356	J	0.00500	0.00322	mg/L		01/29/21 11:27	01/30/21 16:34	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		01/29/21 11:27	01/30/21 16:48	1
Antimony	ND		0.00200	0.000378	mg/L		01/29/21 11:27	01/30/21 16:48	1
Arsenic	ND		0.00100	0.000313	mg/L		01/29/21 11:27	01/30/21 16:48	1
Barium	0.0181		0.0100	0.00160	mg/L		01/29/21 11:27	01/30/21 16:48	1
Beryllium	ND		0.00100	0.000182	mg/L		01/29/21 11:27	01/30/21 16:48	1
Boron	1.48		0.0800	0.0386	mg/L		01/29/21 11:27	02/02/21 12:03	1
Cadmium	ND		0.00100	0.000217	mg/L		01/29/21 11:27	01/30/21 16:48	1
Calcium	318		0.500	0.127	mg/L		01/29/21 11:27	01/30/21 16:48	1
Chromium	ND		0.00200	0.00153	mg/L		01/29/21 11:27	01/30/21 16:48	1
Cobalt	0.00349		0.000500	0.000134	mg/L		01/29/21 11:27	01/30/21 16:48	1
Copper	ND		0.00200	0.000627	mg/L		01/29/21 11:27	01/30/21 16:48	1
Iron	ND		0.0500	0.0195	mg/L		01/29/21 11:27	01/30/21 16:48	1
Lead	ND		0.00100	0.000128	mg/L		01/29/21 11:27	01/30/21 16:48	1
Lithium	ND		0.00500	0.00339	mg/L		01/29/21 11:27	01/30/21 16:48	1
Magnesium	64.1		0.500	0.0827	mg/L		01/29/21 11:27	01/30/21 16:48	1
Manganese	3.09		0.00500	0.000866	mg/L		01/29/21 11:27	01/30/21 16:48	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Client Sample ID: GAF-GW-1315-DOLO 0.5-T63
Date Collected: 01/25/21 12:40
Date Received: 01/27/21 08:30

Lab Sample ID: 180-116485-3
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		0.00500	0.000610	mg/L		01/29/21 11:27	01/30/21 16:48	1
Nickel	**0.00135**		0.00100	0.000336	mg/L		01/29/21 11:27	01/30/21 16:48	1
Potassium	**7.52**		0.500	0.156	mg/L		01/29/21 11:27	01/30/21 16:48	1
Selenium	ND		0.00500	0.00151	mg/L		01/29/21 11:27	01/30/21 16:48	1
Silver	ND		0.00100	0.000177	mg/L		01/29/21 11:27	01/30/21 16:48	1
Sodium	**95.7**		0.500	0.348	mg/L		01/29/21 11:27	01/30/21 16:48	1
Thallium	**0.000261**	**J**	0.00100	0.000148	mg/L		01/29/21 11:27	01/30/21 16:48	1
Vanadium	ND		0.00100	0.000991	mg/L		01/29/21 11:27	01/30/21 16:48	1
Zinc	ND		0.00500	0.00322	mg/L		01/29/21 11:27	01/30/21 16:48	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/30/21 09:30	02/02/21 11:41	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/30/21 09:30	02/02/21 11:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**496**		5.00	5.00	mg/L			01/28/21 15:46	1
Bicarbonate Alkalinity as CaCO3	**496**		5.00	5.00	mg/L			01/28/21 15:46	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/28/21 15:46	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			01/28/21 15:46	1

Client Sample ID: GAF-GW-1315-DOLO 1.0-T63

Date Collected: 01/25/21 12:40
Date Received: 01/27/21 08:30

Lab Sample ID: 180-116485-4

Matrix: Water

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	44.6		1.00	0.713	mg/L			01/29/21 12:18	1
Fluoride	0.195		0.100	0.0260	mg/L			01/29/21 12:18	1
Sulfate	746	F1	10.0	7.56	mg/L			01/29/21 12:39	10

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.241		0.0300	0.0125	mg/L		01/29/21 11:27	01/30/21 16:38	1
Antimony	0.000486	J	0.00200	0.000378	mg/L		01/29/21 11:27	01/30/21 16:38	1
Arsenic	0.000549	J	0.00100	0.000313	mg/L		01/29/21 11:27	01/30/21 16:38	1
Barium	0.0144		0.0100	0.00160	mg/L		01/29/21 11:27	01/30/21 16:38	1
Beryllium	ND		0.00100	0.000182	mg/L		01/29/21 11:27	01/30/21 16:38	1
Boron	1.33		0.0800	0.0386	mg/L		01/29/21 11:27	02/02/21 11:50	1
Cadmium	ND		0.00100	0.000217	mg/L		01/29/21 11:27	01/30/21 16:38	1
Calcium	214		0.500	0.127	mg/L		01/29/21 11:27	01/30/21 16:38	1
Chromium	ND		0.00200	0.00153	mg/L		01/29/21 11:27	01/30/21 16:38	1
Cobalt	0.00190		0.000500	0.000134	mg/L		01/29/21 11:27	01/30/21 16:38	1
Copper	ND		0.00200	0.000627	mg/L		01/29/21 11:27	01/30/21 16:38	1
Iron	0.821		0.0500	0.0195	mg/L		01/29/21 11:27	01/30/21 16:38	1
Lead	0.000186	J	0.00100	0.000128	mg/L		01/29/21 11:27	01/30/21 16:38	1
Lithium	ND		0.00500	0.00339	mg/L		01/29/21 11:27	01/30/21 16:38	1
Magnesium	43.9		0.500	0.0827	mg/L		01/29/21 11:27	01/30/21 16:38	1
Manganese	1.01		0.00500	0.000866	mg/L		01/29/21 11:27	01/30/21 16:38	1
Molybdenum	0.00139	J	0.00500	0.000610	mg/L		01/29/21 11:27	01/30/21 16:38	1
Nickel	0.00109		0.00100	0.000336	mg/L		01/29/21 11:27	01/30/21 16:38	1
Potassium	6.01		0.500	0.156	mg/L		01/29/21 11:27	01/30/21 16:38	1
Selenium	ND		0.00500	0.00151	mg/L		01/29/21 11:27	01/30/21 16:38	1
Silver	ND		0.00100	0.000177	mg/L		01/29/21 11:27	01/30/21 16:38	1
Sodium	86.5		0.500	0.348	mg/L		01/29/21 11:27	01/30/21 16:38	1
Thallium	0.000181	J	0.00100	0.000148	mg/L		01/29/21 11:27	01/30/21 16:38	1
Vanadium	ND		0.00100	0.000991	mg/L		01/29/21 11:27	01/30/21 16:38	1
Zinc	ND		0.00500	0.00322	mg/L		01/29/21 11:27	01/30/21 16:38	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.0174	J	0.0300	0.0125	mg/L		01/29/21 11:27	01/30/21 16:59	1
Antimony	0.000482	J	0.00200	0.000378	mg/L		01/29/21 11:27	01/30/21 16:59	1
Arsenic	ND		0.00100	0.000313	mg/L		01/29/21 11:27	01/30/21 16:59	1
Barium	0.0131		0.0100	0.00160	mg/L		01/29/21 11:27	01/30/21 16:59	1
Beryllium	ND		0.00100	0.000182	mg/L		01/29/21 11:27	01/30/21 16:59	1
Boron	1.30		0.0800	0.0386	mg/L		01/29/21 11:27	02/02/21 12:05	1
Cadmium	ND		0.00100	0.000217	mg/L		01/29/21 11:27	01/30/21 16:59	1
Calcium	210		0.500	0.127	mg/L		01/29/21 11:27	01/30/21 16:59	1
Chromium	ND		0.00200	0.00153	mg/L		01/29/21 11:27	01/30/21 16:59	1
Cobalt	0.000758		0.000500	0.000134	mg/L		01/29/21 11:27	01/30/21 16:59	1
Copper	ND		0.00200	0.000627	mg/L		01/29/21 11:27	01/30/21 16:59	1
Iron	ND		0.0500	0.0195	mg/L		01/29/21 11:27	01/30/21 16:59	1
Lead	ND		0.00100	0.000128	mg/L		01/29/21 11:27	01/30/21 16:59	1
Lithium	ND		0.00500	0.00339	mg/L		01/29/21 11:27	01/30/21 16:59	1
Magnesium	47.5		0.500	0.0827	mg/L		01/29/21 11:27	01/30/21 16:59	1
Manganese	0.595		0.00500	0.000866	mg/L		01/29/21 11:27	01/30/21 16:59	1

Client: Environmental Standards Inc.
Project/Site: GAF-NRS-Treatability

Job ID: 180-116485-1

Client Sample ID: GAF-GW-1315-DOLO 1.0-T63
Date Collected: 01/25/21 12:40
Date Received: 01/27/21 08:30

Lab Sample ID: 180-116485-4
Matrix: Water

Method: EPA 6020A - Metals (ICP/MS) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	**0.00140**	**J**	0.00500	0.000610	mg/L		01/29/21 11:27	01/30/21 16:59	1
Nickel	**0.000736**	**J**	0.00100	0.000336	mg/L		01/29/21 11:27	01/30/21 16:59	1
Potassium	**6.25**		0.500	0.156	mg/L		01/29/21 11:27	01/30/21 16:59	1
Selenium	ND		0.00500	0.00151	mg/L		01/29/21 11:27	01/30/21 16:59	1
Silver	ND		0.00100	0.000177	mg/L		01/29/21 11:27	01/30/21 16:59	1
Sodium	**92.3**		0.500	0.348	mg/L		01/29/21 11:27	01/30/21 16:59	1
Thallium	**0.000197**	**J**	0.00100	0.000148	mg/L		01/29/21 11:27	01/30/21 16:59	1
Vanadium	ND		0.00100	0.000991	mg/L		01/29/21 11:27	01/30/21 16:59	1
Zinc	ND		0.00500	0.00322	mg/L		01/29/21 11:27	01/30/21 16:59	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/30/21 09:30	02/02/21 11:43	1

Method: EPA 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/30/21 09:30	02/02/21 11:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	**269**		5.00	5.00	mg/L			01/28/21 16:00	1
Bicarbonate Alkalinity as CaCO3	**269**		5.00	5.00	mg/L			01/28/21 16:00	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/28/21 16:00	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			01/28/21 16:00	1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-344973/6
Matrix: Water
Analysis Batch: 344973

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.00	0.713	mg/L			01/29/21 07:18	1
Fluoride	ND		0.100	0.0260	mg/L			01/29/21 07:18	1
Sulfate	ND		1.00	0.756	mg/L			01/29/21 07:18	1

Lab Sample ID: LCS 180-344973/5
Matrix: Water
Analysis Batch: 344973

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.02		mg/L		102	80 - 120
Fluoride	2.50	2.726		mg/L		109	80 - 120
Sulfate	50.0	50.19		mg/L		100	80 - 120

Lab Sample ID: 180-116485-4 MS
Matrix: Water
Analysis Batch: 344973

Client Sample ID: GAF-GW-1315-DOLO 1.0-T63
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	49.4		500	554.8		mg/L		101	80 - 120
Fluoride	0.294	J	25.0	26.63		mg/L		105	80 - 120
Sulfate	746	F1	500	1105	F1	mg/L		72	80 - 120

Lab Sample ID: 180-116485-4 MSD
Matrix: Water
Analysis Batch: 344973

Client Sample ID: GAF-GW-1315-DOLO 1.0-T63
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	49.4		500	550.1		mg/L		100	80 - 120	1	15
Fluoride	0.294	J	25.0	26.58		mg/L		105	80 - 120	0	15
Sulfate	746	F1	500	1092	F1	mg/L		69	80 - 120	1	15

Method: EPA 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-345016/1-A
Matrix: Water
Analysis Batch: 345118

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 345016

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.0300	0.0125	mg/L		01/29/21 11:27	01/30/21 15:40	1
Antimony	ND		0.00200	0.000378	mg/L		01/29/21 11:27	01/30/21 15:40	1
Arsenic	ND		0.00100	0.000313	mg/L		01/29/21 11:27	01/30/21 15:40	1
Barium	ND		0.0100	0.00160	mg/L		01/29/21 11:27	01/30/21 15:40	1
Beryllium	ND		0.00100	0.000182	mg/L		01/29/21 11:27	01/30/21 15:40	1
Cadmium	ND		0.00100	0.000217	mg/L		01/29/21 11:27	01/30/21 15:40	1
Calcium	ND		0.500	0.127	mg/L		01/29/21 11:27	01/30/21 15:40	1
Chromium	ND		0.00200	0.00153	mg/L		01/29/21 11:27	01/30/21 15:40	1
Cobalt	ND		0.000500	0.000134	mg/L		01/29/21 11:27	01/30/21 15:40	1
Copper	ND		0.00200	0.000627	mg/L		01/29/21 11:27	01/30/21 15:40	1
Iron	ND		0.0500	0.0195	mg/L		01/29/21 11:27	01/30/21 15:40	1
Lead	ND		0.00100	0.000128	mg/L		01/29/21 11:27	01/30/21 15:40	1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-345016/1-A
Matrix: Water
Analysis Batch: 345118

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 345016

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		0.00500	0.00339	mg/L		01/29/21 11:27	01/30/21 15:40	1
Magnesium	ND		0.500	0.0827	mg/L		01/29/21 11:27	01/30/21 15:40	1
Manganese	ND		0.00500	0.000866	mg/L		01/29/21 11:27	01/30/21 15:40	1
Molybdenum	ND		0.00500	0.000610	mg/L		01/29/21 11:27	01/30/21 15:40	1
Nickel	ND		0.00100	0.000336	mg/L		01/29/21 11:27	01/30/21 15:40	1
Potassium	ND		0.500	0.156	mg/L		01/29/21 11:27	01/30/21 15:40	1
Selenium	ND		0.00500	0.00151	mg/L		01/29/21 11:27	01/30/21 15:40	1
Silver	ND		0.00100	0.000177	mg/L		01/29/21 11:27	01/30/21 15:40	1
Sodium	ND		0.500	0.348	mg/L		01/29/21 11:27	01/30/21 15:40	1
Thallium	ND		0.00100	0.000148	mg/L		01/29/21 11:27	01/30/21 15:40	1
Vanadium	ND		0.00100	0.000991	mg/L		01/29/21 11:27	01/30/21 15:40	1
Zinc	ND		0.00500	0.00322	mg/L		01/29/21 11:27	01/30/21 15:40	1

Lab Sample ID: MB 180-345016/1-A
Matrix: Water
Analysis Batch: 345350

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 345016

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.0800	0.0386	mg/L		01/29/21 11:27	02/02/21 11:08	1

Lab Sample ID: LCS 180-345016/2-A
Matrix: Water
Analysis Batch: 345118

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 345016

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5.00	5.045		mg/L		101	80 - 120
Antimony	0.250	0.2384		mg/L		95	80 - 120
Arsenic	1.00	0.9601		mg/L		96	80 - 120
Barium	1.00	1.013		mg/L		101	80 - 120
Beryllium	0.500	0.5052		mg/L		101	80 - 120
Cadmium	0.500	0.5097		mg/L		102	80 - 120
Calcium	25.0	28.15		mg/L		113	80 - 120
Chromium	0.500	0.4949		mg/L		99	80 - 120
Cobalt	0.500	0.4892		mg/L		98	80 - 120
Copper	0.500	0.4834		mg/L		97	80 - 120
Iron	5.00	5.167		mg/L		103	80 - 120
Lead	0.500	0.4988		mg/L		100	80 - 120
Lithium	0.500	0.4918		mg/L		98	80 - 120
Magnesium	25.0	26.25		mg/L		105	80 - 120
Manganese	0.500	0.4905		mg/L		98	80 - 120
Molybdenum	0.500	0.5001		mg/L		100	80 - 120
Nickel	0.500	0.4793		mg/L		96	80 - 120
Potassium	25.0	24.93		mg/L		100	80 - 120
Selenium	1.00	1.006		mg/L		101	80 - 120
Silver	0.250	0.2497		mg/L		100	80 - 120
Sodium	25.0	26.87		mg/L		107	80 - 120
Thallium	1.00	1.063		mg/L		106	80 - 120
Vanadium	0.500	0.4950		mg/L		99	80 - 120
Zinc	0.250	0.2464		mg/L		99	80 - 120

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-345016/2-A
Matrix: Water
Analysis Batch: 345350

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 345016

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Boron			1.25	1.013		mg/L		81	80 - 120		

Lab Sample ID: 180-116385-E-1-C MS
Matrix: Water
Analysis Batch: 345118

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 345016

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aluminum	0.0357		5.00	4.801		mg/L		95	75 - 125		
Antimony	ND		0.250	0.2336		mg/L		93	75 - 125		
Arsenic	0.00152		1.00	0.9549		mg/L		95	75 - 125		
Barium	0.0328		1.00	1.021		mg/L		99	75 - 125		
Beryllium	0.000212	J	0.500	0.5070		mg/L		101	75 - 125		
Cadmium	ND		0.500	0.4867		mg/L		97	75 - 125		
Calcium	158		25.0	185.0	4	mg/L		108	75 - 125		
Chromium	ND		0.500	0.4715		mg/L		94	75 - 125		
Cobalt	0.0146		0.500	0.4923		mg/L		96	75 - 125		
Copper	ND		0.500	0.4669		mg/L		93	75 - 125		
Iron	5.03		5.00	9.932		mg/L		98	75 - 125		
Lead	0.000283	J	0.500	0.4841		mg/L		97	75 - 125		
Lithium	0.0154		0.500	0.5086		mg/L		99	75 - 125		
Magnesium	26.9		25.0	51.51		mg/L		99	75 - 125		
Manganese	2.35		0.500	2.789	4	mg/L		88	75 - 125		
Molybdenum	0.00147	J	0.500	0.4899		mg/L		98	75 - 125		
Nickel	0.00635		0.500	0.4727		mg/L		93	75 - 125		
Potassium	6.75		25.0	30.96		mg/L		97	75 - 125		
Selenium	ND		1.00	0.9746		mg/L		97	75 - 125		
Silver	ND		0.250	0.2458		mg/L		98	75 - 125		
Sodium	12.3		25.0	38.30		mg/L		104	75 - 125		
Thallium	0.000243	J	1.00	1.022		mg/L		102	75 - 125		
Vanadium	ND		0.500	0.4789		mg/L		96	75 - 125		
Zinc	0.00837		0.250	0.2479		mg/L		96	75 - 125		

Lab Sample ID: 180-116385-E-1-C MS
Matrix: Water
Analysis Batch: 345350

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 345016

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Boron	0.729		1.25	1.824		mg/L		88	75 - 125		

Lab Sample ID: 180-116385-E-1-D MSD
Matrix: Water
Analysis Batch: 345118

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 345016

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	0.0357		5.00	4.808		mg/L		95	75 - 125	0	20
Antimony	ND		0.250	0.2291		mg/L		92	75 - 125	2	20
Arsenic	0.00152		1.00	0.9664		mg/L		96	75 - 125	1	20
Barium	0.0328		1.00	1.010		mg/L		98	75 - 125	1	20
Beryllium	0.000212	J	0.500	0.4909		mg/L		98	75 - 125	3	20

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-116385-E-1-D MSD
Matrix: Water
Analysis Batch: 345118

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 345016

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		0.500	0.4836		mg/L		97	75 - 125	1	20
Calcium	158		25.0	182.2	4	mg/L		97	75 - 125	2	20
Chromium	ND		0.500	0.4729		mg/L		95	75 - 125	0	20
Cobalt	0.0146		0.500	0.4943		mg/L		96	75 - 125	0	20
Copper	ND		0.500	0.4747		mg/L		95	75 - 125	2	20
Iron	5.03		5.00	9.664		mg/L		93	75 - 125	3	20
Lead	0.000283	J	0.500	0.4762		mg/L		95	75 - 125	2	20
Lithium	0.0154		0.500	0.4932		mg/L		96	75 - 125	3	20
Magnesium	26.9		25.0	50.95		mg/L		96	75 - 125	1	20
Manganese	2.35		0.500	2.761	4	mg/L		82	75 - 125	1	20
Molybdenum	0.00147	J	0.500	0.4981		mg/L		99	75 - 125	2	20
Nickel	0.00635		0.500	0.4770		mg/L		94	75 - 125	1	20
Potassium	6.75		25.0	30.79		mg/L		96	75 - 125	1	20
Selenium	ND		1.00	0.9777		mg/L		98	75 - 125	0	20
Silver	ND		0.250	0.2474		mg/L		99	75 - 125	1	20
Sodium	12.3		25.0	38.51		mg/L		105	75 - 125	1	20
Thallium	0.000243	J	1.00	1.008		mg/L		101	75 - 125	1	20
Vanadium	ND		0.500	0.4795		mg/L		96	75 - 125	0	20
Zinc	0.00837		0.250	0.2463		mg/L		95	75 - 125	1	20

Lab Sample ID: 180-116385-E-1-D MSD
Matrix: Water
Analysis Batch: 345350

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 345016

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.729		1.25	1.769		mg/L		83	75 - 125	3	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-345076/1-A
Matrix: Water
Analysis Batch: 345310

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345076

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000130	mg/L		01/30/21 09:30	02/02/21 11:31	1

Lab Sample ID: LCS 180-345076/2-A
Matrix: Water
Analysis Batch: 345310

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345076

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00250	0.002746		mg/L		110	80 - 120		

Lab Sample ID: 180-116403-F-2-E MS
Matrix: Water
Analysis Batch: 345310

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 345076

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		0.00100	0.001065		mg/L		107	75 - 125		

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 180-116403-F-2-F MSD
Matrix: Water
Analysis Batch: 345310

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 345076

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.001086		mg/L		109	75 - 125	2	20

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-345136/30
Matrix: Water
Analysis Batch: 345136

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	ND		5.00	5.00	mg/L			01/28/21 14:41	1
Bicarbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/28/21 14:41	1
Carbonate Alkalinity as CaCO3	ND		5.00	5.00	mg/L			01/28/21 14:41	1
Hydroxide Alkalinity	ND		5.00	5.00	mg/L			01/28/21 14:41	1

Lab Sample ID: LCS 180-345136/29
Matrix: Water
Analysis Batch: 345136

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity as CaCO3 to pH 4.5	250	260.3		mg/L		104	90 - 110

Lab Sample ID: 180-116470-B-1 DU
Matrix: Water
Analysis Batch: 345136

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	421		413.1		mg/L		2	20
Bicarbonate Alkalinity as CaCO3	258		253.6		mg/L		2	20
Carbonate Alkalinity as CaCO3	163		159.5		mg/L		2	20
Hydroxide Alkalinity	ND		ND		mg/L		NC	20

Lab Sample ID: 180-116485-3 DU
Matrix: Water
Analysis Batch: 345136

Client Sample ID: GAF-GW-1315-DOLO 0.5-T63
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	496		478.7		mg/L		4	20
Bicarbonate Alkalinity as CaCO3	496		478.7		mg/L		4	20
Carbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	20
Hydroxide Alkalinity	ND		ND		mg/L		NC	20

HPLC/IC

Analysis Batch: 344973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-116485-1	GAF-GW-1315-CONTROL-T63	Total/NA	Water	EPA 9056A	
180-116485-1	GAF-GW-1315-CONTROL-T63	Total/NA	Water	EPA 9056A	
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Total/NA	Water	EPA 9056A	
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Total/NA	Water	EPA 9056A	
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Total/NA	Water	EPA 9056A	
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Total/NA	Water	EPA 9056A	
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Total/NA	Water	EPA 9056A	
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Total/NA	Water	EPA 9056A	
MB 180-344973/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-344973/5	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-116485-4 MS	GAF-GW-1315-DOLO 1.0-T63	Total/NA	Water	EPA 9056A	
180-116485-4 MSD	GAF-GW-1315-DOLO 1.0-T63	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 345016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-116485-1	GAF-GW-1315-CONTROL-T63	Dissolved	Water	3005A	
180-116485-1	GAF-GW-1315-CONTROL-T63	Total Recoverable	Water	3005A	
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Dissolved	Water	3005A	
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Total Recoverable	Water	3005A	
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Dissolved	Water	3005A	
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Total Recoverable	Water	3005A	
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Dissolved	Water	3005A	
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Total Recoverable	Water	3005A	
MB 180-345016/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-345016/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-116385-E-1-C MS	Matrix Spike	Total Recoverable	Water	3005A	
180-116385-E-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

Prep Batch: 345076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-116485-1	GAF-GW-1315-CONTROL-T63	Dissolved	Water	7470A	
180-116485-1	GAF-GW-1315-CONTROL-T63	Total/NA	Water	7470A	
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Dissolved	Water	7470A	
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Total/NA	Water	7470A	
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Dissolved	Water	7470A	
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Total/NA	Water	7470A	
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Dissolved	Water	7470A	
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Total/NA	Water	7470A	
MB 180-345076/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-345076/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-116403-F-2-E MS	Matrix Spike	Total/NA	Water	7470A	
180-116403-F-2-F MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

Analysis Batch: 345118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-116485-1	GAF-GW-1315-CONTROL-T63	Dissolved	Water	EPA 6020A	345016
180-116485-1	GAF-GW-1315-CONTROL-T63	Total Recoverable	Water	EPA 6020A	345016
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Dissolved	Water	EPA 6020A	345016
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Total Recoverable	Water	EPA 6020A	345016

Metals (Continued)

Analysis Batch: 345118 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Dissolved	Water	EPA 6020A	345016
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Total Recoverable	Water	EPA 6020A	345016
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Dissolved	Water	EPA 6020A	345016
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Total Recoverable	Water	EPA 6020A	345016
MB 180-345016/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	345016
LCS 180-345016/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	345016
180-116385-E-1-C MS	Matrix Spike	Total Recoverable	Water	EPA 6020A	345016
180-116385-E-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020A	345016

Analysis Batch: 345310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-116485-1	GAF-GW-1315-CONTROL-T63	Dissolved	Water	EPA 7470A	345076
180-116485-1	GAF-GW-1315-CONTROL-T63	Total/NA	Water	EPA 7470A	345076
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Dissolved	Water	EPA 7470A	345076
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Total/NA	Water	EPA 7470A	345076
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Dissolved	Water	EPA 7470A	345076
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Total/NA	Water	EPA 7470A	345076
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Dissolved	Water	EPA 7470A	345076
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Total/NA	Water	EPA 7470A	345076
MB 180-345076/1-A	Method Blank	Total/NA	Water	EPA 7470A	345076
LCS 180-345076/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	345076
180-116403-F-2-E MS	Matrix Spike	Total/NA	Water	EPA 7470A	345076
180-116403-F-2-F MSD	Matrix Spike Duplicate	Total/NA	Water	EPA 7470A	345076

Analysis Batch: 345350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-116485-1	GAF-GW-1315-CONTROL-T63	Dissolved	Water	EPA 6020A	345016
180-116485-1	GAF-GW-1315-CONTROL-T63	Total Recoverable	Water	EPA 6020A	345016
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Dissolved	Water	EPA 6020A	345016
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Total Recoverable	Water	EPA 6020A	345016
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Dissolved	Water	EPA 6020A	345016
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Total Recoverable	Water	EPA 6020A	345016
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Dissolved	Water	EPA 6020A	345016
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Total Recoverable	Water	EPA 6020A	345016
MB 180-345016/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	345016
LCS 180-345016/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	345016
180-116385-E-1-C MS	Matrix Spike	Total Recoverable	Water	EPA 6020A	345016
180-116385-E-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	EPA 6020A	345016

General Chemistry

Analysis Batch: 345136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-116485-1	GAF-GW-1315-CONTROL-T63	Total/NA	Water	SM2320 B	
180-116485-2	GAF-GW-1315-HI CAL 0.5-T63	Total/NA	Water	SM2320 B	
180-116485-3	GAF-GW-1315-DOLO 0.5-T63	Total/NA	Water	SM2320 B	
180-116485-4	GAF-GW-1315-DOLO 1.0-T63	Total/NA	Water	SM2320 B	
MB 180-345136/30	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-345136/29	Lab Control Sample	Total/NA	Water	SM2320 B	
180-116470-B-1 DU	Duplicate	Total/NA	Water	SM2320 B	
180-116485-3 DU	GAF-GW-1315-DOLO 0.5-T63	Total/NA	Water	SM2320 B	

Page 1 1

RUSH

eurofins | Spectrum Analytical

CHAIN OF CUSTODY RECORD

301 Alpha Drive
Pittsburgh, PA 15238
(413) 789-9018

Special Handling:

☑ TAT - Date Needed: ~~7-day~~ - 5 - day

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: Franciscos Barajas
AECOM
9400 Amberglen Blvd
Austin, TX 78729
Telephone #: 978-905-2299
Project Mgr: Craig MacPhee

Invoice To: Craig MacPhee
AECOM
250 Apollo Dr.
Chelmsford, MA 01824
P.O No.: Quote #:

Project No: TVA Gallatin EIP
Site Name: GAF-NRS-Treatability
Location: State:
Sampler(s): Rachel Watkins

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 1= 12=

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= X2= 1315 leachate

G= Grab C=Compsite

List Preservative Code below: 4 4

QA/QC Reporting Notes:

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	6020 Totals -Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	6020 Dissolved-Be, Cd, Li, Ni, Sb, As, Ba, Cr, Co, Pb, Hg (7470A), Mo, Se, Tl, Cu, Ag, V, Zn, Al, Fe, Mn, Ca, Mg, K, Na, B	2320B- Alkalinity (Total hydroixe, bicarbonate, carbonate)	9056A-Cl, F, SO4
	GAF-GW-1315-Control-t63	1/25/2021	12:40 PM	G	X2				3	x	x	x	x
	GAF-GW-1315-Hi Cal 0.5-t63	1/25/2021	12:40 PM	G	X2				3	x	x	x	x
	GAF-GW-1315-Dolo 0.5-t63	1/25/2021	12:40 PM	G	X2				3	x	x	x	x
	GAF-GW-1315-Dolo 1.0-t63	1/25/2021	12:40 PM	G	X2				3	x	x	x	x

180-116485 Chain of Custody

Relinquished by:	Received by:	Date:	Time:	Temp °C
Rachel Watkins		1/26/20	1500	Observed
	Drilling water	1-27-21	8:30	Correction Factor
	ETAPITI			Corrected
				IR ID #

☐ EDD format:
☐ E-mail to:

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Froze

www.EurofinsUS.com/Spectrum

Rev. Nov 2016

2/3/2021

Login Sample Receipt Checklist

Client: Environmental Standards Inc. Job Number: 180-116485-1

Login Number: 116485 **List Source: Eurofins TestAmerica, Pittsburgh**
List Number: 1
Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	False	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	