# SEMI-ANNUAL VRP PROGRESS REPORT

# (30 MONTH)

**DIAMOND CRYSTAL DULUTH, LLC**
**DULUTH, GA**
**HSI SITE NO. 10844**

**DECEMBER 2017**

**PREPARED FOR:**

**DIAMOND CRYSTAL DULUTH, LLC**
**3245 N. BERKELEY LAKE ROAD**
**DULUTH, GA, 30096-4972**


Matthew S. Mudge
Project Manager

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Senior Geologist

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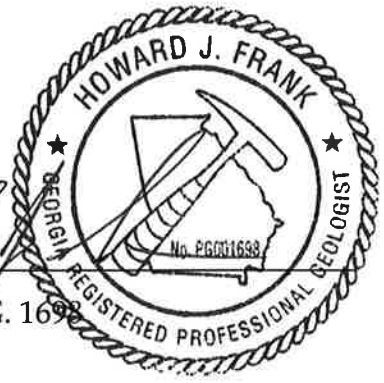
## PG Certification

"I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et.seq.). I am a professional engineer/professional geologist who is registered with the Georgia State Board of Registration for Professional Engineers and Land Surveyors/Georgia State Board of Registration for Professional Geologists and I have the necessary experience and am in charge of the investigation and remediation of this release of regulated substances.

Furthermore, to document my direct oversight of the Voluntary Remediation Plan development, implementation of corrective action, and long term monitoring, I have attached a monthly summary of hours invoiced and description of services provided by me to the Voluntary Remediation Program participant since the previous submittal to the Georgia Environmental Protection Division.

The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."




Howard J. Frank, P.G. 1698
Senior Geologist

Date: 12.8.17

# 1.0 INTRODUCTION

The Voluntary Investigation and Remediation Plan (VIRP) application for the Diamond Crystal Duluth, LLC (Diamond Crystal Duluth) facility, located at 3245 North Berkeley Lake Road in Duluth, Gwinnett County, Georgia (HSI Site No. 10844), was submitted to the Georgia Environmental Protection Division (EPD) on May 11, 2015. The VIRP was approved by the EPD in a letter dated June 8, 2015.

An initial Progress Report was submitted in December 2015 summarizing activities completed during the first six months in the Voluntary Remediation Program (VRP). Since December 2015, semi-annual VRP Progress Reports are submitted every six months, in June and December each year. This semi-annual Progress Report provides a summary of activities conducted from June 2017 through December 2017, the fifth six month period (first 30 months) in the VRP.

# 2.0 SUMMARY OF SITE ACTIVITIES

As described in the VIRP application, certain activities are scheduled to be completed within the fifth six month period (first 30 months) after entry to the VRP. Based on previous Progress Reports, as well as comments received from the EPD, additional activities were added to the milestone schedule and reported herein; these activities include:

- Identify areas requiring corrective action based on EPD acceptance of the proposed site-specific soil and groundwater RRS;
- Update on subsurface conditions on adjacent property;
- Report on progress with site paving and controls; and,
- Update the Conceptual Site Model (CSM) and Corrective Action Plan (CAP), if necessary.

A summary of the activities conducted from June 2017 through December 2017 (up to the date of this report) are described in the following sections.

## 2.1 Identification of Potential Corrective Action Areas

Diamond Crystal Duluth calculated site-specific Type 4 Risk Reduction Standards (RRS) for arsenic concentrations in soil at the property. Five (5) potential receptors, or exposure scenarios, were evaluated and include: Industrial Worker, Maintenance Worker, Construction Worker, Adolescant Trespasser, and Soil Leaching to Groundwater. The RRS calculations, input values and supporting assumptions, and resulting Type 4 RRS were previously presented in the June 2016 (12 Month) and June 2017 (24 Month) VRP Progress Reports. The EPD accepted four (4) of the proposed soil RRS in a July 11, 2016, letter responding to the June 2016 (12 Month) VRP Progress Report (Georgia EPD, 2016d). No comments were received to date regarding the proposed Type 4 RRS for the Soil Leaching to Groundwater receptor/scenario (the June 2017 [24 Month] Progress Report).

Historical soil sampling locations and their respective analytical data were compiled and include data from the Initial Release Notification (EMA, 2013), and previous soil assessment completed by SynTerra (SynTerra, 2015 and 2016b). **Figure 1** in **Appendix A** shows the locations where soil samples were collected and **Table 1** (also in **Appendix A**) summarizes the historical testing results for arsenic in soil. The Type 4 RRS determined for site soil are shown at the bottom of **Table 1** for comparison to the

analytical results. Based on the information compiled, only 1 location (SB-04) includes arsenic concentrations in soil greater than the most conservative site RRS (Construction Worker receptor, 322 milligrams per kilogam). This area is noted on **Figure 1** and is the only area at the site that will be evaluated for potential corrective action.

Diamond Crystal Duluth proposed the Type 1 residential groundwater RRS for arsenic at the site (10 micrograms per liter) in the December 2016 (18-Month) VRP Progress Report. The laboratory testing of site groundwater samples indicate that arsenic concentrations in groundwater are below the respective Georgia Rule for Safe Drinking Water Maximum Contaminant Level (MCL). No comments were received to date regarding the proposed groundwater RRS for the site. Based on acceptance from the EPD of the groundwater RRS, no corrective action for the groundwater pathway is required.

## 2.2 Neighboring Property Conditions

No updates on the neighboring site assessment activities are available at this time.

## 2.3 Preliminary Paving and Site Controls Plan

A preliminary site paving and controls plan is continuing to be developed for the Diamond Crystal Duluth site. No updates to the preliminary site paving/capping controls plan were made during the fifth six month period (first 30 months) in the VRP. Based on applicable exposure pathways/receptors and the accepted and proposed site RRS values, areas are now identified that may require corrective action.

## 2.4 Conceptual Site Model

No changes to the CSM are required at this time.

## 2.5 Corrective Action Plan

No adjustments to the proposed CAP are required at this time.

Diamond Crystal Duluth would like to request a meeting with the EDP to gain concurrence with the remaining proposed RRS (proposed in the 18-Month and 24-Month VRP Progress Reports) and discuss the evaluation of corrective action and development of the site CAP.

# 3.0 RESPONSE TO 18-MONTH AND 24-MONTH VRP PROGRESS REPORT COMMENTS

The Diamond Crystal Duluth 18-Month Semi-Annual VRP Progress Report was submitted to the EPD in December 2016, and the 24-Month VRP Progress Report in June 2017. No comments were received from the EPD on either Progress Report as of the date of this report.

# 4.0 SITE ACTIVITIES PLANNED FOR NEXT 6 MONTHS

The following activities will be conducted in the next 6 months and summarized in the (36 Month) Semi-Annual VRP Progress Report to be submitted in June 2018:

- Meet with the EDP to gain concurrence with the remaining proposed RRS (proposed in the 18-Month and 24-Month VRP Progress Reports) and discuss the evaluation of corrective action and development of the site CAP;
- Report on progress with site paving and controls;
- Update on subsurface conditions on adjacent property; and,
- Update the CSM and CAP, if necessary.

# 5.0 SUMMARY

All activities related to the VIRP implementation to be completed within the fifth six month period (first 30 months) after entry to the VRP have been completed. A revised milestone schedule is provided in **Table 1**, below.

**Table 1.0 Revised Milestone Schedule**

| Timeline | Date | Activity | Status |
|---|---|---|---|
| - | June 8, 2015 | VIRP Application Approved | Complete |
| Within 45 days of VRP entry | July 21, 2015 | Filing of Affidavit with clerk of Superior Court of Gwinnett County pursuant to O.C.G.A. §44-2-20 | Complete |
| Within 30 days of filing affidavit | August 10, 2015 | Submittal of copy of receipt of recorded Affidavit to EPD | Complete |
| Due within first 6 months | December 2015 | Provide results of additional horizontal delineation of arsenic in surface soil | Complete |
| | | Update on subsurface conditions on adjacent County Property | |
| | | Submittal of Soil Management Plan | |
| | | Submittal of preliminary paving and site controls plan | |
| Due within first 12 Months | June 2016 | Review RRS for applicable exposure pathways and proposed RRS for the Diamond Crystal Duluth site | Complete |
| | | Report on progress with site paving and controls plan | |
| | | Update on subsurface conditions on adjacent property | |
| | | Adjustments to CSM and CAP, if necessary | |
| Due within first 18 Months | December 2016 | Evaluate overland run-off route and the potential for offsite impacts to surface water/sediment as a result of surface erosion of impacted soils | Complete |
| | | Complete a site groundwater assessment | |
| | | Evaluate the leachability pathway for site soils leaching to groundwater (initiated) | |
| | | Report on progress with site paving and controls plan | |
| | | Update on subsurface conditions on adjacent property | |
| | | Adjustments to CSM and CAP, if necessary | |

**Table 1.0 Revised Milestone Schedule (cont.)**

| Timeline | Date | Activity | Status |
|---|---|---|---|
| Due within first 24 Months | June 2017 | Continue to evaluate the leachability pathway for site soils leaching to groundwater | Complete |
| | | Report on progress with site paving and controls | |
| | | Update on subsurface conditions on adjacent properties | |
| | | Adjustments to CSM and CAP, if necessary | |
| Due within first 30 Months | December 2017 | Identify areas requiring corrective action based on EPD acceptance of the proposed site-specific soil and groundwater RRS | Complete |
| | | Report on progress with site paving and controls | |
| | | Update on subsurface conditions on adjacent properties | |
| | | Adjustments to CSM and CAP, if necessary | |
| Due within first 36 Months | June 2018 | Meet with the EDP to gain concurrence with the remaining proposed RRS and discuss the evaluation of corrective action and development of the site CAP | Pending |
| | | Report on progress with site paving and controls | |
| | | Update on subsurface conditions on adjacent properties | |
| | | Adjustments to CSM and CAP, if necessary | |
| Due within first 60 Months | June 2020 | Report on progress with site paving and controls | |
| | | Submit the final Compliance Status Report certifying completion of the CAP | |

# 6.0 MONTHLY INVOICE SUMMARY

The VRP requires that a professional engineer/geologist oversee the implementation of the VIRP in accordance with the provisions, purposes, standards and policies of the Georgia Voluntary Remediation Program Act. During the period from June 2017 through December 2017 (as of the date of this report), SynTerra staff invoiced 32.5 hours on this project. A monthly summary of hours invoiced and a description of services provided is shown in **Table 2**, below.

**Table 2.0 Summary of Monthly Hours Invoiced**

| Month | Hours Billed | Description of Activities |
|---|---|---|
| June 2017 | 5.5 | Leachability evaluation (reviewed approach, planning, data review)(cont.)<br>Review available progress reports and assessments from other properties included in HSI Site No. 10844 and adjacent to Diamond Crystal Duluth<br>Compiled 24 Month VRP Progress Report |
| July 2017 | 0 | |
| August 2017 | 0 | |
| September 2017 | 0 | |
| October 2017 | 0 | 2017 planning |
| November 2017 | 13 | Identified areas requiring potential corrective action based on EPD acceptance of the proposed site-specific soil and groundwater RRS<br>Review available progress reports and assessments from other properties included in HSI Site No. 10844 and adjacent to Diamond Crystal Duluth<br>Compiled 30 Month VRP Progress Report |
| December 2017 | 14 | Identified areas requiring potential corrective action based on EPD acceptance of the proposed site-specific soil and groundwater RRS (cont.)<br>Compiled 30 Month VRP Progress Report (cont.) |

# 7.0 REFERENCES

EMA. 2013. Initial Release Notification Report, 3245 N. Berkeley Lake Rd., Duluth, Georgia. Environmental Management Association, LLC. December 12, 2013.

Geosyntec. 2016. Voluntary Remediation Program Progress Report, Berkeley Lake Village Owners Association Site, Duluth, Georgia, HSI #10844. July, 2016.

Georgia EPD. 2015. ***DRAFT*** *Frequently Asked Questions for Evaluating the Soil-to-Groundwater Pathway*. February 18, 2015.

Georgia EPD. 2016a. Comments: Semi-Annual VRP Progress Report, Diamond Crystal Duluth Property, North Berkeley Lake Road Site, Duluth, Gwinnett County, HSI # 10844. March 18, 2016.

Georgia EPD. 2016b. Comparison of Existing Risk Reduction Standards. https://epd.georgia.gov/comparison-existing-contamination-risk-reduction-standards-391-3-19-07. Accessed May 2016.

Georgia EPD. 2016c. Hazardous Site Response Act. https://epd.georgia.gov/hazardous-facility-response-act-guidance. Accessed May 2016.

Georgia EPD. 2016d. Comments: Semi-Annual VRP Progress Report #2, Diamond Crystal Duluth Property, North Berkeley Lake Road Site, Duluth, Gwinnett County, HSI # 10844. July 11, 2016.

Georgia EPD. 2017a. 2016 VRP Progress Report Nos. 2 and 3, HSI #10844, Berkeley Lake Village Owners Association, 3351 North Berkeley Lake Road, Duluth, Gwinnett County. April 21, 2017.

Georgia EPD. 2017b. Record of Communication, March 28, 2017 Meeting Minutes, Berkeley Lake Village Owners Association, HSI #10844, Duluth, Gwinnett County. March 29, 2017.

New Jersey DEP. 2013. Development of Site-Specific Impact to Ground Water Soil Remediation Standards Using the Synthetic Precipitation Leaching Procedure. Version 3.0 – November 2013.
http://www.nj.gov/dep/srp/guidance/rs/splp_guidance.pdf

SynTerra. 2015. Semi-Annual VRP Progress Report (6 Month), Diamond Crystal Duluth LLC, Duluth, GA, HSI Site No. 10844. December, 2015.

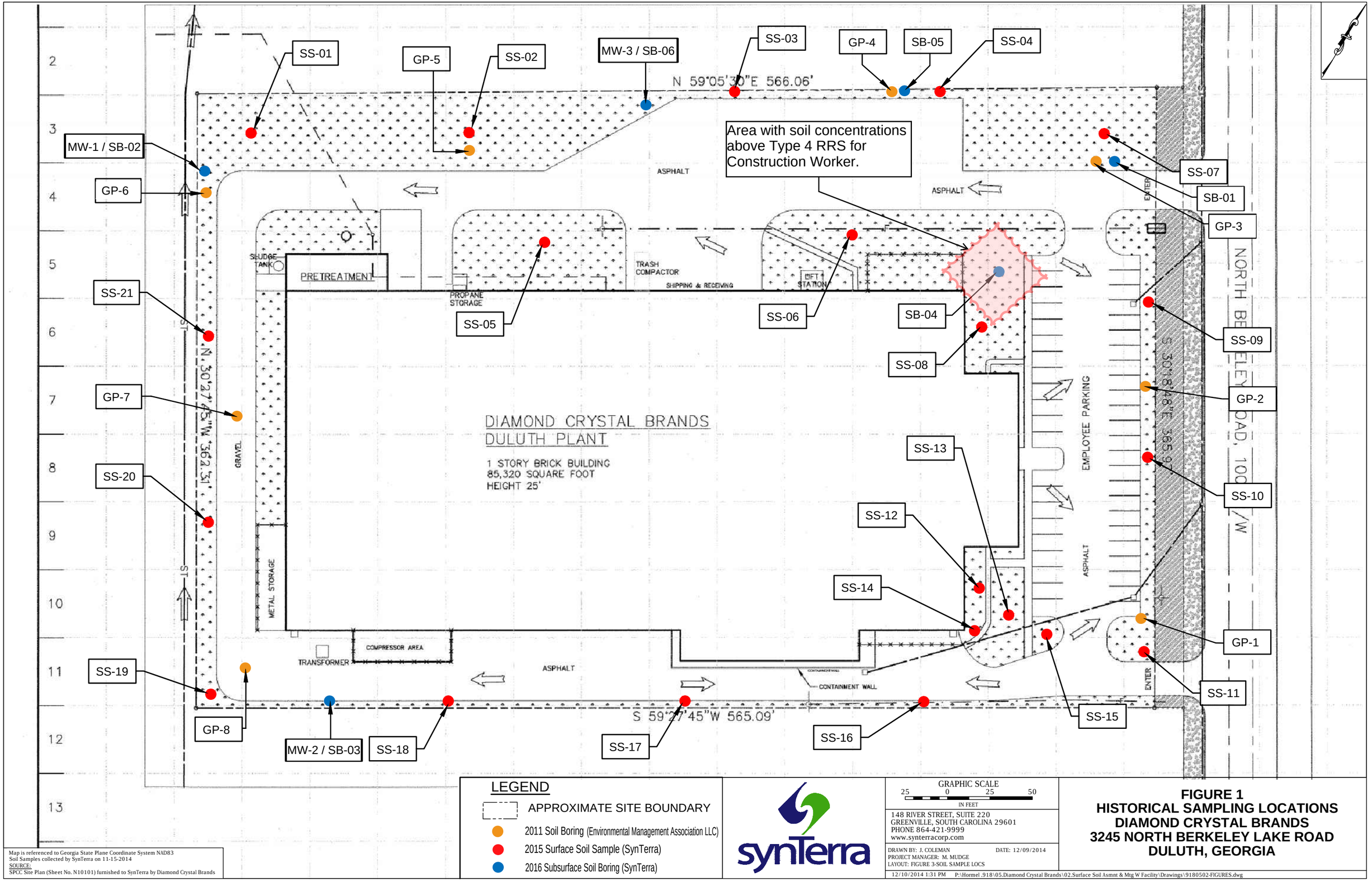
SynTerra. 2016a. Semi-Annual VRP Progress Report (12 Month), Diamond Crystal Duluth LLC, Duluth, GA, HSI Site No. 10844. June, 2016.

SynTerra. 2016b. Semi-Annual VRP Progress Report (18 Month), Diamond Crystal Duluth LLC, Duluth, GA, HSI Site No. 10844. December, 2016.

SynTerra. 2017. Semi-Annual VRP Progress Report (24 Month), Diamond Crystal Duluth LLC, Duluth, GA, HSI Site No. 10844. June, 2017.

# APPENDIX A

# IDENTIFICATION OF POTENTIAL CORRECTIVE ACTION AREAS




Map is referenced to Georgia State Plane Coordinate System NAD83
Soil Samples collected by SynTerra on 11-15-2014
SOURCE:
SPCC Site Plan (Sheet No. N10101) furnished to SynTerra by Diamond Crystal Brands

LEGEND

- APPROXIMATE SITE BOUNDARY
- 2011 Soil Boring (Environmental Management Association LLC)
- 2015 Surface Soil Sample (SynTerra)
- 2016 Subsurface Soil Boring (SynTerra)

GRAPHIC SCALE
25 0 25 50
IN FEET

148 RIVER STREET, SUITE 220
GREENVILLE, SOUTH CAROLINA 29601
PHONE 864-421-9999
www.synterracorp.com

DRAWN BY: J. COLEMAN DATE: 12/09/2014
PROJECT MANAGER: M. MUDGE
LAYOUT: FIGURE 3-SOIL SAMPLE LOCS
12/10/2014 1:31 PM P:\Hormel .918\05.Diamond Crystal Brands\02.Surface Soil Asmnt & Mtg W Facility\Drawings\9180502-FIGURES.dwg

# FIGURE 1
# HISTORICAL SAMPLING LOCATIONS
# DIAMOND CRYSTAL BRANDS
# 3245 NORTH BERKELEY LAKE ROAD
# DULUTH, GEORGIA

**Table 1**
**Summary of Historical Soil Analytical Results**
**Diamond Crystal Duluth, LLC**
**Duluth, Georgia**

| Objective | Boring Location | Date | Sampling Method | Depth (feet bgs) | Arsenic Concentration (mg/kg) <CAS 7440-38-2> | | USCS Soil Type |
|---|---|---|---|---|---|---|---|
| Initial Release Notification[1] | GP-01 | 11/18/2013 | Geoprobe™ DPT[2] | 1-2 | 75.1 | [3] | N/A |
| | | | | 4-5 | 24.4 | [3] | N/A |
| | GP-02 | 11/18/2013 | Geoprobe™ DPT[2] | 1-2 | 221 | [3] | N/A |
| | | | | 4-5 | 271 | [3] | N/A |
| | GP-03 | 11/18/2013 | Geoprobe™ DPT[2] | 1-2 | 32.6 | [3] | N/A |
| | | | | 4-5 | 8.45 | [3] | N/A |
| | GP-04 | 11/18/2013 | Geoprobe™ DPT[2] | 1-2 | 44.6 | [3] | N/A |
| | | | | 4-5 | 54.8 | [3] | N/A |
| | GP-05 | 11/18/2013 | Geoprobe™ DPT[2] | 1-2 | 122 | [3] | N/A |
| | | | | 4-5 | 73.6 | [3] | N/A |
| | GP-06 | 11/18/2013 | Geoprobe™ DPT[2] | 1-2 | 158 | [3] | N/A |
| | | | | 4-5 | 49.8 | [3] | N/A |
| | GP-07 | 11/18/2013 | Geoprobe™ DPT[2] | 1-2 | 118 | [3] | N/A |
| | | | | 4-5 | 113 | [3] | N/A |
| | GP-08 | 11/18/2013 | Geoprobe™ DPT[2] | 1-2 | 12.3 | [3] | N/A |
| | | | | 4-5 | 28.9 | [3] | N/A |
| Surface Soil Assessment | SS-01 | 11/18/2014 | Direct Push Core[4] | 0.5 | 87.7 | [3] | ML |
| | SS-02 | 11/18/2014 | Direct Push Core[4] | 0.5 | 151 | [3] | ML |
| | SS-03 | 11/18/2014 | Direct Push Core[4] | 0.5 | 142 | [3] | ML |
| | SS-04 | 11/18/2014 | Direct Push Core[4] | 0.5 | 120 | [3] | SC |
| | SS-05 | 11/18/2014 | Direct Push Core[4] | 0.5 | 208 | [3] | SC |
| | SS-06 | 11/18/2014 | Direct Push Core[4] | 0.5 | 164 | [3] | SC |
| | SS-07 | 11/18/2014 | Direct Push Core[4] | 0.5 | 84.2 | [3] | SC |
| | SS-07D | 11/18/2014 | Direct Push Core[4] | 0.5 | 54.7 | [3] | SC |
| | SS-08 | 11/18/2014 | Direct Push Core[4] | 0.5 | 112 | [3] | SC |
| | SS-09 | 11/18/2014 | Direct Push Core[4] | 0.5 | 187 | [3] | SC |
| | SS-10 | 11/18/2014 | Direct Push Core[4] | 0.5 | 67.5 | [3] | SC |
| | SS-11 | 11/18/2014 | Direct Push Core[4] | 0.5 | 55.7 | [3] | SC |
| | SS-12 | 11/18/2014 | Direct Push Core[4] | 0.5 | 120 | [3] | SC |
| | SS-13 | 11/18/2014 | Direct Push Core[4] | 0.5 | 48.9 | [3] | SC |
| | SS-14 | 11/18/2014 | Direct Push Core[4] | 0.5 | 57 | [3] | SC |
| | SS-15 | 11/18/2014 | Direct Push Core[4] | 0.5 | 120 | [3] | SC |
| | SS-16 | 11/18/2014 | Direct Push Core[4] | 0.5 | 92.1 | [3] | SC |
| | SS-17 | 11/18/2014 | Direct Push Core[4] | 0.5 | 57 | [3] | SC |
| | SS-19 | 11/18/2014 | Direct Push Core[4] | 0.5 | 24.5 | [3] | SC |
| | SS-19D | 11/18/2014 | Direct Push Core[4] | 0.5 | 72.3 | [3] | SC |
| | SS-20 | 11/18/2014 | Direct Push Core[4] | 0.25 | 89.2 | [3] | SC |
| | SS-21 | 11/18/2014 | Direct Push Core[4] | 0.5 | 72.1 | [3] | SC |
| Groundwater, Subsurface Soil, and Leaching Potential Assessment | SB-01 | 10/31/2016 | Geoprobe™ DPT[2] | 1 | 116 | [5] | SP-SM |
| | | | | 7 | 9.37 | [5] | SP-SM |
| | | | | 13 | 33 | [5] | SP-SM |
| | | | | 16 | 50.5 | [5] | ML |
| | SB-02 | 10/31/2016 | Geoprobe™ DPT[2] | 2 | 141 | [5] | ML |
| | | | | 7 | 52 | [5] | ML |
| | | | | 12 | 116 | [5] | CL |
| | | | | 17 | 100 | [5] | CL |
| | | | | 23 | 134 | [5] | CL |
| | | | | 28 | 26 | [5] | CL |
| | SB-03 | 10/31/2016 | Geoprobe™ DPT[2] | 2 | 7.36 | [5] | ML |
| | | | | 8 | 46.7 | [5] | ML |
| | | | | 14 | 69.5 | [5] | SM |
| | | | | 23 | 31.1 | [5] | ML |
| | | | | 23 | 34 | [5] | ML |
| | | | | 28 | 106 | [5] | ML |
| | SB-04 | 11/1/2016 | Geoprobe™ DPT[2] | 2 | **357** | [5] | SM |
| | | | | 6 | **369** | [5] | SM |
| | | | | 12 | **362** | [5] | Saprolite |
| | SB-05 | 11/1/2016 | Geoprobe™ DPT[2] | 2 | 50.2 | [5] | ML |
| | | | | 6 | 111 | [5] | ML/Saprolite |
| | SB-06 | 11/1/2016 | Geoprobe™ DPT[2] | 2 | 10.6 | [5] | SM |
| | | | | 9 | 9.41 | [5] | ML |
| | | | | 12 | 20.5 | [5] | ML |
| | | | | 16 | 6.19 | [5] | ML |
| | | | | 23 | 10.6 | [5] | ML |
| | | | | 26 | 13.9 | [5] | ML |
| | | | | 26 | 13.9 | [5] | ML |
| | | | | 31 | 88.6 | [5] | ML |
| | | | | 35 | 65.9 | [5] | ML |

| Screening Criteria | Type 4 Risk Reduction Standards[6] (mg/kg) | | | |
|---|---|---|---|---|
| | | Industrial Worker | 762 | EPD Status - Approved[7] |
| | | Maintenance Worker | 3,053 | EPD Status - Approved[7] |
| | | Construction Worker | 322 | EPD Status - Approved[7] |
| | | Adolescant Trespasser | 1,532 | EPD Status - Approved[7] |
| | | Soil Leaching to Groundwater | 554 | EPD Status - **PENDING** |

**Notes:**

Prepared by: BJS Checked by: MSM

bgs = below ground surface
USCS = Unified Soil Classification System
DPT = Direct Push Technology
EPD = Georgia Environmental Protection Division
mg/kg = milligrams per kilogram
N/A = not available
**Bold** value and shaded cell indicates concentration exceeds Type 4 Risk Reduction Standard for Construction Worker.
[1] = Initial Release Notification data collected by Environmental Management Association, LLC (December 12, 2013 letter report)
[2] = Geoprobe™ Direct Push Technology using 2" macrocore sampler
[3] = Total metals by US EPA Method 6010C
[4] = Direct push approach using stainless steel soil coring device
[5] = Total metals by US EPA Method 6020A
[6] = Concentrations derived from the Hazardous Site Response Act Rules (391-3-19-.07)
[7] = Georgia EPD letter, Comments: *Semi-Annual VRP Progress Report #2 (* July 11, 2016)