

August 23, 2021

Mr. Brian Dietz
Land Restoration Program
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

RE: Hot Spot Removal Action
Montgomery Brothers Dump (MD-137)
Inverness Drive, North East, MD
Remedial Management Services Contract
CGS Proposal No. CG-P21-2739R

Dear Mr. Dietz:

Chesapeake GeoSciences, Inc. (CGS) is pleased to present this Work Plan and cost proposal to perform a Hot Spot Removal Action at the Montgomery Brothers Dump site located off of Inverness Drive in North East, Maryland (Site).

I. Background

CGS performed a Hot Spot Investigation at the Site and on two adjacent properties in August through November 2020 and a Hot Spot Refinement Study at the Site and on one adjacent property in May 2021. One of the purposes of this work was to gather data for use in designing an effective hot spot removal action. The conceptual remedial approach for the Hot Spot Removal Action was presented in the Hot Spot Refinement Study Report that was submitted to the Maryland Department of the Environment (MDE) Land Restoration Program (LRP) on August 10, 2021.

II. Purpose

The purpose of the proposed work is to remove the majority of the subsurface soil mass in the Hot Spot Area and at HSI-SB-11 with contaminant concentrations above the MDE Residential Soil Cleanup Standards (RSCSs). It should be noted that, balancing the cost versus the effectiveness of the remedial action, the removal action is not designed to remove all of the soil with contaminant concentrations above the MDE RSCSs.

III. Work Plan

This Work Plan includes the tasks detailed below. The lateral extent of the area targeted for removal in the Hot Spot Area is shown on the attached **Figure 1**. Work activities for the removal action will be performed on-site as well as on the adjacent residential property located at 105 Inverness Drive. As shown on **Figure 1**, all of the soil targeted for removal in the Hot Spot Area is located within the site property boundary; however, the area for the work activities extends northeast of the guard rail into the thickly vegetated limited access area. Even though no soil will be excavated from 105 Inverness Drive, CGS anticipates accessing portions of the work area from 105 Inverness Drive and staging of the excavator on 105 Inverness Drive during portions of the removal action. CGS understands that MDE-LRP's current access agreement with 105 Inverness Drive includes this access and equipment staging.

CGS personnel will supervise all field activities included in this Work Plan. CGS will retain Tidewater, Inc. (TW) of Elkridge, Maryland to assist in removing the guard rail and clearing vegetation under Task 2, collecting samples for soil treatability testing and properly abandoning monitoring well SMP-MW-03 under Task 3, and providing a heavy equipment operator to excavate contaminated soil and to backfill with clean soil under Task 4. L&L Enterprises Inc. (L&L) of Owings, Maryland will install excavation shoring under Task 4. US Ecology of Baltimore, Maryland will provide contaminated soil and water transportation and disposal under Task 5, and Joe Epes Co Inc. (Joe Epes) of Baltimore, Maryland will provide clean backfill material and delivery under Task 4.

Task 1: Plan Development

CGS developed this Work Plan and cost proposal based upon the conceptual remedial approach for the Hot Spot Removal Action presented in the Hot Spot Refinement Study Report and on additional correspondence with MDE-LRP.

The Health & Safety Plan (HASP) developed for the Site for the prior phases of work will be updated for the tasks included in this Work Plan. This Work Plan assumes that a portion of the removal action will be conducted utilizing modified Level D personal protective equipment (PPE) and that a portion of the removal action will be conducted utilizing Level C respiratory PPE. Additional rental equipment [a photoionization detector (PID) with an 11.7eV lamp and high capacity fans] will be on-site for Tasks 3, 4, and 5 during times when Level C respiratory PPE will be needed. Field personnel will utilize appropriate PPE to prevent dermal contact with and inhalation of vapors from contaminated/potentially contaminated media. All non-dedicated equipment that may come into contact with the subsurface media will be decontaminated after use.

An Air Monitoring Plan will be developed to document the level of volatile organic compounds (VOCs) during Task 4 which has the potential to drift over to the adjacent residential properties from the Site. Air monitoring will be conducted using a PID with an 11.7eV lamp along the northeastern property line between the subject property and its

closest neighbors, as well as, along the downwind property line should it be in a different direction. This monitoring will be conducted in addition to air monitoring within the work zone. Samples will also be collected using Summa Canisters and analyzed for VOCs via USEPA Method TO-15 Low Level to provide confirmation of the PID monitoring. Mitigation measures and/or temporary stop work orders will be based upon PID monitoring results and not Summa Canister sampling results, because these analytical results will not be available until after excavation and backfilling under Task 4 have been completed.

CGS contacted Cecil County and confirmed that a building/construction permit from the County for the planned soil excavation is not needed. In addition, CGS understands that an Erosion and Sediment Control Plan is not required, because the area of disturbance will be less than 5,000 square feet exempting us from the requirement to prepare a Plan and to obtain a Permit (Maryland Stormwater Management and Erosion & Sediment Control Guidelines for State and Federal Projects, February 2015).

CGS has solicited quotes from material suppliers, equipment rental companies, trucking companies, soil disposal facilities, and subcontractors to develop our cost proposal. In accordance with the RMS Contract, Non-Contract line items will be billed at the actual cost plus ten percent (10%). In addition, CGS has estimated the total tonnage of soil that will be disposed and the number of loads that will be required based on the dimensions of the excavations, a conversion factor of 1.5 tons/cubic yard, and an estimate of roughly 17 tons/load. CGS has made our cost estimates in good faith, but it should be noted that the final costs may be more or less than that estimated in our cost proposal.

Task 2: Pre-Field Mobilization Activities

The following activities will be performed prior to mobilization for Task 3.

Notifying Cecil County and the Property Owner and Tenant at 105 Inverness Drive

As discussed above, there are no plans to obtain any Cecil County permits to perform the work described herein. However, CGS believes that it would be beneficial for MDE-LRP personnel to alert Cecil County representatives of the upcoming work prior to the commencement of Task 4. This may allow Cecil County personnel to better respond to concerns potentially relayed to them by local persons about the removal action.

CGS also believes that it would be beneficial for MDE-LRP personnel to contact the property owner and tenant at 105 Inverness Drive to discuss the scope of work that will be performed, including clearing vegetation on-site behind the property, taking down fencing along the rear and side of the backyard, setting up temporary construction fencing around the excavation, how we might occupy the property for access and equipment staging, and temporarily relocating the tenants.

CGS will draft portions of letters to both parties on behalf of MDE-LRP that MDE-LRP can augment and send out to the respective parties. CGS will attend a virtual meeting/conference call if requested by either party.

Schedule Communication

Once the schedule for each component of the field work is known, it will be conveyed to the MDE-LRP project manager. CGS will convey applicable scheduling details to the property owner at 105 Inverness Drive via email.

Utility Clearances

CGS will request public utility clearances using the Miss Utility system. Because work activities will be on-site (where no known underground utilities exist), private utility clearances will not be performed. Miss Utility clearance requests will be updated as required as the project progresses.

Temporary Removal of the Guard Rail and Fencing and Clearing of Vegetation

Sections of the guard rail and fencing in the backyard of 105 Inverness Drive in and near the targeted excavation area will be temporarily removed. The sections of guard rail and a guard rail post will be re-installed once Task 4 has been completed. Replacing the fencing in the backyard of 105 Inverness Drive will be completed under a separate Work Order once it has been determined if the fencing and posts can be reused.

The vegetation between the guard rail and fencing will be cleared. The amount of guard rail, fencing, and vegetation that are removed will be such that they provide for maximum maneuverability of the excavator during the soil excavation activities. The removed vegetation will be placed in a roll-off container and transported off-site for proper disposal/recycling. Grass will be planted where the vegetation has been removed as discussed in Task 6 below.

Task 3: Abandon SMP-MW-03, Treatability Sample Collection, and Disposal Facility Waste Acceptance

Monitoring well SMP-MW-03 will be properly abandoned by a MD-licensed driller. The 2"-diameter well casing and screen will be pulled from the ground using a Geoprobe rig and tooling. The flush-mounted cover and surrounding concrete will also be removed. The borehole will be filled with bentonite/bentonite slurry. The well materials and other debris will be disposed of off-site as municipal waste.

Prior to the abandonment of SMP-MW-03, a water sample will be collected from the well and submitted to US Ecology to obtain acceptance of liquid waste that will be generated during the dewatering activities that will be performed under Task 4. The well will be purged of three well volumes of water using a disposable bailer prior to sample collection.

An additional drum will be procured to store the well purge water should it exceed the available volume in the drum of water currently stored at the Site.

CGS will collect three grab soil samples from the hot spot area to determine the pre-treatment that is required to properly dispose of the contaminated soil. The sample locations will be targeted to represent the highest VOC concentrations, so that the necessary pre-treatment is confidently determined. The grab samples will be collected from the following locations: 1) inside the 1,000 ppm contour, 2) between the 100 ppm and 1,000 ppm contours, and 3) between the 10 ppm contour and the limits of the hot spot excavation (**Figure 1**). Based upon previous Geoprobe® sampling conducted at HSI-SB-11, the soil that is excavated around HSI-SB-11 will have a lower VOC concentration than the hot spot area between the 10 ppm contour and the limits of the hot spot excavation, and therefore, it will not need to be sampled for pre-treatment testing. The three grab samples will be split and sent to US Ecology's Michigan Title C Landfill and to Biogenie in Montreal, Canada for testing by these disposal facilities (for no additional cost). Testing performed by the disposal facilities on the three grab samples will confirm whether pre-treatment of the contaminated soil is necessary at each of the three locations sampled, and if so, the type of pre-treatment that will be required.

Soil borings for grab sampling will be advanced using a Geoprobe® rig. The targeted sampling locations will be selected from Geoprobe® Macro-core and placed into 8-oz plastic jars with no head space and placed into coolers for transport to the disposal facilities for pretreatment testing. Unused soil core will be stored in an existing soil drum at the Site.

Our cost proposal conservatively assumes that all of the contaminated soil must be pre-treated and disposed of as hazardous waste. Findings from testing of the pre-treatment samples may result in disposal cost savings. CGS will bill the actual disposal cost plus 10%.

Once the results of the water analyses and soil treatability analyses are complete (and assuming the materials are acceptable), CGS will arrange for the waste acceptance documents and forward them to MDE-LRP for authorized signature. The signed waste acceptance documents will then be forwarded to the facility(ies) for final approval.

CGS will perform the waste acceptance process in advance of soil excavation activities so that it is in place in advance of waste generation.

Task 4: Shoring, Dewatering, Soil Excavation, and Backfill

Shoring

Shoring will be installed around the Hot Spot Area to facilitate dewatering, prevent caving and slumping of the excavation sidewalls, particularly below the groundwater level, and to reduce groundwater flow into the excavation. Shoring will help minimize the quantity of soil and groundwater that must be disposed off-site to successfully complete the Hot Spot

Removal Action. Since excavation at HSI-SB-11 will not extend below the static groundwater level, no shoring will be installed for excavation of this area.

A Sheet and Frame shoring system will be installed around the Hot Spot Area to be excavated. The dimensions of the shoring will be 18.6 feet long by 13.9 feet wide, by 25 feet deep, and will allow for excavation to a targeted depth of 14 feet. The horizon dimensions of the shoring are as close to the roughly 20 foot long by 12 foot wide conceptual remedial approach as the width of the sheets, corner sheets, and frame will allow. The bottom of the hydraulic waler (frame) will be installed at approximately 2 feet bgs. Corrugated steel sheeting will be driven to the terminal depth using an excavator-mounted vibratory hammer. The shoring system will be installed by L&L prior to the initiation of dewatering and soil excavation activities.

It is assumed that shoring sheets can be driven to a depth of 25 feet bgs to have a deep enough toe to permit excavation to a depth of 14 feet. Should rock, weathered rock, or another lithology be encountered that prohibits driving the sheets to 25 feet, the excavation depth may be less than the targeted depth of 14 feet.

The shoring system will be removed by L&L after the excavation has been backfilled to within 2 to 4 feet of the original grade. The shoring system will be decontaminated by CGS personnel above the partially backfilled excavation by scraping off excess soil and then pressure-washing the sheeting prior to loading and removing it from the Site. Soil scraped off the sheets will be allowed to fall into the partially backfilled excavation and the water generated from pressure washing the sheeting will be allowed to drain into backfilled excavation.

Dewatering

Dewatering of the excavation will be accomplished through the installation of two sumps in opposite corners of the excavation within the shoring system to a depth of up to 20 feet bgs. The sumps will be constructed using 12-inch diameter corrugated HDPE plastic pipe which is perforated to allow for water to enter into the pipe. An excavator will be utilized to dig each sump and to set the pipe vertically in each hole. The soil excavated for the sumps will be temporarily piled in the middle of the area and covered with polysheeting until excavation of the hot spot has begun. Crusher run gravel (CR6) will be placed around the sumps from the bottom up to 5 feet below the ground surface to act as a primary sediment filter. A float-actuated sump pump will be set in the bottom of each sump to pump out water as it enters the pipe.

Water will be pumped through a bag filter housing equipped with 10-micron filter bags to remove sediment and then into a 20,000-gallon frac tank for storage prior to disposal. The dewatering pumps will be powered using a portable generator and will be put into operation approximately 24 to 48 hours prior to the initiation of soil excavation activities below the static groundwater level.

Soil Excavation

Soil excavation will be performed using a 25,000-pound hydraulic excavator. The top 2 feet of soil in the Hot Spot Area and top 3 feet of soil at HSI-SB-11 will be placed in a clean soil stockpile, that will be covered with polysheeting, for reuse as backfill.

The clay cap at the Site may extend over the western corner of the shored Hot Spot excavation. Since this should only be a small area and the contaminated soil beneath it will be excavated, the clay cap will not be replaced, and the clay will be used as clean backfill.

Contaminated soil will be removed from the two excavation areas (i.e., the hot spot and HSI-SB-11) and placed into lined and covered roll-off containers staged at the Site or live loaded into roll-offs directly on the trucks. Once filled, the roll-off containers will be transported to the disposal facility(ies) as described in Task 5 below.

During excavation activities, high capacity fans will be used to ventilate the excavation and to direct vapors away from the neighboring properties and toward the center of the Site. Air monitoring will be performed according to the Air Monitoring Plan developed for the project. If vapor concentrations along the property borders, as monitored using the PID, exceed established thresholds in the Plan, excavation activities will be halted, the excavation will be covered with polysheeting, and ventilation fans may be re-directed until vapor concentrations return to levels below the thresholds.

The hot spot excavation extends to near the property line with 105 Inverness Drive. CGS proposes to relocate the residents of 105 Inverness Drive to a local hotel for the duration of soil excavation and backfilling activities to eliminate their risk of breathing vapors generated during soil excavation and loading roll-off containers.

Temporary chain-link construction fencing will be erected around the perimeter of the hot spot and HSI-SB-11 excavation areas during non-working hours to keep the site safe and secure. The open excavations will also be covered with polysheeting during non-working hours to limit the spread of vapors.

Soil vapor monitoring point SMP-VMP-03 will be removed during this process.

At boring HSI-SB-11, CGS will perform a targeted excavation to remove the soil contamination found in the 3-5 foot depth interval an equal distance surrounding this boring. Our cost proposal includes transportation and disposal of one load (i.e., up to 17 to 18 additional tons) of contaminated soil from this location. This soil will be disposed of with the soil excavated from the Hot Spot Area.

Confirmation Soil Sampling

Two confirmation soil samples will be collected from the bottom of the hot spot excavation. Confirmation samples from the side walls will be collected if any soil remains inside the

shoring, to confirm effective removal of the hot spot soil contamination. Our cost proposal includes provisions for the collection of one soil sample from each of the four side walls. Confirmation soil samples will also be collected at HSI-SB-11. Our cost proposal includes one sample for each of the four side walls and the bottom of the excavation.

The samples will be collected from the excavator bucket using Teracore samplers via USEPA Method 5035. This task includes the analysis of up to 11 soil samples for analysis of VOCs via USEPA Method 8260. A rush 24-hour laboratory turn-around-time (TAT) will be requested for the 5 samples collected from the HSI-SB-11 excavation once the samples reach the laboratory to minimize the time that the excavation stays open for safety concerns. A Level 2 Deliverable will be prepared by the laboratory.

Should any of the samples collected at HSI-SB-11 exceed the soil screening levels, MDE-LRP will be consulted to determine whether a Work Order is prepared to excavate and dispose of additional contaminated soil at this location.

Excavation Backfill

The excavated areas will be backfilled using imported select fill and the soil that was stockpiled from the top 2-3 feet of the excavations. Our proposed source of Select Fill is from Aggtrans at the Martin Marietta quarry located in North East, Maryland. Aggtrans will be asked to complete MDE's Clean Fill Certification on its letterhead before these materials are delivered. In addition, Aggtrans will collect a composite sample of the select fill and deliver it to CGS for laboratory analysis. CGS will analyze the composite sample for VOCs via USEPA Method 8260. CGS understands that MDE-LRP will accept or reject the material based on the laboratory results.

Backfill will be placed in the excavated areas using the excavator and/or loader. The excavator bucket will be used to spread and tamp down the backfill within the excavated areas. No compaction testing will be performed of the backfilled material or no specified soil density will be attained. Some settlement of the backfilled material could occur over time. Additional site restoration activities are discussed below under Task 6.

The wheels, tracks, and buckets of heavy excavation equipment will be pressure washed before demobilization from the Site.

Task 5: Disposal of Contaminated Groundwater and Soil

Containment

As discussed above in Task 4, water generated during the excavation dewatering will be contained in a 20,000-gallon frac tank. Water generated from sample purging at HSI-MW-03 and from small-equipment decontamination during sampling prior to Task 4 will be stored in a single drum.

Contaminated soil will be removed from the two excavation areas (i.e., the hot spot and HSI-SB-11) and placed into lined and covered roll-off containers staged at the Site or live loaded into roll-offs directly on the trucks. If testing indicates that some portion of the excavated soil does not require pre-treatment for disposal, it will be loaded into separate roll-offs from the soil that does require pre-treatment to reduce costs.

Disposal

Liquids stored in the frac tank, an existing drum of sampling purge water, and in the single drum that will be generated will be emptied by a vacuum tanker truck and disposed of at EQ Detroit, Inc., a waste water treatment facility in Detroit, Michigan. The frac tank will be pressure washed prior to its return to the rental company. The drums will also be pressure washed to allow their reuse. This Work Plan includes provisions for hazardous waste disposal of up to 8,000 gallons of water. This estimated quantity is based upon results of the dewatering pilot test. CGS will bill the actual quantity of water disposed.

Our cost proposal assumes that up to 11 roll-off containers holding up to 190 tons of contaminated soil are disposed of as pre-treated hazardous waste at the Biogenie facility in Montreal, Canada. Biogenie will use biological treatment to pre-treat the contaminated soil. One existing drum of contaminated soil, from the installation of temporary wells used for the dewatering pilot test and from advancing borings to collect samples for pre-treatment testing, will be transferred into a roll-off container for disposal. CGS will bill the actual number of loads and quantity of the soil disposed. Pre-treatment testing will confirm whether pre-treatment of the contaminated soil is necessary at each of the three locations sampled, and if so, the type of pre-treatment that will be required. Findings from testing of the pre-treatment samples may result in disposal cost savings. CGS will bill the actual disposal cost plus 10%.

CGS will arrange for the removal and proper disposal of the water and soil generated during Tasks 3 and 4 of this Work Plan and from previous phases of work currently stored in drums. CGS will arrange for the disposal documentation and forward it to MDE-LRP for signature as the agent for the generator. MDE-LRP will be billed for the actual quantities of water and soil that are disposed at the rates indicated in our cost spreadsheet.

Task 6: Site Restoration

Grass Seeding

CGS will grade the two excavation areas and disturbed areas to match the existing topography and to promote good drainage. Grass seed will be broad cast using a walk-behind seeder where ground vegetation has been disturbed. These seeded areas will be covered with straw to hold moisture and promote grass growth. Our cost proposal does not include topsoil or watering.

Replacement of the Guard Rail and Fencing

CGS will replace the guard rail that was temporarily removed to provide access to excavate the hot spot. This Work Plan does not include replacing the fence at 105 Inverness Drive. This work will be done under a separate Work Order once it has been determined whether the fence that was removed can be reused and whether the “temporary” fencing installed along the SCE is adequate or should be replaced with something more permanent.

Replacement of SMP-MW-03 and SMP-VMP-03

CGS recommends replacing monitoring well SMP-MW-03 and vapor monitoring point SMP-VMP-03 to continue monitoring the remediated hot spot. These replacements are not included in this Work Plan. Should MDE-LRP decide to replace SMP-MW-03 and SMP-VMP-03, CGS will prepare a new Work Order.

Task 7: Project Deliverables

A brief written report will be prepared to document the removal action. The report will be prepared as a draft for MDE’s review. Our cost proposal includes one round of revisions based on MDE’s review of the report. Field notes, daily reports, digital photographs, and air monitoring results will be used to prepare the report that summarizes the remedial work. The report will include the following:

- Methodology and description of the removal action;
- Screened analytical data from air monitoring and confirmation soil sampling and summary tables if data exceed screening levels;
- Photo-documentation of the excavation and backfilling; and
- Copies of daily reports, material receipts and weight tickets, and hazardous waste disposal manifests.

Note: The non-scope-of-work/contractual portions of this Work Plan have been removed.