WORKPLAN FOR ADDITIONAL SITE ASSESSMENT

MARYLAND OIL CONTROL PROGRAM (OCP)

North Point Governmental Facility
1747 Merritt Boulevard/7701 Wise Avenue
Dundalk, Baltimore County, Maryland
MDE OCP Case No. 2016-0467-BA

Apex Job Number: AMORT-008

January 26, 2017

Submitted To:

Mr. Andrew B. Miller, Chief and Ms. Ellen Jackson, Central Regional Section Head
Oil Control Program
Maryland Department of the Environment
1800 Washington Boulevard
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Prepared for:

A. Morton Thomas & Associates, Inc
c/o Mr. Stephen Jerrick, Senior Project Manager
1.0 INTRODUCTION

Apex Companies, LLC (Apex) has prepared this Work Plan, on behalf of Baltimore County Government for site assessment activities at the North Point Government Facility addressed as 1747 Merritt Boulevard – 7701 Wise Avenue in Dundalk, Baltimore County, Maryland (subject property or site). This work plan has been prepared in accordance with the Maryland Department of the Environment (MDE) Request for Work Plan dated December 13, 2016. The MDE Request for Work Plan is associated with Oil Control Program (OCP) Case 2016-0467-BA, which was opened following a confirmed release from a supply line associated with an underground storage tank (UST) located at the subject property. The MDE Request for Work Plan identified the following requirements: 1) Submit a work plan for assessment activities to further evaluate the extent of contamination detected along the former product piping run; 2) install a minimum of three, 4-inch diameter groundwater monitoring wells; 3) perform cleaning of the storm drain manway located closest to the former product piping run where residual petroleum contamination (sheen) and petroleum odors were observed; 4) perform an inspection of all basement sumps located in the on-site building for the presence of petroleum contamination; and 5) submit documentation regarding monitoring and maintenance of booms in the storm drain outfall as well as previous site assessment reports that have not been provided.

The planned scope of work includes the installation of three, 4-inch groundwater monitoring wells, the collection of 3 subsurface soil samples from the well installs; the development of three newly installed monitoring wells and subsequent collection of groundwater samples from the three wells. Apex reviewed building site plans and performed a site inspection to identify any basement sumps located in the on-site building. Based on Apex’s review and inspection, basement sumps are not located in the on-site building. A Site Layout is provided on Figure 1.
2.0 SCOPE OF WORK

The following sections detail the scope of work proposed to achieve the above objectives. Apex will prepare a site-specific health and safety plan (HASP) for the work. The plan will outline the risks associated with this scope of work and the health and safety measures that will be implemented.

As the scope of work will include subsurface borings, as part of its HASP and as legally required prior to initiating any subsurface investigation, underground utilities in on-site areas of investigation will be located. The "Miss Utility" system will be contacted to locate underground utilities. The Miss Utility system will locate underground utilities in public spaces and on easements. Apex Health and Safety Standard Operating Procedures (SOP) for soil boring completion requires contracting a private utility locator service to identify locations of utilities in the areas not identified by Miss Utility. Available as-built drawings and site plans (ALTA Land Title Survey Plat) will also be reviewed in order to identify known subterranean features, and boring locations will be approved by site personnel prior to progression into the subsurface.

2.1 Monitoring Well Installation

To further evaluate the extent of the contaminated area originating from the former product piping run, Apex will complete three borings and install three, 4-inch diameter groundwater monitoring wells, identified as MW-4, MW-5, and MW-6 on the subject property. Proposed boring locations are presented in Figure 1. Borings will be advanced using hollow stem augers (HSA) with split spoon soil sampling to a maximum depth of 25 feet below ground surface or approximately 10 feet below the water table, which is consistent with the average groundwater depth of 15 to 16 feet as identified during previous investigations.

At each location, soil samples will be collected continuously from the surface to the terminus of the borings. Apex will field screen soil samples using a calibrated PID. The on-site geologist will document field observations including PID readings, soil lithology, as well as visual and olfactory observations. Apex will collect a soil sample from the depth exhibiting the highest PID readings or from directly above the groundwater/soil interface if no elevated PID readings are observed.

Once the desired depth has been reached at each location, the three monitoring wells will be constructed using 4-inch Schedule 40 polyvinyl chloride (PVC) well screen and casing. The PVC pipe will be factory-slotted and threaded and capped on the bottom. Each well will consist of 15 feet of screen. The annular space around the well screen will have a minimum of 1.5-inch of space on all sides and will be backfilled with filter sand that extends from the base of the well to
two feet above the screen. Above the filter sand, a two-foot bentonite slurry seal will be installed. The remaining annular space around the well casing will be grouted with bentonite Portland cement mixture (60:40). Grouting will extend to the ground surface. A flush mount well cover will be installed at the ground surface to protect the well from damage.

Soil samples from borings collected during the investigation will be submitted to a laboratory for analysis consistent with the concern being investigated (fuel oil release) and will total petroleum hydrocarbons (TPH) diesel range organics (DRO) using EPA Method 8015, and volatile organic compounds (VOCs) using EPA Method 8260. Table 1 summarizes the proposed soil sampling and analysis plan.

To minimize the risk of cross-contamination (e.g. asphalt particles in a soil sample analyzed for PAHs), samples will be collected carefully from the only the targeted media. Sampling equipment (e.g., split spoons, augers) will be decontaminated between sampling locations using Alconox wash, tap water rinse, distilled water rinse and air dry. Disposable nitrile gloves will be used during sample collection, and decon procedures. Soil cuttings generated during soil boring completion will be placed in 55-gallon drums for disposal offsite. Dedicated and disposable sampling items will be placed in trash bags and transported off site for disposal.

2.2 Groundwater Sampling

Upon completion of the three monitoring, Apex will collect groundwater samples from the subject property. Prior to sample collection, Apex will develop the monitoring wells using the methodology prescribed in the Environmental Protection Agency (EPA) 1992 Groundwater Forum Monitoring Well Development Guidelines for Superfund Project Managers. Monitoring well development for each well will consist of:

1. Initially recording the static water level and depth to bottom of the well;
2. Set a pump, record pumping rate and turbidity; pump until turbidity stabilizes;
3. Discontinue pumping and surge the well;
4. Measure depth to the well bottom, if more than 10% of the bottom well screen is occluded by sediment, remove the sediment by bailing or vacuum;
5. Reset the pump, record pumping rate and turbidity, pump until turbidity stabilizes;
6. Repeat until the well yields acceptable turbidity at the beginning of the pumping cycle.

Development water and any other investigation derived waste generated during this project will be containerized into 55-gallon drums, characterized by laboratory testing, and disposed properly.
Representative groundwater samples will be collected using low-flow purging and sampling methodology. Well purging will be conducted using a variable speed low flow air bladder pump or peristaltic pump. Groundwater quality parameters pH, specific conductivity, dissolved oxygen (DO), turbidity, and oxidation reduction potential (ORP or Eh) will be measured through a flow cell using a multi-parameter water quality meter for stabilization. Following well purging and stabilization, water samples will be transferred directly into pre-preserved laboratory glass containers with Teflon-lined lids, labeled and stored on ice at a temperature of approximately 4 degrees Centigrade pending delivery to the laboratory. The monitoring well samples will be submitted to the laboratory under proper chain of custody (COC) procedures and analyzed for full-suite VOCs using EPA Method 8260 and TPH-DRO using EPA Method 8015. Sampling equipment (e.g., meters, pumps) will be decontaminated between sampling locations using Alconox wash, tap water rinse, distilled water rinse and air dry. Disposable nitrile gloves will be used during purging, sample collection, and decontamination procedures. Table 1 summarizes the proposed groundwater sampling and analysis plan.

Apex will conduct a groundwater elevation survey and plot the existing monitoring well locations on a scaled site plan using coordinates determined by portable GPS equipment. Water table elevations will be determined from static water level measurements at each surveyed well location and the elevation data will be utilized to develop a groundwater flow contour map.

### 2.3 Storm Drain Manway Cleaning

The MDE Request for Work Plan requires the cleaning of the impacted storm drain manway located nearest to the former product piping run due to previous indications of petroleum impact observed in the manway. The storm drain manway will be cleaned by utilizing a pressure washer to clean out debris and any petroleum observations present during the cleaning. A vacuum truck will be mobilized to the site and setup on the storm drain manway immediately downgradient of the impacted manway. The vacuum truck will be utilized to contain and recovery impacted water generated during the pressure washing of the impacted storm drain manway. Water recovered during cleaning will be disposed of offsite at an approved disposal facility.

### 2.4 Basement Sump Inspection

The MDE Request for Work Plan requires the identification and inspection of basements sumps located within the on-site building for the presence of petroleum impact. On December 21, 2016, Apex mobilized to the site to inspect basement sumps located at the site. Apex was accompanied by Mr. John Messler with Baltimore County, and Mr. Stephen Jerrick with A. Morton
Thomas, during its inspection. Apex inspected the boiler room as suggested by Mr. Messler and did not observe any basement sumps. Mr. Messler indicated that he was unaware of any basement sumps located in the on-site building. In addition to the site inspection, Apex also reviewed site plans provided by Mr. Jerrick. The site plans reviewed did not identify basement sumps on the property. Site plans reviewed by Apex are provided in Attachment 1.

2.5 Site Assessment Report

Following completion of field investigation tasks, Apex will prepare a summary report of field activities, the data obtained, and conclusions. The report will include scaled site drawings that depict the sample locations, soil boring logs and well construction logs, well locations, soil and groundwater concentration maps, and the laboratory data reports. The report will also include any additional findings and data that were collected at the subject property.
3.0 STATEMENT REGARDING ITEM #3 OF THE MDE REQUEST FOR WORK PLAN

In response to a possible heating oil seepage at the North Point Government Center on Sunday February 21, 2016, I, John H. Messler, arrived on site and observed that there was a boom at the storm drain outfall. It was my impression that the Maryland Department of the Environment (MDE) Emergency Response Team had placed the boom in the storm drain outfall located on Merritt Blvd. The accompanying photograph (Attachment 2) shows that a boom was in place during procedures undertaken by MDE to determine the flow of the seepage. The outfall/boom was checked periodically by myself in the company of an MDE representative as noted within the MDE reports. As noted within subsequent MDE reports the heating oil odor and sheen at the outfall had completely disappeared. Through these action, we thought we were in compliance.

Due to heavy rains during this period of time, an exploration of the stream needed to be undertaken to determine if parts of the boom had traveled downstream. When the boom was not found, it was thought that the petroleum contractor for Baltimore County had removed it. As part of the MDE work plan AMT along with Apex performed an analysis at the outfall. In addition, if any evidence of product was found at the storm drain outfall the work plan called for a boom to be placed at the storm drain outfall and maintained. Two stream explorations were performed with no indication of product from the North Point Government Center heating oil piping seepage. No one was hired by the County to monitor and maintain boom originally and no documentation is available outside of the picture provided in Attachment 2.
### TABLE 1
Site Assessment – Sampling Plan
North Point Government Facility

**SOIL**

<table>
<thead>
<tr>
<th>Sample Location¹</th>
<th>Description</th>
<th>Sample Depths²</th>
<th>Analytical Parameters – Methods By Fixed Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater Monitoring Wells</td>
<td>3 subsurface soil sample (MW-4, MW-5, MW-6)</td>
<td>Various</td>
<td>TPH-DRO by EPA 8015 VOCs by EPA 8260</td>
</tr>
<tr>
<td></td>
<td>3 groundwater samples (MW-4, MW-5, MW-6)</td>
<td>DTW est. at 15 to 20 ft bgs</td>
<td>TPH-DRO by EPA 8015 VOCs by EPA 8260</td>
</tr>
</tbody>
</table>

**Notes:**
1 – Refer to attached Figure 1 for proposed soil and water sample locations.
2 – Refer to Section 2 of the Work Plan for detailed scope of work.

### TABLE 2
Site Assessment – Sampling Plan
QA/QC Parameters

**SOIL**

<table>
<thead>
<tr>
<th>Sample Location¹</th>
<th>Description</th>
<th>Sample Depths²</th>
<th>Analytical Parameters – Methods By Fixed Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>One blind duplicate soil sample (MW-4, MW-5, MW-6)</td>
<td>Selected subsurface sample location</td>
<td>Subsurface</td>
<td>TPH-DRO by EPA 8015 VOCs by EPA 8260</td>
</tr>
</tbody>
</table>

**GROUNDWATER**

<table>
<thead>
<tr>
<th>Sample Location¹</th>
<th>Description</th>
<th>Analytical Parameters – Methods By Fixed Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>One blind duplicate groundwater sample (MW-4, MW-5, MW-6)</td>
<td>One Blind duplicate water sample</td>
<td>TPH-DRO by EPA 8015 VOCs by EPA 8260</td>
</tr>
</tbody>
</table>
ATTACHMENT 1

Site Plans
ATTACHMENT 2

Photograph of Outfall