Your Name: Mary Siedlecki
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Facility Name: ADF
Document Group: Financial (F)
Document Type: Other (O)
Description: Cost Estimate prepared by amec for purposes of settlement discussion
Date of Doc: 3/21/2014
Author of Doc: amec
March 21, 2014

Mr. John D. Noor  
Roberts & Stevens, P.A.  
Legal Representative for Dyna-Diggr, LLC  
BB&T Building, Suite 1100  
One West Pack Square  
Asheville, North Carolina 28801

Subject: Updated Opinion of Cost for Implementation of (draft) Administrative Order in Lieu of Post-Closure Permit  
Former Asheville Dyeing and Finishing Company  
Swannanoa, North Carolina  
AMEC Project 6252-14-0124

Dear Mr. Noor:

AMEC Environment & Infrastructure, Inc. (AMEC) is pleased to present this updated Opinion of Cost for potential environmental activities related to a draft Administrative Order in Lieu of Post-Closure Permit (Order) for the former Asheville Dyeing and Finishing (ADF) facility located at 850 Warren Wilson Road in Swannanoa, North Carolina (Site).

BACKGROUND INFORMATION

On behalf of Dyna-Diggr, LLC, Roberts & Stevens contacted AMEC to review the draft Order prepared by the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Waste Management and provide an opinion of cost to implement the scope of work contained in the Order. The draft Order is under consideration of execution by Dyna-Diggr, the current owner of the former ADF property. AMEC provided an initial opinion of cost for implementation of the draft Order, which was dated February 24, 2014.

In a meeting with NCDENR representatives on February 26, 2014, Roberts & Stevens received a document prepared by NCDENR that outlined an approach and an estimate of costs for some of the tasks required by the Order. Roberts & Stevens requested that AMEC review NCDENR’s approach and cost estimate and provide an updated opinion of cost for implementation of the Order.

DOCUMENT REVIEW

Roberts & Stevens provided AMEC with historical environmental reports and documentation, dated between 1989 and 2007. The documents primarily consist of reports associated with assessment of the former waste tetrachloroethene (PCE) underground storage tank (UST) and groundwater monitoring conducted as required by NCDENR. Documents dated between late 1995 and early 2005 were not included in the
documentation provided to AMEC, and were not readily-available through the NCDENR document website. During this period, additional assessment was conducted at the Site, as well as installation of an air sparge/soil vapor extraction (AS/SVE) remediation system as an interim remedial measure. Similarly, a report of activities related to a Sampling and Analysis Plan, dated December 2008, and the Resource Conservation Recovery Act (RCRA) Facility Assessment (RFA) conducted in 2004 were originally not included in the documentation provided to AMEC or available on the NCDENR website; however, after discussions with NCDENR personnel, these select documents were placed on the NCDENR website and were downloaded and reviewed by AMEC.

AMEC reviewed the draft Order in relation to the previous assessment and remedial activities that have been completed at the Site. The Order requires additional assessment/characterization of four solid waste management units (SWMUs) and one area of concern (AOC) at the Site.

Based on information contained in the reviewed documents, and through discussions with NCDENR personnel, AMEC prepared this updated opinion of cost for implementation of the Order.

**OPINION OF COST**

We have prepared an updated opinion of cost for the tasks required by the Order, which is summarized in the table below. An opinion of costs associated with the required assessment/characterization of the SWMUs, as well as costs for additional assessment to address data gaps related to environmental conditions at the Site, are included.

<table>
<thead>
<tr>
<th>Task</th>
<th>Section in Order</th>
<th>Description</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V.F.1</td>
<td>Topographic and site map</td>
<td>$1,000</td>
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<tr>
<td>2</td>
<td>IX.A</td>
<td>O&amp;M schedule for existing system</td>
<td>$3,000</td>
</tr>
<tr>
<td>3</td>
<td>IX.B</td>
<td>Personnel plan</td>
<td>$2,000</td>
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<tr>
<td>4</td>
<td>V.H.1</td>
<td>Facility Characterization Work Plan</td>
<td>$20,000</td>
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<tr>
<td>5</td>
<td>V.L.1</td>
<td>Draft Remedial Strategy</td>
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<tr>
<td>6</td>
<td>V.H.2</td>
<td>Implement Facility Characterization</td>
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<tr>
<td>6a</td>
<td>V.G.1</td>
<td>SWMU 7: Secondary containment for tote farm</td>
<td>$1,000</td>
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<tr>
<td>6b</td>
<td>V.G.1</td>
<td>SWMU 8: Secondary containment for dye mixing room</td>
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<tr>
<td>6c</td>
<td>V.G.1</td>
<td>SWMU 9: Interior floor drains/trench drains</td>
<td>$7,000</td>
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<tr>
<td>6d</td>
<td>V.G.1</td>
<td>SWMU 13: Eight-inch drain</td>
<td>$63,000</td>
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<tr>
<td>6e</td>
<td>&quot;V.G.1&quot;</td>
<td>AOC 1: Former disturbed soil area</td>
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<tr>
<td>6f</td>
<td>&quot;V.G.1&quot;</td>
<td>Indoor air sampling (two events)</td>
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<tr>
<td>6g</td>
<td>&quot;V.G.1&quot;</td>
<td>Comprehensive groundwater sampling</td>
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<tr>
<td>6h</td>
<td>&quot;V.G.1&quot;</td>
<td>Soil assessment at virgin and waste PCE USTs</td>
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<tr>
<td>6i</td>
<td>V.I.1</td>
<td>Facility Characterization Report</td>
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<tr>
<td>7</td>
<td>V.J</td>
<td>Semi-annual/annual monitoring and progress reports</td>
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<tr>
<td>8</td>
<td>X.B</td>
<td>Develop cost estimate for actions under Order</td>
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<tr>
<td>9</td>
<td>V.M</td>
<td>Remedial Action</td>
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<td>9a</td>
<td>V.M.3</td>
<td>Develop remedial action plan</td>
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<td>Implement additional remedial action (ISCO)</td>
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<td>9c</td>
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<td>O&amp;M for AS/SVE systems (30 years, 4% inflation)</td>
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<td>10</td>
<td>VIII.F</td>
<td>Biennial reporting (EPA Form 8700-13 A/B)</td>
<td>$26,000</td>
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</table>
Costs associated with completing legal items related to potential corrective measure approaches, such as implementing activity and use limitations, deed restrictions, etc., are not included in the above opinion of cost. The opinion of cost assumes additional information such as a property survey and information on the AS/SVE systems can be obtained and incorporated in the draft Order’s tasks.

Basic assumptions used to develop the costs associated with assessment and remediation are described below. Please note that for tasks to be implemented over 30 years, the present worth value of the task has been adjusted to account for inflation. Also note that our cost opinions are based on our preliminary review of provided information. Actual costs may vary due to additional data results, updated site conceptual model, regulatory requirements, actual contractor quotes, etc.

**SWMU 7: Secondary containment for tote farm**
- Use camera to inspect waste piping.
- One half day of effort by subcontractor with oversight.
- Waste piping is in good condition, so soil and groundwater assessment not required.
- Reporting not included.

**SWMU 8: Secondary containment for dye mixing room**
- Use camera to inspect waste piping.
- One half day of effort by subcontractor with oversight.
- Waste piping is in good condition, so soil and groundwater assessment not required.
- Reporting not included.

**SWMU 9: Interior floor drains/trench drains**
- Use camera to inspect drain lines.
- Three days of effort by subcontractor with oversight.
- Drain lines are in good condition, so soil and groundwater assessment not required.
- Reporting not included.

**SWMU 13: Eight-inch (diameter) drain**
- Private utility locator will locate drain using ground penetrating radar.
- Clearing of trees/brush required.
- Advance direct-push borings adjacent to line every 50 feet (length of line along building and from building to Bee Tree Creek is approximately 1,600 feet).
  - Up to 33 borings.
  - Advance borings to 5 to 10 feet below apparent water table (average depth of 20 feet).
  - Collect one soil and one groundwater sample from each boring location and submit samples for analysis of VOCs.
  - Up to three drums of non-hazardous waste will be disposed of at a permitted facility.
- Based on the analytical results of the soil and/or groundwater samples, six monitoring wells will be installed (three shallow and three deep).
  - Standard 2-inch diameter PVC monitoring wells.
  - Groundwater samples collected after installation and analyzed for VOCs.
  - Wells will be surveyed by a licensed surveyor.
o Up to twelve drums of non-hazardous waste will be disposed of at a permitted facility.

Reporting not included.

AOC 1: Former disturbed soil area

- Advance up to 10 direct-push borings for collection of soil and groundwater samples to identify/delineate source area and determine where to install permanent monitoring wells.
  - Advance borings to 5 to 10 feet below apparent water table (average depth of 20 feet).
  - Collect one soil and one groundwater sample from each boring location and submit samples for analysis of VOCs.
  - Up to three drums of non-hazardous waste will be disposed of at a permitted facility.
- Based on the analytical results of the soil and/or groundwater samples, six monitoring wells will be installed (three shallow and three deep).
  - Standard 2-inch diameter PVC monitoring wells.
  - Groundwater samples collected after installation and analyzed for VOCs.
  - Wells will be surveyed by a licensed surveyor.
  - Up to twelve drums of non-hazardous waste will be disposed of at a permitted facility.
- Reporting not included.

SWMU 10 (former waste PCE UST) and former virgin PCE UST

- Advance up to 6 direct-push borings around the former tank pits.
  - Advance borings to the apparent water table (assumed depth of 15 feet).
  - Collect up to two soil samples from each boring location and submit samples for analysis of VOCs.
  - Up to two drums of non-hazardous waste will be disposed of at a permitted facility.
- Reporting not included.

Comprehensive groundwater monitoring event

- A comprehensive groundwater sampling event is recommended to evaluate the groundwater plume and develop the conceptual site model. Although numerous groundwater investigations have been implemented to delineate the contaminant plume, a comprehensive groundwater sampling event has not been conducted.
  - Measure water level at all site wells.
  - Collect groundwater samples from 41 wells and submit samples for analysis of VOCs.
  - Use low-flow purge/sample technique to minimize volume of purge water.
  - Up to two drums of non-hazardous waste will be disposed of at a permitted facility.
- Reporting not included.

Indoor air sampling

- Indoor air sampling will be conducted to determine if the subsurface contamination is creating a health risk to potential occupants of the site building.
- Based on the results of the initial air sampling event, a second air sampling event is required.
• Up to 15 indoor air samples, 2 ambient air samples, and quality control samples will be collected.
• Reporting for second sampling event included.

Facility Characterization Report

• The Facility Characterization Report will include the results from the aforementioned assessment tasks, except the second air sampling event.

AS/SVE system operation and maintenance

• Operation and maintenance for 30 years.
• Present worth cost includes inflation rate of four percent.
• Initial inspection of system and necessary repairs and upgrades.
• Electricity costs included.
• System equipment (e.g., vacuum blower) twice during period.
• Bi-weekly operational check.
• Condensate water disposal (non-hazardous).
• SVE air discharge sampling (semi-annual).
• Annual reporting.

Corrective Action Effectiveness Monitoring

• Corrective action effectiveness monitoring for 30 years.
• Present worth cost includes inflation rate of four percent.
• Semi-annual groundwater monitoring for first five years and annual thereafter.
• Water level measured at all site wells.
• Groundwater samples collected from 14 wells and submitted for analysis of VOCs.
• Standard quality control samples collected.
• Annual reporting.

Source area treatment

• Source area treatment is recommended to treat “hot spots” of contamination. This will likely be required in the area of the former virgin and waste PCE USTs, in the area of AOC 1, and SWMU 13.
• Injection permit required.
• Pilot and treatability tests required.
• Approximately 30 injection wells required (more than one injection area based on additional assessment finding).
• Two injection events.

SWMU 14 (former dump area)
According to NDENR’s cost estimate, SWMU 14 requires additional soil and groundwater assessment, primarily due to the presence of elevated metal concentrations. NCDENR also provided an estimate of costs for removal of waste in the dump and recommended capping of soil in the area with imposed land use restrictions.

The waste in this area is from historical operations at the Chemtronics Superfund site. The area, called Disposal Area-24 (DA-24), was investigated as part of the Chemtronics Remedial Investigation in the mid-1980s. Although some contamination was indicated, the USEPA did not require the Chemtronics Potential Responsible Parties (PRPs) to further
investigate or remediate DA-24. Based on an Assessment Report, dated October 31, 2008, prepared by Mineral Springs, waste in this area includes drums, powders, and bottles, with labels for chemicals used in the production of explosives (e.g., dinitrotoluene and sodium nitrate) and other potentially hazardous waste (e.g., “Class B Poison”). Although most of the drums were indicated as being empty, they could contain residual material from the drums original contents. The disposal area was also reportedly a former gravel pit, so the depth/volume of waste material and debris is likely not limited to the ‘surface’ and could be substantial. Soil and groundwater samples collected in this area have been analyzed for VOCs, SVOCs, metals, and perchlorate, but not for other constituents that are associated with Chemtrons Superfund site (e.g., explosives, RDX, n-nitrosodimethylamine, picric acid, cyanide, etc.); therefore, impacts to soil and groundwater from these other constituents is not known.

Costs associated with additional assessment and remediation of soil and groundwater in this area are likely significantly more than estimated by NCDENR. The Chemtrons PRPs have been identified as being responsible for the waste in DA-24, so AMEC recommends that Dyna-Diggr, as owner of the property, negotiate with the Chemtrons PRPs for their assessment and remediation of the area.

Biennial Reporting
- Reporting for 30 years.
- Present worth cost includes inflation rate of four percent.

CLOSING

We appreciate the opportunity to provide our environmental services to Roberts & Stevens. If you have any questions concerning the information presented herein, please do not hesitate to contact us at (828) 252-8130.

Sincerely,

AMEC Environment & Infrastructure, Inc.

[Signatures]

Susan E. Kelly, P.E., L.G.
Senior Engineer

Matthew E. Wallace, P.E.
Principal Engineer

SEK/MEW:sek