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MEMO

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From:
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Date:
May 16, 2011

ARCADIS Project No.:
B0014505

Subject:
Aberdeen MGP Site Remedial Program: Five-Year Projected Cash Flow

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This memorandum presents two potential cash flow scenarios for planned remedial expenditures for NorthWestern Energy's former manufactured gas plant site in Aberdeen, South Dakota. This analysis builds upon the cash flow projection provided in a memorandum dated November 16, 2010. As with the November cash flow projection, the scenarios presented below are based on the "engineering estimate" costs developed for the planned remedial program and presented as "Remedial Alternative 2" in a Remedial Alternatives Evaluation document submitted to the South Dakota Department of Environment and Natural Resources (SDDENR) in April 2010. This remedial alternative, approved by the SDDENR in a letter dated June 14, 2010, consists of enacting institutional controls restricting property development and groundwater use, recovery of coal tar free product from the subsurface, long-term perimeter groundwater monitoring, and ongoing operational maintenance on current and future groundwater/free product remediation systems. The costs developed for the Remedial Alternative Evaluation were primarily intended to provide an engineering-level cost comparison between the various alternatives that were presented at the time; as such, actual costs may differ once contractor bids are received and evaluated and third party negotiations take place.

The majority of costs over the next five years are associated with construction of free product collection galleries at the site and on neighboring properties. In the following analysis, ARCADIS presents two potential remediation schedules and forecasted annual expenditures for consideration (inflation/discounting (net present value determination) has not been applied to these projections):

Base Case Scenario [most aggressive]: Generally represents the scenario envisioned and presented in the November 16, 2010 memorandum, whereby construction would be conducted during the first three years. The only difference from this base scenario relative to that portrayed in November is

that the assumed third party compensation has been deferred equally between 2012-2013. A full scale pilot stage series of galleries will be constructed on the NorthWestern Energy property this year. Total linear footage will amount to about 1,000 feet targeted to address the coal tar fluids identified on this property and aid in lessening the migration potential off-site. The remaining construction would occur in 2012 and 2013 to address coal tar fluids in off-site areas.

BASE CASE SCHEDULE		
Year	**Projected Expenditures (includes 25% contingency)**	**Anticipated Project Activities and Related Assumptions**
2011	$2,900,000	Stage 1 (on-site) remedial construction (30% of trench length), operation and maintenance costs for existing Booster Station remediation system and annual groundwater monitoring.
2012	$4,200,000	Stage 2 (off-site) remedial construction (35% of trench length), 50% of institutional controls execution (assumes $1MM for property owner compensation), operation and maintenance costs for existing Booster Station remediation system and annual groundwater monitoring. Initial O&M on recovery trench remediation systems assumed to be covered within contingency.
2013	$4,200,000	Stage 3 (off-site) remedial construction (35% of trench length), 50% of institutional controls execution, operation and maintenance costs for existing Booster Station remediation system and annual groundwater monitoring. Initial O&M on recovery trench remediation systems assumed to be covered within contingency.
2014	$300,000	Includes operation and maintenance of Booster Station remediation system and recovery trench remediation systems, and annual groundwater monitoring.
2015	$300,000	Includes operational maintenance of Booster Station remediation system and recovery trench remediation systems, and annual groundwater monitoring.
First 3 Years	$11,300,000	
First 5 Years	$11,900,000	
First 10 Years	$13,400,000	

Optimal Schedule [moderately aggressive, technically optimal]:

Work planned for 2011 will remain the same, focusing on subsurface installation of Stage 1 collection galleries on the NorthWestern Energy property. However, a full year of monitoring and operation would be performed with next year's effort focusing on design, installation and operation of surface-based infrastructure (pipes, pumps, tanks, etc.) coal tar handling facilities for the Stage 1 galleries. The remaining off-site collection galleries (Stages 2/3) would be constructed in 2013 under one final mobilization of construction equipment (an extra mobilization charge of $100,000 has been added into projected expenditures for 2013). The following year (2014) would entail design, installation, and operation of the supporting infrastructure for operation of the Stages 2/3 collection galleries.

OPTIMAL SCHEDULE		
Year	**Projected Expenditures (includes 25% contingency)**	**Anticipated Project Activities and Related Assumptions**
2011	$2,600,000	Install Stage 1 collection galleries (30% of trench length or about 1,000 feet), operation and maintenance costs for existing Booster Station remediation system and annual groundwater monitoring.
2012	$1,300,000	Monitoring of free product collected in trench sumps, design and construct wastewater treatment/NAPL storage system for Stage 1 trenches, 50% institutional controls, operation and maintenance costs for existing Booster Station remediation system and annual groundwater monitoring.
2013	$6,500,000	Design and construct Stages 2 and 3 trenches (70% of trench length), 50% institutional controls, operation and maintenance costs for existing Booster Station remediation system and annual groundwater monitoring, O&M for stage 1 collection galleries.
2014	$800,000	Monitoring of free product collected in trench sumps, design and construct wastewater treatment/NAPL storage system for Stage 2/3 trenches, operation and maintenance costs for existing Booster Station remediation system and annual groundwater monitoring, O&M for stages 1-3 collection galleries.
2015	$300,000	Operations and maintenance costs for existing Booster Station remediation system and annual groundwater monitoring, O&M for stage1-3 collection galleries.
First 3 Years	$10,400,000	
First 5 Years	$11,500,000	
First 10 Years	$13,000,000	

Project Notes and Considerations

Option 2 is designated as the most "optimal" schedule from a technical perspective. Option 2 includes one year of monitoring following construction of collection galleries to provide an opportunity to develop best operational practices and performance data prior to committing additional capital costs to subsequent stages of construction. At this time we believe it would be prudent to operate the Stage 1 collection gallery for one full year to fully assess performance relative to design criteria prior to installation of the collection galleries on off-site properties. It is possible that the Stage 1 collection galleries could be sufficiently effective to help minimize the additional length and/or positioning of future galleries through removal of coal tar fluids from a relatively long distance (a few hundred lateral feet).

From a total cost standpoint, the Optimal Schedule compares similarly to the Base Case Schedule. Additional mobilization charges are incurred under the Base Case schedule due to three stages of remedial construction. Other considerations which may weigh in favor of the Optimal Schedule include a likely preference by state regulators to complete the project under a shorter time frame, while also reducing the long-term impact of project-related disturbances to the local community. The Optimal Schedule was designated as such primarily from a technical perspective, whereby NWE can deploy the remedial strategy in a prudent fashion. More time is available in the first two years to assess and optimize system performance and subsequent design prior to committing the majority of resources to full-scale implementation. Under the Base Case Scenario, less time would be available for monitoring and system improvements before the second and third rounds of construction. Additionally, the Optimal Schedule reduces a portion of the mobilization charges that are expected to be incurred. Beyond the ten-year cash flow projection, total project costs for the two possible schedules converge as the project has reached a point of regular O&M each year until system shutdown. Similar to O&M, annual groundwater monitoring is expected to be required for 30 years, and these costs are unchanged amongst the two options.

In summary, over one-third of the total currently projected collection gallery will be designed and installed this year irrespective of the long-term schedule that is adopted. Although additional gallery could be installed in off-site areas in 2012 (under the Base Case schedule), prudently, it is proposed that work in 2012 focus on operation and removal of coal tar from the subsurface with data collected then compared to estimated performance and gallery design prior to installation of any additional collection galleries in off-site areas. An additional benefit to this approach is that the stage 1 system on NWE's property will be operational and available to present and demonstrate to land owners with whom NWE may be meeting and negotiating for implementation of the remedy on their respective properties.