

# MEMO

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From:  
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Subject:  
Aberdeen MGP Site Environmental Remediation Program: 2017-2021  
Projected Cash Flow

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This memorandum presents a continuing update on the progress of remediation activities at NorthWestern Energy's former manufactured gas plant (MGP) site in Aberdeen, South Dakota, along with estimated environmental remediation expenditures over the next five years. The approach for site management, approved by the South Dakota Department of Environment and Resources (SD DENR) in June 2010, consists of enacting institutional controls for the MGP property restricting property development and groundwater use, recovery of coal tar free product from the subsurface (on-site and off-site, where found to be drainable and recoverable), long-term perimeter groundwater monitoring, and ongoing operational maintenance on current and future groundwater/free product remediation systems.

Extraction of coal tar free product was continued in 2016 from several on-site collection galleries and on-site and off-site recovery wells. Approximately 5,500 gallons of coal tar have been recovered during the five years that the collection systems have been in place, with additional collection systems planned for installation on surrounding properties over the next three years. Whereas the original remedial program was anticipated to rely on large-scale collection systems, a performance evaluation completed in 2016 determined that a surgical, smaller-scale approach completed over time would be optimal to target isolated coal tar bodies from the subsurface.

The cost assumptions used to develop this estimate were initially prepared as part of a Remedial Alternative Evaluation intended to provide an engineering-level cost comparison between various alternatives that were being considered in 2010. For purposes of this cash flow analysis we are assuming a slightly smaller-scale approach to the off-site properties with implementation being spread out over

multiple construction efforts as access is obtained to various third-party properties. The anticipated schedule and projected cash flow for the next five years are outlined in the table below. This includes an established budgetary amount of \$1,000,000 for third party property owner compensation, if necessary (representing the high-end values for each year). This amount is assumed to cover potential third-party properties that are north, east, and south of the property and is split up accordingly over three years as these properties are sequentially addressed. Third party compensation is assumed to not be required for city properties west and north of the site, though recovery efforts will likely be required in those areas. As the remedial construction program now begins to target off-site areas, the schedule and costs will be more susceptible to third party negotiations regarding access, timing, and any impacts to property owners and the local community. As such, actual costs will likely differ once regulatory meetings are convened, designs are developed and finalized, contractor bids are received and evaluated, and third party negotiations take place. The forecasted expenditures outlined below are a best estimate based on the assumptions discussed herein at this time.

Remedial construction is expected to be completed in 2020 when expenditures are expected to be approximately \$400k-\$600k. Annual costs in 2021 will consist of O&M and monitoring of the in-place systems and will remain stable or gradually decrease in forthcoming years.

<b>ABERDEEN MGP SITE FORECASTED REMEDIATION PROGRAM</b>		
<b>Year</b>	<b>Projected Expenditures</b>	<b>Anticipated Project Activities and Related Assumptions</b>
2017	\$900k-\$1.1M	Remedial design for Golden Park and Jackson Heights Apartments, operation and maintenance costs for existing Booster Station remediation system continued O&M for onsite remediation systems, installation of up to four additional offsite monitoring wells and annual groundwater monitoring. Possibility of third-party property compensation for high-end estimate.
2018	\$1.5-1.8M	Remedial construction for Golden Park, Jackson Heights, and City property north of site. Operation and maintenance costs for existing Booster Station remediation system and annual groundwater monitoring. Continued O&M for onsite remediation systems and new offsite systems. Possibility of increased remedial design/construction costs and third-party property compensation for high-end estimate.
2019	\$1.8-2.5M	Remedial design/construction for Hoffman Property, First Mini-Storage and Tel-Serve properties, O&M for existing Booster Station remediation system and onsite collection systems and annual groundwater monitoring. Additional O&M for online remediation systems. Possibility of increased remedial design/construction costs and third-party property compensation for high-end estimate.

2020	\$700-900k	Remedial design and construction for east properties (Steel Structures, Sacred Heart farmland), and city properties (Booster Station and Browne Park), O&M of Booster Station remediation system and onsite collection systems, and annual groundwater monitoring. Additional O&M for online remediation systems. Remedial construction expected to be essentially completed for all areas in 2020.
2021	\$500-700k	O&M of Booster Station remediation system, onsite collection systems, additional O&M for online collection systems, and annual groundwater monitoring.

**5-Year Estimate for 2017-2021: \$6.2M**

**Non-discounted liability value identified in December 2016 reserve update: \$12.6M**