STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Docket No. DG 22-045

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty

Winter 2022-2023 and Summer 2023 Cost of Gas

DIRECT TESTIMONY

OF

JOHN C. MURPHY, CCM, CHMM

and

JAMES M. WIECK, P.G.

December 30, 2022

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ATTACHMENT A	OPINION OF PROBABLE COSTS

I. INTRODUCTION

Q. Please state your name, title, and business address.

A. JCM – My name is John C. Murphy. I am a Certified Construction Manager, Senior Principal, and the Chief Operating Officer of GZA GeoEnvironmental, Inc. ("GZA"), 5 Commerce Park North, Suite 201, Bedford, NH 03110.

JMW – My name is James M. Wieck. I am a Professional Geologist, Hydrogeologist and an Associate Principal at GZA, 5 Commerce Park North, Suite 201, Bedford, NH 03110.

Q. On whose behalf are you submitting this testimony?

A. We are testifying on behalf of Liberty Utilities (EnergyNorth Natural Gas) Corp. ("Liberty").

Q. Please describe your educational and professional background.

A. See Attachments JCM/JMW-1 and JCM/JMW-2 for our CVs.

Q. Please describe your duties at GZA.

JCM –In my current role at GZA, I serve as Chief Operating Officer for the firm. I am also responsible for management, oversight, and technical review for a variety of environmental, energy, building, heavy construction, demolition, and facility closures projects throughout the United States.

A.

JMW – In my role at GZA, I serve as an Associate Principal for the firm. I am also responsible for the management, oversight, and technical review for a variety of environmental site investigation, remediation, and water supply projects principally within New Hampshire.

Q. Have you previously testified in regulatory proceedings before this Commission?

A. No, we have not.

Q. Have you testified in other regulatory or judicial jurisdictions?

A. No, we have not.

A. ?

II. PURPOSE OF TESTIMONY AND EXECUTIVE SUMMARY

Q. What is the purpose of your testimony?

A. The purpose of our testimony is to (1) provide a brief history of the gas holder house structure (the "Gas Holder") and the site on which it sits at One Gas Street, Concord, New Hampshire (the "Gas Holder Site"); (2) explain the nature of the contaminants that have been, and that remain, at the Gas Golder Site; (3) explain the Remedial Action Plan ("RAP") that has been approved by the New Hampshire Department of Environmental Services ("NHDES") to address the contamination at the Gas Holder Site; (4) describe the remedial efforts Liberty has taken at the site to date and that GZA expects will be taken in the future; (5) explain the role that the Gas Holder is currently serving within the scope of the RAP and the role that it could play in the future; (6) explain what would happen with regard to the RAP if the Gas Holder was demolished; (7) describe key

elements of the agreement between Liberty and the New Hampshire Preservation Alliance (NHPA); and (8) describe the Owner's Estimate prepared by GZA and the role it plays in this proceeding.

Q. Are you sponsoring any required schedules or Exhibits? – if applicable

A. Attached in Exhibit A is GZA's Opinion of Probable Costs associated with anticipated activities if the Gas Holder was demolished.

III.

Q. What is the basis of your knowledge of the Gas Holder and the Gas Holder Site?

A. Liberty and its immediate predecessor, National Grid, have retained GZA to advise Liberty on aspects of assessing the contamination at the Gas Holder Site. We have personally been working with Liberty and National Grid on the Gas Holder Site since 2008.

GZA essentially acts as Liberty's prime contractor for environmental issues related to the Gas Holder Site, working closely with Liberty. In that role, we have conducted examinations of the contamination on and beneath the Gas Holder Site. We developed strategies to remedy the contamination. We prepared the necessary reports and filings to obtain NHDES approval of our proposed remediations, culminating in NHDES approving the current RAP in 2015, and we have been executing that remediation program in recent years. The remediation has included removing contaminated soils that were at or near the surface, removing the contents of subsurface structures formerly used to manufacture coal gas at the site including potentially mobile sources of contamination,

monitoring of water quality below surface, and will ultimately involve installing a "cap" over the entire Gas Holder Site., which we describe below.

Q. Please provide a brief history of the "Gas Holder" and the Gas Holder Site.

Beginning in the 1850s, decades before natural gas pipelines reached Concord in the early 1950s, Liberty's predecessor companies manufactured gas from coal at the Gas Holder Site. Various buildings on the Gas Holder Site played specific roles in the manufacturing process which, simply stated, consisted of heating the coal to create a flammable gas. The manufactured gas was captured and moved to the Gas Holder.

The Gas Holder, constructed in 1888, is a round brick building that is 88 feet in diameter, rises approximately 72 feet above grade, and extends approximately 25 feet below grade. Inside the Gas Holder is a large metal tank with an open bottom, similar to an upside-down cup, that would rise and fall with the amount of gas injected into tank. As gas was injected into the tank, the tank rose, riding on rails on the inside walls of the Gas Holder. The weight of the tank provided sufficient pressure to push the gas out of the Gas Holder through a pipeline distribution system to reach customers in the Concord area, similar to the current distribution system. Liberty has been replacing cast iron pipes throughout Concord that were installed to deliver manufactured gas from the Gas Holder and continue to deliver natural gas today. As the gas left the Gas Holder, the dome would drop, until more gas was injected from the manufacturing process.

Thus, the Gas Holder functioned both as a storage tank and as a pressure regulator.

Q. What is the nature of the contaminants that have been, and that remain, present at the Gas Golder Site?

A. The byproducts of the manufactured gas process include a heavy, thick, tar-like substance, called a non-aqueous phase liquid (or NAPL) and other residues from the processing of the coal gas. The residues contain a large number of regulated contaminants, which are toxic to humans and to other organisms. Many of the contaminants can be transported in air and water. As groundwater flows past the manufactured gas byproduct contamination in soil, the water picks up some of the contaminants, which are dissolved in the water as it flows away from the site and toward rivers (the Merrimack River in the case of the contaminants at the Gas Holder Site) and other water sources where the water comes into contact with people, other animals, and plants. Certain contaminants can move into the atmosphere from soil or groundwater under certain conditions.

Q. Please explain the RAP that has been approved by NHDES to address the contamination at the Gas Holder Site.

A. Remediation of the MGP byproducts usually involves one or both of two methods. If the soil is heavily contaminated and/or it can be removed relatively easily, the contaminated soil can be removed, treated, then returned to the site or disposed of at an appropriate facility. If the soil is less heavily contaminated and/or it would be very difficult or expensive to remove, as in the case with the Gas Holder Site the remediation can consist of constructing barriers or caps that prevent contact with contaminated soils and limit

groundwater from becoming contaminated or of constructing wells to remove mobile tar-like MGP byproducts and/or contaminated water.

The specifics of a particular site determine which of the above methods, or which combination of these methods, are employed to remedy the contamination. For the Gas Holder Site, we recommended a remediation plan that consists of (1) removing localized and readily accessible "hot spots" of contaminated soil, (2) removing the contents of historic subsurface structures to prevent further contamination of the subsurface, (3) installing of a series of monitoring and removal wells that can both monitor the level of groundwater contamination and remove tar-like MGP byproducts, (4) constructing a cap over the entire site to prevent contact with contaminated soil and limit the infiltration of water through the soil, which will limit the contamination that could be carried off site toward the Merrimack River, and (5) implementing deed restrictions on excavation to control excavation within areas of contaminated soil thereby limiting the potential for exposure to contaminated soil and groundwater.

NHDES approved this approach to remedy the contamination at the Gas Holder Site

Q. Has Liberty Taken any of these remedial steps?

A. Yes. Liberty has completed the first step – removal of hot spots at the Gas Holder Site. Over the past few years, Liberty remediated the identified historical subsurface structures and removed areas of contaminated soil. This soil was in areas where the manufacturing process occurred and where the contaminated residue was stored, which locations were

away from the Gas Holder itself. Liberty has completed the removal of known shallow hot spots that we believe are appropriate for removal.

Liberty has also implemented the second step which includes removal of mobile tar-like MGP byproducts from four wells and groundwater monitoring. A total of 37 groundwater monitoring wells are currently monitored routinely under a Groundwater Management Permit issued by the NHDES. Water level and contaminant concentrations are monitored to evaluate the fate of the contaminants and manage their presence in groundwater, as wells as evaluate the long-term effectiveness of the remedies included in the RAP. This second remedial step is not complete because the wells continue to monitor and continue to remove small quantities of mobile tar-like MGP byproducts. We expect this monitoring and removal processes will be in place for many years, as is typical of manufactured gas sites.

The third and fourth remedial steps, have not been implemented. These steps will include the construction of a soil cap over the site. The cap design and restrictions on excavation will be selected based on the future use of the site, which has yet to be determined.

Most relevant to this testimony is that the Gas Holder itself can serve as an appropriate cap for its 88-foot diameter footprint because it will both restrict access to subsurface contamination and prevent rainwater and snow melt from penetrating the soil beneath that footprint. Thus, so long as the Gas Holder stands, it will serve as a cap over its 88-foot diameter and Liberty will have to construct the cap over the rest of the site. If the Gas

Holder is demolished, then the Company will have to extend the cap to also cover the 88-foot diameter circle where the Gas Holder now stands.

Q. Why has Liberty not yet installed the cap over the Gas Holder Site?

A. The cap has not been installed for two basic reasons. First, the other remedial steps (removal of contaminated hot spots of soil and installation of monitoring and removal wells) had to be completed prior to installing a cap. Once the cap is installed, every effort is made not to make new penetrations for additional wells or removal of more soil, so these first step had to be implemented before it would be appropriate to install the cap.

Second as agreed to by NHDES, the ultimate use of the Gas Holder Site will dictate the precise details of how and where the cap will be installed. The Gas Holder Site has a significant slope, from its highest point on its northwest border adjacent to South Main Street to its lowest point on the southeastern border along the railroad tracks. The cap should not be installed until the final contours of that slope are known, and those final contours cannot be determined until Liberty knows the long-term use of the property. For example, if the Gas Holder Site were to have the Gas Holder but also have a parking lot or picnic area, Liberty would have to determine the location of the new parking lot, the location of any new underground utilities, and whether and how the Gas Holder Site will be graded to accommodate the changes. Liberty would also have to wait until that grading work was complete before installing the cap.

The final use of the Gas Holder Site is still unknown. Several developers looked at the site and indicated high level plans of what they would do, but none made any firm

commitments and they have not shown any interest in several years. Recently, of course, the NHPA and Liberty have invested in the initial stabilization of the Gas Holder with the intent to develop long term plans for use of the Gas Holder Site that includes preservation of the Gas Holder. Given this uncertainty as to the future of the Gas Holder Site, Liberty has not yet moved forward with the cap. NHDES has been aware of these events and has allowed Liberty to continue to hold off on the design and construction of the cap until at least 2026 to provide time for Liberty and NHPA to raise funds for further repairs to the Gas Holder and determine the future site use.

Q. What role does the Gas Holder play within the scope of the RAP and what role could it play in the future?

A. As mentioned above, the Gas Holder is currently serving as a cap over its footprint. Going forward, if the Gas Holder remans standing and its roof remains sound, it can continue to serve as a cap over its footprint indefinitely. NHDES is aware of the plan to keep the Gas Holder standing and of Liberty's intent to have the Gas Holder be the "cap" over its footprint, and NH DES indicated it approves that approach.

Q. What would happen with regard to the RAP if the Gas Holder was demolished?

A. If the Gas Holder was to be demolished, then the same remedial steps of the RAP would apply to the 88-foot circle. That is, Liberty would have to investigate the soils within that 88-foot circle, remove any accessible shallow soil hot spots, install wells to measure, monitor, and remove any potentially mobile tar-like MGP byproducts found, and also construct a cap.

Q. Does NHDES have a preference as to whether the Gas Holder remains standing?

A. No. In conversations with NHDES, it is our understanding that NHDES would consider Liberty to be in compliance with the RAP if the Gas Holder remained standing, so long as the roof was sound and doing its job of preventing water from entering the 88-foot circle, or if the Gas Holder came down and Liberty did the appropriate investigation and remediation of any contamination found in that 88-foot circle.

Q. Are you aware of the Emergency Stabilization License Agreement ("Agreement") signed by Liberty and the New Hampshire Preservation Alliance (NHPA)?

A. Yes, we were involved in reviewing and providing advice on the technical aspects of the Agreement.

Q. What are the key provisions of the Agreement from your perspective?

A. We understand the Agreement to (1) authorize NHPA and is contractors to enter the Gas Holder Site to perform construction work to stabilize the Gas Holder; (2) impose standards on the contractors' work on the Gas Holder; (3) allow for Liberty to monitor the work, which monitoring was performed by GZA; and, most important to this testimony, (4) provide for Liberty to contribute toward the costs of stabilizing the Gas Holder the amount Liberty would otherwise have spent to demolish the Gas Holder and conduct the above-described investigation and remediation of the soil beneath the Gas Holder.

Q. How does the Agreement determine the amount that Liberty will contribute toward the stabilization of the Gas Holder?

A. The Agreement calls for Liberty to prepare an Owner's Estimate of the costs Liberty would incur to demolish the structure, investigate the soil beneath the Gas Holder, and take the remediation steps that we think would likely be necessary if the Gas Holder had to be demolished.

Q. Has that Owner's Estimate been prepared?

A. Yes. GZA prepared the Owner's estimate, which is Attachment A.

Q. How was the Owner's Estimate Prepared?

A. We first prepared an overall approach to demolition and capping of the Gas Holder. This process included assessing the presence of potentially hazardous building materials used in the construction of the Gas Holder. We then prepared a bid package for submission to demolition contractors. Our bid package provided extensive details of the work to be performed in demolition of the Gas Holder, to ensure the bidders recognized both logistical and management complexity of such a project. In 2021 we sent the bid package to a number of contractors whom we know are qualified to perform the work. We received three bids in response. The lowest responsible bid, adjusted for inflation through use of a contingency, was used in the final Owner's Estimate.

We next estimated the type and extent of work that would be involved in the investigation into possible contamination beneath the Gas Holder. We assumed that we would follow the same approach that has governed all our work at the Gas Holder Site

and that is embodied in the RAP – investigation into the extent of contamination, removal of any contaminated soil that would be accessible, installation of monitoring and recovery wells, and installation of a cap. This approach was reviewed and discussed with NHDES on several occasions in both March and December of 2021.

The investigative steps that would be taken are clear as they are what the RAP currently requires and is consistent with the investigative work we have done on the rest of the Gas Holder Site. Those investigative steps would include 1) assessment of the condition of the Gas Holder foundation for potential paths contamination could take from the Gas House to the subsurface, 2) excavation of test pits within the foundation of the Gas House, 3) drilling of soil borings and installation of monitoring wells beneath the Gas Holder. GZA estimated the cost to complete investigation to be $329,375. The cost of the investigation reflects the technical difficulties of accessing and working within the foundation of the Gas Holder with heavy equipment.

The costs to remediate contamination found beneath the Gas Holder are less certain and are somewhat speculative because, of course, we do not know for sure what will be found if we have to perform this investigation. Therefore, we relied on our experience with this and other manufactured gas sites and we made professional judgments of the likelihood of finding contamination beneath the Gas Holder and of the likely extent of that contamination based on the degree of contamination downslope from the Gas Holder and the construction details of the Gas Holder reviewed in historical site documents. This process included receiving input from a third-party consultant hired by NHPA (Haley &

Aldrich) which was considered when to developing GZA's estimated range of potential costs to remediate contamination found beneath the Gas Holder. The range of cost estimated by GZA was prepared for planning purposes and is based on our experience at the Site. GZA agrees with Haley & Aldrich, as presented in their December 20, 2022 memorandum to NHPA, that actual costs for remediation are uncertain and could vary significantly from the range estimated by GZA for planning purposes.

Consequently, we consider this to be a conservative assessment of the necessary investigative steps and the remediation efforts to address the contamination that could be found beneath the Gas Holder, and of the costs to perform those tasks.

Q. What are the estimated costs for these investigative and remedial steps?

A. We estimate those costs to include approximately $329,375 to perform required tasks to complete the subsurface investigation required by NH DES. As noted above the degree to which the presence of the Gas Holder has impacted the subsurface beneath the Gas Holder cannot be fully known, consequently we estimated a likely range of remediation costs, which is from $531,606 to 1,219,492. These costs do not include the cost of demolition and cap construction which are estimated at $788,750 and $41,875, respectively.

Q. What is the total amount of the Owner's Estimate?

A. Combining the figures described above, we estimate that Liberty would have to spend $1,691,606 to $2,379,492 to demolish the Gas Holder, investigate the area beneath the Gas Holder, remediate the contamination that may be discovered, and associated costs.

For planning purposes GZA has recommended Liberty use $2,035,549, which is the total of the estimated demolition, investigation, and cap construction ($1,128,750) plus the midpoint of the estimated range of potential remediation ($906,799),

Q. Does this conclude your prefilled direct testimony?

A. Yes.