

Newtown Station/Elmhurst Holder Tank Site

Elmhurst, Queens County,
New York

Prepared for



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Introduction

The Newtown Station/Elmhurst Holder Tank Site is located in Elmhurst, Queens County, New York. The property is bounded on the south by 57th Avenue, on the west by a ConRail right-of-way, on the north by Grand Avenue and on the east by 80th Street. Figure 1 is a Site Locus Map. KeySpan Energy Corporation (KeySpan) presently owns the site. The site was utilized primarily for the temporary storage of manufactured and natural gas in two holder tanks on-site. These two gasholder structures and associated piping were decommissioned in 1993. Demolition of the holders was completed in 2000.

KeySpan Energy Delivery New York (KeySpan) entered into a Voluntary Cleanup Agreement (VCA), Index # D2-0002-99-10, with the New York State Department of Environmental Conservation (NYSDEC) to conduct an investigation at the Newtown Station/Elmhurst Holder Tank Site located in Elmhurst, Queens County, New York.

The site investigation, which was initiated in October 2000, revealed that lead-based paint chips and semi-volatile organic compounds (SVOCs) both at the surface and in subsurface soil posed a risk to human health and the environment. This discovery served as the basis for the development of an Interim Response Measure (IRM) Plan with detailed remedial measures.

The decommissioning and IRM remedial measures implemented by KeySpan were performed in compliance with applicable regulations and are consistent with the NYSDEC approved VCA work plan. The decommissioning procedures and IRM remedial measures have mitigated threats to human health and the environment for the sites current use.

KeySpan is in the process of divesting this asset. KeySpan anticipates that site specific redevelopment initiatives conducted by future site owners would likely require substantial earthwork. Substantial earthwork may create new pathways for environmental exposure scenarios.

The purpose of this document is to provide guidance for proper soil and subsurface pipeline management during the implementation of site specific redevelopment initiatives.

IRM Excavations

The IRM was initiated in May 2001. The IRM was initiated by subdividing entire holder site into 50' x 50' grids. Next, the areas within the footprint of the holders were excavated and backfilled with clean fill. Each grid outside the footprint of the holders was then sampled for contaminants. Based on the results of the grid sampling, VHB proposed that the lead and SVOC-contaminated soil be excavated and disposed of at acceptable receiving facilities.

The excavation of contaminated soil and off-site disposal activities began the week of September 17, 2001. Each grid was excavated to the limit specified in the IRM Plan and in some cases, beyond that limit. Upon completion, each grid was screened with an X-Ray Fluorescence Analyzer (XRF) and sampled for lead and SVOC constituents. Site-specific cleanup standards were established for lead and carcinogenic SVOCs. The laboratory analytical results were compared to the established cleanup standards for the site. Upon receiving acceptable laboratory results, each grid was backfilled with clean fill brought on site.

Approximately 8,900 tons (5,930 CY) of non-hazardous soil was shipped under Bills-of-Lading and disposed of at the Atlantic County Utilities Authority Landfill in Atlantic County, New Jersey. Approximately 5,640 tons (3,760 CY) of hazardous lead-contaminated soil was shipped under hazardous waste manifests to Clean Earth of North Jersey, Inc. located in South Kearny, New Jersey. Mid Atlantic Recycling Tech (MART), located in Vineland, New Jersey thermally treated approximately 1,440 tons (960 CY) of the VOC-contaminated sludge and soil and then the soil was shipped to ACUA in NJ.

Additional on-site work was also performed in July/August 2002. This consisted of the construction of an overland drainage swale and area-specific soil removals, including an area located on the southwest portion of the site, additional J4/J5 work, and Verizon test pit exploratory operations.

Approximately 2,128 tons of non-hazardous soils were shipped under Bills-of-Lading and disposed off-site. Of this, approximately 1,069 tons of the non-hazardous soil was shipped to Clean Earth of North Jersey. However, due to facility receiving requirements, the remainder of the non-hazardous soil (approximately 1,059 tons) required shipment to Clean Earth in Pennsylvania. Approximately 584 tons of hazardous lead-contaminated soil was shipped under hazardous waste manifests to Clean Earth of North Jersey, Inc. located in South Kearny, New Jersey.

The total volume of soil excavated and disposed of off-site during the IRM activities on both the KeySpan and CSX properties was approximately 18,692 tons. Of this, approximately 11,028 tons was non-hazardous soil and approximately 7,664 tons was hazardous soil.

Lead Concentrations Remaining On-Site

There are 16 sample locations remaining on or immediately adjacent to the property that exceed the site cleanup goal of 400-mg/kg lead. Eight are located along the KeySpan/Verizon property line, and eight are located on the KeySpan property.

The exceedances (8 of the 16 exceedances) along the Verizon property abutting the site are left in place since this area is currently covered by bituminous asphalt and is used as a parking area for Verizon vehicles. The asphalt provides an impermeable barrier to lead in soil.

Three of the sample exceedances that are located on KeySpan property are adjacent to the Verizon property in the southeastern portion of the site. These samples are located between 7 feet and 10 feet below ground surface (bgs). The samples approach the site cleanup goal of 400 parts per million (ppm) (range is 499 ppm to 755 ppm). The depth of these excavations and proximity to the Verizon property prohibited additional excavation in this area and the exposure assessment indicated that there was no exposure pathway for the contaminants.

The five remaining exceedances on KeySpan property approach the site cleanup goal of 400 ppm (concentrations range from 403 ppm to 460 ppm), were within regional background concentrations, and were located at least one foot bgs.

SVOC Concentrations Remaining On-Site

There are seven SVOC sample locations that exceed the criteria on the KeySpan property. All of these samples have concentrations that approach site cleanup goals. These seven sample locations are located in three discrete areas on site: the area of the former AST foundation, the J4/J5 excavation area, and on the west side of the existing service building. The samples in the area of the AST foundation are between one and four feet bgs, and have been paved over. The sample location in the J4/J5 excavation is at a depth of fifteen feet bgs. The two samples collected adjacent to the KeySpan building are two feet bgs, and soils associated with these samples could not be removed without undermining the building foundation.

The specific locations of all exceedances remaining on-site are illustrated in Figure 1.

Subsurface Pipes Remaining On-Site.

Station decommissioning conducted in 1993 by KeySpan included proper closure of subsurface gas transmission pipes at the site. The pipe decommissioning procedure included purging all subsurface gas pipes, sampling recovered liquids, backfilling pipe wells with clean fill, and sealing truncated pipe ends. Pipe within the footprint of the compressor building has been removed in its entirety.

At the time of decommissioning, the subsurface pipe at the site was closed in accordance with applicable regulations. Subsequent regulations promulgated by the United States Environmental Protection Agency (USEPA) in 1998 include requirements for the characterization and proper abandonment of natural gas pipelines. If subsurface pipes were encountered, required opening, or removal during redevelopment initiatives, the contemporary regulations would drive proper characterization, handling, and disposal (if any) in the event that that pipe at the site was exposed or required removal during redevelopment and/or excavation work at the site.

Locations, sizes, and depths of subsurface pipe remaining on-site are illustrated in Figure 2.

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Soil Management

In the event that a proposed redevelopment scenario would include excavation of soils at the site, the following protocol should be observed as guidance in developing a site specific work plan.

Design Considerations

The soils which remain on-site with elevated concentrations of lead and SVOCs have been clearly delineated and do not currently pose a threat to human health or the environment. Redevelopment scenarios which include earthwork at the site do create the potential for exposure scenarios. A pragmatic approach to minimize these potential exposures is to create a design which considers minimizing encroachment on known exceedances.

The first step the development of the soil management plan is to “overlay” proposed cut and fill plans onto the site plan with locations of known exceedances. The analysis of this information will allow for a subsequent design which can mitigate exposure scenarios by eliminating or minimizing cuts in areas of known exceedances.

Implementation

All soil excavation and earthwork proposed at the site will be protective of human health and the environment. As such, all earthwork at the site will be conducted in conjunction with an air monitoring program for site.

Excavation work at the site shall be performed by personnel with appropriate training for the purposes of executing environmental projects (OSHA 40-hr HAZWOPER Training – CFR 1910.120).

The work will require a Health & Safety Plan for on-site workers, and community monitoring consistent with the NYSDOH Generic Community Air Monitoring Protocol (CAMP) will be implemented. Real-time monitoring for organic vapors and

particulates will be performed upwind and downwind of each excavation area. In addition, real-time monitoring for particulates and collection of 8-hour composite lead-in-air cartridge samples will be collected at fixed air quality monitoring stations established along the prevailing downwind property boundary over the course of the soil excavation activities.

All earthwork should be supported by an environmental professional who will document the work, manage site air monitoring activities, and collect additional samples in the field as necessary. The environmental professional will also be required in the event that soils which require additional investigation or sampling are encountered.

Remedial Actions

In the event that the redevelopment design calls for the removal of soils with elevated concentrations of lead and/or SVOC's, or if suspect soils are encountered during the course of the project, a site specific plan for excavation and proper off-site disposal is required.

The plan should include:

1. Aerial extent of soils to be remediated
2. Disposal method (transporter, route, disposal facility)
3. Stockpiling methods and material segregation
4. Verification sampling
5. Backfill sources and analytical data
6. Waste profiles
7. Report Requirements

Upon completion of each initial excavation, verification samples will be collected. They will consist of composite samples collected from the bottom and all 4 sidewalls of the excavation. All of the composite samples will be properly homogenized in preparation for analysis prior to transfer to laboratory glassware.

Laboratory duplicate samples will be collected at a rate of 1 per 20. All samples will be analyzed for total lead by EPA Method 6020 and SVOCs by EPA Method 8270. An off-site New York DOH CLP laboratory capable of meeting the project logistical constraints may provide all analytical services.

Excavations should remain open until analytical results have been received. Open excavations will be covered and protected from rain and stormwater pending receipt of analytical data. It is not anticipated that groundwater will be encountered in any of the excavations. Excavated soils may be temporarily staged on-site in prepared (lined, sloped, bermed, covered, and secured) stockpiles prior to off-site disposal. Off-site transport and disposal of excavated soils will proceed as efficiently as possible during the implementation of the site redevelopment activities. Completed

excavations will be surveyed for mapping and quantification of soil volume removed. Upon receipt of data which indicates that the remedial action objectives has been achieved, the excavation will be backfilled with soil from a pre-approved source. Some excavations may not be backfilled, but graded for positive drainage subsequent to remediation. Additional iterative excavation and verification sampling will be conducted until the site RAO has been achieved.

Backfill sources will be sampled for full TCLP analysis prior to the commencement of this remedial action. Backfill in excavations greater than 2-feet in depth will be conducted in lifts properly compacted to prevent settling. Sampling of backfill materials from the same source will be conducted at a rate of one sample per 1000 cubic yards, and analyzed for SVOCs, PCBs, and Inorganics at an NYSDOH ELAP facility.

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Subsurface Pipe Management

Approximately 1,900 linear feet of subsurface pipe and fittings remain on-site. The subsurface pipe is steel construction in sizes from 2-inch to 42" diameter. Fittings include valves, regulators, and meters. The pipe is located approximately 4-feet below ground surface. However, some pipes extend further below grade. All pipe within the footprint of the former compressor building has been removed. Refer to Figure 2 for pipe location, sizes, and depths.

Environmental Considerations

Natural gas pipelines are known to contain liquids known as condensate. Natural gas condensate contains a complex mixture of hydrocarbons, including benzene, which is a known carcinogen. KeySpan's pipeline is connected to other transmission company pipelines which may have used PCBs, generally resulting from historic use of PCB-containing lubricants. Therefore, subsurface natural gas pipes at the site may potentially contain condensate with elevated concentrations of hydrocarbons and PCBs.

As indicated in Section 1, KeySpan properly closed the subsurface pipes 1993. KeySpan purged remaining gas and liquids using carbon dioxide. Exposed ends of the pipes at the completion of purging were backfilled with clean fill.

The above noted process was effective in closing the pipes. PCBs were not used by KeySpan at this facility, or as part of their transmission operations. Investigation work conducted as part of the IRM at the site included analysis of subsurface soils for PCBs. No PCBs were detected at the site. Elevated concentrations of hydrocarbons were detected in portions of the site. However, no direct correlation between existing subsurface pipes and the presence of hydrocarbons was noted.

Groundwater at the site is approximately 50-feet below ground surface. The site has good drainage as site topography allows for proper and timely management of overland flows. These are important considerations with respect to the pipe remaining on-site. The purged and backfilled subsurface pipe sit in dry site soils which present no threat to human health or the environment. It has been concluded that the subsurface pipes are not a source of on-going releases to the environment at the site. An elevated water table and/or saturated soils, may promote degradation

of subsurface pipe and potentially leach inorganics and hydrocarbons from the pipe to adjacent soils and groundwater.

Regulatory Compliance

Regulations for the characterization, abandonment, and disposal of natural gas pipeline are promulgated under CFR 40-761 – Subpart M – *Determining a PCB Concentration for Purposes of Abandonment and Disposal of Natural Gas Pipeline: Selecting Sample sites, Collecting Surface Samples, and Analyzing Standard PCB Wipe Samples.*

Subsurface steel natural gas pipelines which are found to contain concentrations of PCBs above regulatory criteria may be decontaminated via a double wash/rinse method as defined in CFR 40-761 – Subpart S – *Double Wash/rinse Method for Decontaminating Non-Porous Surfaces.*

In the event that a pipeline contains condensate without PCBs, those liquids would require proper characterization and disposal consistent with NYSDEC Stars memorandum.

Design Considerations

The subsurface pipes which remain on-site are located and currently pose a threat to human health or the environment. Redevelopment scenarios which include earthwork at the site may create the potential for exposure scenarios. A pragmatic approach to minimize these potential exposures is to create a design which considers minimizing encroachment on subsurface pipes, and maintains an subsurface site soil conditions in a dry state.

The first step in the subsurface pipeline management plan is to “overlay” proposed cut and fill plans onto the site plan with locations of known pipe locations. The analysis of this information will allow for a subsequent design which can mitigate exposure scenarios by eliminating or minimizing cuts in areas of pipes. Additionally, any proposed surface water impoundments, surface and subsurface drainage areas, and drainage networks which may impact pipes remaining on-site must consider potential degradation and/or leaching associated from saturating subsurface soils and pipe.

Implementation

All soil excavation and earthwork, including pipe excavation, exposure, and removal proposed at the site will be protective of human health and the environment. As such, all subsurface pipeline at the site will be conducted in conjunction with an air monitoring program for site.

Subsurface pipeline work at the site shall be performed by personnel with appropriate training for the purposes of executing environmental projects (OSHA 40-hr HAZWOPER Training – CFR 1910.120).

The work will require a Health & Safety Plan for on-site workers, and community monitoring consistent with the NYSDOH Generic Community Air Monitoring Protocol (CAMP) will be implemented. Real-time monitoring for organic vapors and particulates will be performed upwind and downwind of each excavation area. In addition, during soil excavation required for pipe exposure, real-time monitoring for particulates and collection of 8-hour composite lead-in-air cartridge samples will be collected at fixed air quality monitoring stations established along the prevailing downwind property boundary over the course of the soil excavation activities.

All subsurface pipeline work should be supported by an environmental professional who will document the work, manage site air monitoring activities, and collect additional samples in the field as necessary. The environmental professional will also be required in the event that soils which require additional investigation or sampling are encountered.

Pipe Removal Actions

In the event that the redevelopment design calls for the removal of pipe during the course of the project, a site specific plan for proper characterization, drainage of liquids(if any), removal, decontamination, and off-site disposal is required.

The plan should include:

1. Location of pipe to be characterized and removed.
2. Pipe opening method which prevents spills of liquids from the pipe to the environment.
3. Sampling and characterization of liquid (if any). Analysis should include VOCs, SVOCs, and PCBs.
4. Methods for collection of pipeline liquid (if any).
5. Method for on-site storage of liquids pending waste profile and disposal.
6. Wipe sampling of exposed interior portions of pipe consistent with 40 CFR 761
7. Disposal method (transporter, route, disposal facility)
8. Decontamination method consistent with 40 CFR 761

9. Spill prevention and response
10. Stockpiling methods and material segregation
11. Verification sampling
12. Method and materials for closure of clean abandoned pipe to remain on-site.
13. Backfill sources and analytical data
14. Waste profiles
15. Report Requirements

In the event that pipeline liquids are encountered, spilled during removal work, or if soils adjacent to pipelines exhibit characteristics which indicate pipeline condensate may be present, the impacted soils should be removed. Upon completion of each initial excavation, verification samples will be collected. They will consist of composite samples collected from the bottom and all 4 sidewalls of the excavation. All of the composite samples will be properly homogenized in preparation for analysis prior to transfer to laboratory glassware.

Laboratory duplicate samples will be collected at a rate of 1 per 20. All samples will be analyzed for SVOCs by EPA Method 8270. If PCBs were detected in prior analysis of pipeline material and/or recovered condensate at the site, then verification sampling should include PCBs by EPA Method 8080. An off-site New York DOH CLP laboratory capable of meeting the project logistical constraints may provide all analytical services.

Excavations should remain open until analytical results have been received. Open excavations will be covered and protected from rain and stormwater pending receipt of analytical data. Exposed ends of pipe at the limits of excavation should be temporarily sealed until receipt of closure data to prevent migration of liquids which would exacerbate site conditions.

Clean fill for pipes encountered at the site which are not filled and will remain in-place should be a backfilled with a flowable fill of concrete with a compressive strength 150 PSI minimum.

It is not anticipated that groundwater will be encountered in any of the excavations. Excavated soils may be temporarily staged on-site in prepared (lined, sloped, bermed, covered, and secured) stockpiles prior to off-site disposal. Off-site transport and disposal of excavated soils will proceed as efficiently as possible during the implementation of the site redevelopment activities. Completed excavations will be surveyed for mapping and quantification of soil volume removed. Upon receipt of data which indicates that the remedial action objectives has been achieved, the excavation will be backfilled with soil from a pre-approved source. Some excavations may not be backfilled, but graded for positive drainage subsequent to remediation. Additional iterative excavation and verification sampling will be conducted until the site RAO has been achieved.

Backfill sources will be sampled for full TCLP analysis prior to the commencement of this remedial action. Backfill in excavations greater than 2-feet in depth will be conducted in lifts properly compacted to prevent settling. Sampling of backfill materials from the same source will be conducted at a rate of one sample per 1000 cubic yards, and analyzed for SVOCs, PCBs, and Inorganics at an NYSDOH ELAP facility.

Site Access and Egress Points

During the any site pipe removal or excavation activities access to the site can be made by either Grand avenue and 57th Avenue. However, trucks to and from the site should not travel across residential streets running between Grand and 57th Avenues. VHB recommends gaining access exclusively from Grand Avenue and directly pursuing access to the Long Island Expressway via Queens Boulevard.

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Recommendations and Conclusions

The Voluntary Cleanup Action (VCA) Agreement between KeySpan Energy and the NYSDEC enabled KeySpan to proceed with remediation at the site located at 78-01 57th Avenue in Queens, New York. The preliminary site assessment and subsequent site investigations allowed VHB to characterize the subsurface soil and construct a work plan to eliminate contaminants of concern. Lead and SVOC contaminants were determined to pose the greatest risk to human health and the environment. An Interim Response Measure (IRM) was implemented in May 2001 that established site-specific cleanup goals for lead and SVOCs based on the assumption that the site would be redeveloped under residential conditions. The IRM involved the establishment of a sampling grid overlaid on the site from which additional characterization soil samples were collected. The grid system allowed for accurate and complete excavation and removal of impacted soils. Additionally, the grid system enabled VHB to collect composite verification samples from each grid after remediation was complete. Additional iterative excavations were performed on an as-needed basis, as determined by laboratory analytical results.

The on-site and off-site excavation and disposal of lead and SVOC-impacted soil from the former natural gas holder area has removed the majority of these contaminants of concern. There are 19 sample locations that currently exceed the site cleanup goal of 400-mg/kg lead. Of these 19, eight are located along the KeySpan/Verizon property line shown on Figure 10. The Verizon property abutting the site is covered by bituminous asphalt and is used as a parking area for Verizon vehicles. The asphalt provides an impermeable barrier to lead in soil. Additional excavation in the eastern direction was prohibitive because it would require access to the property, sheeting/shoring, and coordination with Verizon for parking and access. Because there is no complete exposure pathway and no potential for migration as evidenced by the TCLP data, there is no justification for removal.

There are eight sample locations that exceed the lead cleanup goal that remain on the KeySpan property. Five of these eight samples approach the site cleanup goal and are located at least one foot below ground surface (bgs). The three samples shown on Figure 10 located in the southeastern portion of the site are located between 7 feet and 10 feet bgs. The depth of these excavations and proximity to the Verizon property prohibited additional excavation in this area. These exceedances do

approach the site cleanup goal. They are, however, located at depth, making possible exposure of limited duration and of low intensity.

On the CSX property, there are three sample locations that exceed the lead cleanup goal of 400 mg/kg. These three samples are located on the western sidewall at the 25-foot excavation limit specified in the Access Agreement between KeySpan and CSX Transportation. Therefore, removal of these soils was prohibitive.

SVOC exceedances above RAOs do exist on the KeySpan and CSX properties. However, the exposure assessment shows no significant exposure present with the remaining SVOCs on the KeySpan property. No exposure assessment was performed for the limited soil exceedances present on the CSX property at the western sidewall excavation. Removal of these soils was prohibitive due to the 25-foot excavation limit specified in the Access Agreement. Excavation of soils within 25 feet of the railroad tracks would require the design and installation of various slope protection measures to ensure track integrity during removal. Furthermore, the source of SVOCs in the track bed is most likely associated with railroad operations as indicated by analytical results on the track ballast. Therefore, this material is not KeySpan's responsibility.

VHB concludes that no further action is required at the Newtown Station Site. A condition of no significant human health risk has been achieved at the site. The work at the site has been performed in substantial compliance with the work plan. We recommend NYSDEC provide KeySpan with a letter of no further action and completion of the VCA.

