KeySpan Ravenswood Unit 40- 250 MW Generating Station (V-00368-2)
Soil Management Plan

1. Overview and objectives

The site is a 2 acre industrial property currently owned by KeySpan Corporation. The location of the property is shown on Figure 1-1. The site has been characterized during several previous investigations. The user should refer to the previous investigation reports for more detail, as needed.

The objective of this Soils Management Plan (SMP) is to set guidelines for management of soil material during any future activities which would breach the cover system at the site. This SMP addresses environmental concerns related to soil management and has been reviewed and approved by the New York State Department of Environmental Conservation (NYSDEC).

1.1 Annual Certification

On or before February 1st of each calendar year, KeySpan shall provide a certification that the controls set forth herein are still in-place and. The certification shall include a description of any excavation or sub-surface activities that have taken place in the area covered by this SMP during the previous calendar year. The annual certification must be prepared and signed/stamped by a professional engineer licensed to practice in the state of New York.

2. Nature and extent of contamination

Based on data obtained from previous investigations and the remediation done at the site, a Final Remedial Action Summary Report was developed by TetraTech FW, Inc. (formerly Foster Wheeler Env. Corp.). Contamination resulted in part from the operation of a manufactured gas plant (MGP) on the site from roughly 1898 to the late 1950's. Part of the former MGP was located where the existing generating station currently stands; however, two MGP gas holders were located under the area of the subject site. The holder foundations are still present in the subsurface. Investigation conducted in and around these gas holders found soils impacted with low to moderate levels of BTEX. No discrete deposits of tar were found in the subject area. In addition to the MGP-related contamination, the site also contained an area of historical #6 oil contamination primarily in the area of the former MGP Gas Holder #3 foundation.

During construction of Unit 40, the following remedial actions were taken:

1. The construction activities included drilling 325 piers into bedrock. These piers ranged in diameter from 2 to 6 feet. All soil from the pier drilling and excavation work (approximately 48,600 tons) was removed and properly characterized for off-site disposal. In addition, over 3 million gallons of water was removed and properly disposed off-site.

2. All MGP-related piping and drip-pots were excavated, tapped and drained, and removed from areas where they would interfere with building construction or utility installation.

Remaining sections of pipe were sealed with concrete and abandoned in-place. Remaining drip-pots were cleaned and filled with clean fill prior to retirement in-place. No additional areas of tar were encountered during the construction or remediation activities.

3. All fuel oil contaminated soils (approximately 3,800 tons) and groundwater (approximately 20,000 gallons) removed from the #6 fuel oil excavation area were properly characterized for off-site disposal. The final excavation dimensions for the #6 fuel oil area were approximately 120 feet long by 80 feet wide by 16 feet deep.

Due to the site's anticipated future use as an industrial power generating facility, and the expectation that the generating facility itself will act as a cap for any residual contaminants, no post-excavation soil samples were collected.

The residual constituents of potential concern (COPCs) for soil consist primarily of VOCs and PAHs. Results of ground water sampling indicate that constituents in the soil/fill material have not significantly impacted ground water quality.

3. Contemplated use

As part of the redevelopment project, the property has been identified for industrial (power generation) uses. The zoning specifically prohibits residential uses. The current use of the property is not anticipated to change in the future. The annual certification will include a description of the current site use and confirm that it has not changed.

4. Purpose and description of surface cover system

The purpose of the surface cover system is to prevent the potential for human contact with potentially contaminated materials. The cover system also reduces the potential for contaminated runoff from the property. The cover system primarily consists of the following types of clean material:

- Concrete: a minimum of 6 inches of material (concrete and sub-base material) in areas that are beneath the Unit 40 generating facility building. Actual cross sections will be based on the intended use of the area. This will be certified annually.

- Asphalt: a minimum of 6 inches of material (asphalt and sub-base material) for roads, sidewalks, and parking lot areas near the Unit 40 generating facility building footprint. Actual cross sections will be determined based on the intended use of the area. This will be certified annually.

Some limited surface areas are graded with stone cover instead of asphalt or concrete. In addition, an average of 5-10 feet of clean fill material was placed in areas outside of the Unit 40 generating facility building footprint.

5. Management of soils/fill and long term maintenance of cover system

The purpose of this section is to provide environmental guidelines for management of subsurface soils/fill and the long-term maintenance of the cover system during any future intrusive work which breaches the cover system.

The SMP includes the following conditions:

- Any breach of the cover system, including for the purposes of construction or utilities work, must be replaced or repaired using an acceptable clean fill/borrow source free of industrial and/or other potential sources of chemical or petroleum contamination. If a repaired area requires additional fill for restoration, the fill must be clean soil, and covered with impervious material such as concrete or asphalt, as described in Section 4, to prevent erosion in the future. If the area has existing stone cover per Section 4, it can be restored in kind.

- Control of surface erosion and run-off during construction activities.

- Site soil that is excavated and is intended to be removed from the property must be managed, characterized, and properly disposed of in accordance with all applicable regulations and directives in all jurisdictions in which it is managed.

- Soil excavated at the site may be reused as backfill material on-site provided it contains no visual or olfactory evidence of contamination, has been adequately sampled, and it is placed beneath a cover system component as described in Section 4.

- Any off-site fill material brought to the site for filling and grading purposes shall be from an acceptable fill/borrow source free of industrial and/or other potential sources of chemical or petroleum contamination. Off-site borrow sources should be subject to collection of one representative composite sample per source. Soil sampling results should meet the NYSDEC recommended soil cleanup objectives included in TAGM 4046.

- Prior to any construction activities, workers are to be notified of the site conditions with clear instructions regarding how the work is to proceed. Invasive work performed at the property will be performed in accordance with all applicable local, state, and federal regulations to protect worker health and safety.

- The Owner shall complete and submit to the Department an annual report by January 30th of each year. Such annual report shall contain certification that the institutional controls put in place, pursuant to the Voluntary Cleanup Agreement (V-00368-2), are still in place, have not been altered and are still effective; that the remedy and protective cover have been maintained; and that the conditions at the site are fully protective of public health and the environment.

If the cover system has been breached during the year covered by that Annual Report, the owner of the property shall include the following in that annual report:

- A certification that all work was performed in conformance with this SMP.

In addition, deed restrictions will be implemented in accordance with the requirements of the Voluntary Cleanup Program, limiting the future use of the property to industrial development.

5.1. Sub-grade material

Sub-grade material used to backfill excavations or placed to increase site grades or elevation shall meet the following criteria.

Excavated on-site soil/fill which appears to be visually impacted shall be sampled and analyzed. If analytical results indicate that the contaminants, if any, are present at concentrations below TAGM 4046 levels, the soil/fill can be used as backfill on-site.

- Any off-site fill material brought to the site for filling and grading purposes shall be from an acceptable fill/borrow source free of industrial and/or other potential sources of chemical or petroleum contamination.

- Off-site soils intended for use as site backfill cannot otherwise be defined as a solid waste in accordance with 6 NYCRR Part 360-1.2(a).

- If the contractor designates a source as "virgin" soil, it shall be further documented in writing to be native soil material from areas not having supported any known prior industrial or commercial development or agricultural use.

- Virgin soils should be subject to collection of one representative composite sample per source. The sample should be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and cyanide. The soil will be acceptable for use as backfill provided that all parameters meet TAGM 4046.

- Non-virgin soils will be tested via collection of one composite sample per 500 cubic yards of material from each source area. If more than 1,000 cubic yards of soil are borrowed from a given off-site non-virgin soil source area and both samples of the first 1,000 cubic yards meet TAGM 4046, the sample collection frequency will be reduced to one composite for every 2,500 cubic yards of additional soils from the same source, up to 5,000 cubic yards. For borrow sources greater than 5,000 cubic yards, sampling frequency may be reduced to one sample per 5,000 cubic yards, provided all earlier samples met TAGM 4046. The testing requirements for non-virgin soils are applicable when project fill volumes will exceed 25 cubic yards.