

Proposed Remedial Action Plan - GE Main Plant - Supporting Information

SUMMARY OF INTERIM REMEDIAL MEASURES AND ABATEMENT MEASURES

During the course of site investigations and normal operations of the plant, GE has implemented a wide variety of Interim Remedial Measures (IRMs) and other abatement and protective measures. These actions have been performed in accordance with NYSDEC-approved work plans, consent orders, and permits. The objectives of these IRMs and abatement measures are to abate potential sources of contaminants, reduce the potential exposures to site workers and the environment, recover free-product, and preserve and improve site habitats.

In addition, GE has implemented an on-going spill cleanup program at the site, including the application of absorbents to the spill area and/or routine vacuum removal of free-phase product, when encountered, followed by offsite disposal of any contaminated materials. GE's other spill responses included, but are not limited to, the removal of tanks or transformers, removal of contaminated soil, and the installation of several free-product recovery systems.

Completed Programs

TRANSFORMER REMOVALS

To date, GE has removed over 440 transformers from Main Plant as part of routine maintenance work and GE's best management practice (BMP) program. In 1996, GE voluntarily replaced 40 of their PCB-containing transformers. Only one PCB-containing transformer currently remains in the Hi-Yard. It is routinely inspected and properly maintained.

CLOSURE OF RCRA PART A PERMITTED STORAGE FACILITY

GE closed the RCRA Part A Permitted Storage Facility in former Building 259 in 1993 and 1994. Closure activities included the removal of all materials stored in the building, vacuuming, dusting, and scarification of certain areas, pressure washing, and removal of the upper one-inch of concrete flooring and concrete dike in their former PCB storage area. Samples were collected and analyzed to document the effectiveness and adequacy of the closure. GE's closure efforts are documented in McLaren-Hart's report, entitled *Interim Status Closure Certification Report – Hazardous Waste Management Facility Building 259*, dated May 20, 1994. The NYSDEC officially terminated GE's TSD status in a letter, dated June 27, 1994. GE demolished Building 259 in 1997.

CLOSURE OF RCRA 90-DAY STORAGE AREAS

Between 1996 and 2000, GE completed the closure of 14 less-than-90-day hazardous waste storage areas and management units in accordance with NYSDEC-approved closure plans. These closed units stored both wastes and raw products. These closure activities were documented in five reports to the NYSDEC from April 1997 to October 1999.

SITE-WIDE STORM SEWER CLEANING PROGRAM

Since the mid-1990s, GE has undertaken numerous measures to eliminate PCBs or other potential contaminants entering the WWTP from its storm sewer system. Over one mile of active and inactive storm sewer system has been investigated and decontaminated. GE's stormwater sewer cleaning activities are documented in the November 1996 report prepared by RUST, entitled *Storm Sewer Evaluation and Remediation* and Earth Tech's report, entitled *Main Plant Stormwater Bypass Assessment (Final)*, dated August 12, 2001.

GE completed an assessment and inspection of storm sewers and updated the storm sewer network map, sampled stormwater and sediment, and modeled hydraulic flow of stormwater. GE assessed off-site sources of runoff and contaminants that could affect bypass flows, reduced the quantity and rate of runoff, decommissioned and plugged several lines and catch basins, cleaned and removed numerous manholes, pipes and vaults containing sediment. A vault, identified as MH-751, was determined to be a significant contributor of PCBs to the Main Plant's storm sewer system through sediments that had deposited in the vault. Upon further investigation, an upgradient tank was discovered containing PCB contamination that actively fed sediment to the 751 vault and sewer system. The tank was isolated and removed and the vault cleaned and placed back in service. GE removed many hundreds of tons of sediments from the sewers and treated hundreds of thousands gallons of water. GE also cleaned some of the WWTP processes units and completed upgrades to the WWTP. GE's on-going stormwater management strategy focuses on reducing the frequency and duration of bypass events, continued compliance with SPDES permit, source identification and abatement to eliminate PCBs entering the treatment plant, and reducing runoff to the stormwater system.

FORMER BUILDING 269 STORM SEWER CLEANING IRM

The Building 269 Storm Sewer Cleaning IRM was conducted in 1998. As part of the IRM, GE inspected over 1,500-linear feet of storm sewer, removed 12 drums of PCB-contaminated and metal-contaminated sediment, collected, treated, and discharged approximately 3,400 gallons of wash water. GE also inspected the cleaned lines using a video camera.

BUILDING 265 MERCURY REMEDIATION IRM

The Building 265 IRM was conducted in 1998 to remove mercury that was discovered in inactive piping in the subfloor of the powerhouse. Remediation actions included removal of 146 drums (approximately 50 tons) of mercury-contaminated dirt, 12 tons of mercury-contaminated debris, 220 pounds of elemental mercury, approximately 80 linear feet of process piping from the inactive mercury boiler, and approximately 14 cubic yards of asbestos. Further actions included cleaning and encapsulation of two channel trenches and sumps, cleaning of 400 linear feet of storm sewer surrounding Building 265, treatment of 14,400 square feet of floor area, and treatment of approximately 30,000 gallons of wastewater generated during the decontamination activities. The completed work was summarized in OHM's report, entitled *Final Report for General Electric Company Schenectady, New York - Building 265 Mercury Remediation*, dated March 31, 1999.

HI-YARD STORM SEWER CLEANING IRM

In 1999, GE isolated approximately 800 linear feet of sewer line in the Hi-Yard from active sewer lines, removed an estimated 170 cubic yards of sediment, flushed and cleaned the isolated line, contained and treated over 432,000 gallons of wash and waste waters, transported the accumulated sediment for off-site disposal, and conducted a video camera inspection of the cleaned lines and manholes. In addition, GE installed flexible piping within the storm sewer line to minimize storm water contact with potentially contaminated sediments. GE submitted a certification report to the NYSDEC, which was entitled the *Interim Remedial Measures Construction Certification Report – Remediation of PCB Sediments in Hi-Yard Area Storm Sewer Line, General Electric Main Plant*, dated January 31, 2000.

STREAMBANK ARMORING

In 2001, GE stabilized and enhanced the streambank of the Poentic Kill along the edge of the former East Landfill Area using a bioengineered system to minimize streambank erosion. The bioengineered system included vegetated rip-rap, layers of wrapped soil bundles, and over 1,000 willow tree plantings. While not originally intended for this purpose, the willow tree plantings are anticipated to eliminate flow from Seep-1. GE will continue to monitor this area for flow.

BUILDING 262 SOIL PILES

In 1991, fuel oil was discovered beneath the footprint of a proposed addition to Building 262 and reported to the NYSDEC. The impacted soil was removed during excavation and construction of the basement for the addition. GE excavated approximately 2,685 cubic yards of fuel-oil-impacted soil and placed it on an asphalt parking lot for treatment using biodegradation. The soil pile was turned and aerated once every fall and once every spring to promote aeration. In April 2001, with NYSDEC approval, GE moved the soil to the former tank farm, and the spill was closed.

FREE-PRODUCT RECOVERY SYSTEM AT FORMER STARK OIL FACILITY

The former Stark Oil Site, located east of the Main Plant directly across from Edison Avenue, was formerly owned and operated by Stark Oil Company Bulk Fuel Products Business between roughly 1940 to 1977. The Stark Oil operations formerly consisted of several aboveground and underground fuel storage tanks including gasoline, home heating and fuel oil, diesel, kerosene and solvent. The Site was also utilized as a bulk fuel storage and retail gasoline store/station during these years.

GE purchased the Stark Oil property in 1977 and utilized the Site as a bulk petroleum transfer facility. Operations were discontinued at the Site in the mid 1980s. Buildings, structures, storage tanks and other associated infrastructure were dismantled and removed from Site in 1985 to 1986. Contaminated soil discovered during removal of a number of tanks in 1986 was also removed from Site for off-site disposal.

A Consent Order between GE and NYSDEC for the Stark Oil Site was completed and issued in May 1992. Since early 1990, remedial activities have included product and dissolved phase groundwater recovery. This recovery and treatment system operated until December 2000. In addition to product and groundwater recovery and treatment, a soil gas survey was conducted to evaluate soil condition on-site during 1989. A soil vapor extraction system was installed on-site in 1993 and operated for approximately 12 to 18 months until vapor concentrations

reduced to constant levels. A subsequent soil gas survey was conducted in the spring of 1995 to evaluate soil conditions after operation of the soil vapor extraction system. Also, biological/oxygen enriching compounds were introduced into soil to enhance natural contaminant degradation in 1996. Results of the soil enrichment were monitored for approximately 12 months after injection into the subsurface.

Based on the lack of product recovery during a soil vapor and product extraction pilot test conducted in December 2000, and the sporadic presence of product since, GE dismantled the product and groundwater recovery system in December 2000. Monthly monitoring has continued and vacuum extraction has been conducted when recoverable LNAPL has been detected.

CITY WATER MAIN IRM

LNAPL was detected in a section of excavation performed during construction for a new City of Schenectady water main line that was being installed across GE's property in 1997. GE initiated a NYSDEC-approved IRM to address the LNAPL near the water main. During the City Water Main IRM, GE excavated and properly disposed over 2,500 tons of contaminated soils, collected and treated approximately 100,000 gallons of water, and completed the installation of the recovery trench and five recovery wells. In August 2001, Geoprobe soil borings were advanced up and down-gradient of the collection trench. No free-phase product was encountered. To date, no measurable product has been detected in any of the five recovery wells, or outside the liner. As such, no product has been removed by the recovery system. GE dismantled the recovery system in 2001, and continues to check all the wells quarterly for product and reports conditions to NYSDEC in their monthly progress reports.

STORAGE TANK REMOVAL IRM

To date, GE has removed over 430 inactive aboveground and underground storage tanks from Main Plant. Most notably, three aboveground fuel storage tanks (storage capacity of 4,000,000 gallons of No. 6 fuel oil) in the former East Landfill Area were removed. Three separate summary reports were submitted to the NYSDEC summarizing the subsurface investigations, geophysical studies and subsequent tank excavations and removals, where encountered during the UST program. The Phase II UST Closure Report, prepared by Rust Environment & Infrastructure in November 2002 documented the completed UST investigation and closure program conducted at the Main Plant.

SECTOR R HOLDING POND IRM

An IRM work plan was submitted to NYSDEC on April 2, 2001. NYSDEC approved this work plan in May 2001. Phase I fieldwork was completed in the fall of 2001. During the 2001 Phase I activities, GE excavated and disposed of approximately 2,662 tons of sediments from the pond and treated approximately 200,000 gallons of construction water.

In 2002, GE and the NYSDEC agreed on additional soil removal for lead and mercury containing soil locations outside the original IRM pond cell limits. Phase II Holding Pond sediment removal construction activities were resumed in September 2003 and completed in November 2003 with the removal of the remaining PCB sediments over the specified IRM concentration limits, as well as the additional lead and mercury containing soil. Post excavation soil sample analytical data were below their applicable target limits for all cells. A total of approximately 4,100 tons of soil were removed from the Holding Pond during this 2003 phase of the IRM project. A total of

approximately 6,762 tons of contaminated soil were removed from the Holding Pond for off-site disposal and over 4,200,000 gallons of water were treated and discharged to the on-site wastewater treatment plant.

On-Going Programs

FREE-PRODUCT RECOVERY SYSTEM AT BUILDING 49/53 AREA

In 1991, GE installed a groundwater and liquid-phase hydrocarbons recovery system, which operated for approximately one month. From 1991 to 1999, GE conducted an oil recovery program consisting of weekly monitoring and bailing free-product found in wells. In December 2000, GE conducted aggressive purging at four wells. In March 2001, a 20,000-gallon fuel oil tank was discovered in this area during construction activities. The tank, its contents and 150 tons of soil were removed for off-site disposal. Two additional monitoring wells were installed at either end of the former tank for future monitoring and recovery, where present. LNAPL has since been observed at only two wells and sheen has been observed at a third well. Monthly monitoring has continued and LNAPL has been removed when detected.

AGRONOMIC & PHYTO PROGRAM - FORMER EAST AND WEST LANDFILLS

GE began pursuing an engineered agronomic cover system (Phyto-cover) in the late 1990s at the GE Main Plant within the 120- acre area of former landfills. GE and a phyto-remediation consultant evaluated the opportunity for an enhanced cover system approach for the three former landfills at the Main Plant. In early 1999, GE initiated the field pilot study with the installation on-site data monitoring and collection equipment. This equipment collected the meteorological, atmospheric and physical information for site-specific conditions, similar to the data gathered through the initial file research for local and regional conditions. Subsequent plantings of hybrid poplars and willows were conducted at select plot locations throughout the landfills due to their high water removal efficiencies. Since initiation of field agronomic cover pilot, numerous acres of hybrid poplars and willow as well as native plant and tree species have been planted, studied and monitored for long-term cover system and ecological growth and development.

In 1997, GE placed a soil cover over the former Binnie Kill Landfill Area. The project consisted of grading the existing construction debris, placement and compaction of approximately 40,000 cubic yards of sand and fill material, and placement and grading of approximately 8,000 cubic yards of topsoil. In June 1998, GE seeded the former Binnie Kill Landfill Area with indigenous plant species.

In 1999, GE continued to enhance the habitats in the southwest portion of the former East Landfill Area. Surface debris was removed and disposed off site. Vegetation was planted on approximately two acres. Approximately 100,000 cubic yards of soil was placed and spray seeded. GE initiated pilot studies to evaluate evapotranspiration rates and habitat enhancement effects, and to examine components of the near-surface hydrologic cycle at the former East Landfill Area. In 2001, GE covered, seeded and reforested additional plots at the former East Landfill Area.

In the mid-to late 1990's, exposed debris was removed from the surface of the former West Landfill. Approximately 30,000 cubic yards of additional soil cover was placed on portions of the former West Landfill and the areas were seeded. The former West Landfill Area was included as part of the two acres in the 1999 East Landfill Area pilot studies referenced above. Two areas of the West Landfill Area were vegetated with various species and included in the pilot studies to evaluate evapotranspiration rates and habitat enhancement effects.

SEEP MANAGEMENT IRM

Since 1998, GE has implemented, evaluated, and improved a series of IRMs to control, collect, and treat seeps near the southwest corner of the former East Landfill Area. GE completed the construction of a improved treatment system in 2000, and has since completed upgrades. GE's monitoring program for the treatment system includes monthly collection and analysis of water samples, flow measurements, and inspections of the treatment system.

FORMER EAST LANDFILL AREA IRM

The overall objective of the former East Landfill Area IRM Workplan, prepared in 2001, is to manage, control and reduce the migration of contamination from the former East Landfill Area. The specific goals stated in this IRM plan are to minimize human and ecological contact with contaminants in the soil, prevent migration of contaminants into the Poentic Kill and from the shallow groundwater beyond the lateral boundaries of the former East Landfill Area at concentrations greater than NYSDEC standards, and monitor the effectiveness of the program by monitoring the groundwater quality and surface water quality. The main components of the proposed plan included removal of specific areas of surface soil that contain elevated levels of PCBs, development and placement of an agronomic cover on approximately 25 percent of the former East Landfill, construction of seep water collection sumps and treatment of the seep water, construction of two air sparge curtains along the Poentic Kill, and monitoring the groundwater and surface water quality at the periphery of the former East Landfill. The portions of this proposed IRM Work Plan that GE has voluntarily implemented to date include placement of agronomic cover and selected evapotranspiration enhancements in the former landfill areas, seep collection and treatment (seep 1 – 4) and on-going routine landfill maintenance.

FREE-PRODUCT RECOVERY SYSTEM AT IMPS

During the early 1980s, GE installed 16 monitoring wells around the insulating material product section (IMPS). One of the 16 wells contained oil. In 1984 and 1985, GE installed three monitoring wells, four soil borings, and two recovery wells. Since the initial discovery of oil, there have been no observations of oil in the former IMPS Area. However, in January 2001, free-product (LNAPL) containing gasoline and PCBs was encountered at a piezometer downgradient of IMPS. In 2002, GE installed 16 new monitoring wells to assess the lateral extent of LNAPL. A sample of LNAPL collected from the new wells was comprised of mineral oil with no PCBs. GE has gauged and recovered product from these wells, when present, on a monthly basis.

SITE-WIDE RENOVATIONS

From 1999 through 2002, GE's site-wide renovation activities have included landscaping, construction of new pavement, sidewalks, curbs, and parking lots, placement and seeding of hundreds of thousands of cubic yards

of clean fill, planting over 2,000 trees, construction of outdoor pavilions and outdoor recreational facilities, and creating numerous parks and walking tracks between buildings. The clean fill provides a natural and effective barrier between workers at the site and the original ground surface.