Third Five-Year Review Report
Malta Rocket Fuel Area Superfund Site
Towns of Malta and Stillwater
Saratoga County, New York

Prepared by:

United States Environmental Protection Agency
Region 2
New York, New York

August 2009

Table of Contents

Table of Contents Continued

FIGURES

TABLES

EXECUTIVE SUMMARY

This is the third five-year review for the Malta Rocket Fuel Area site, located in the Towns of Malta and Stillwater, Saratoga County, New York. The assessment of this five-year review is that the implemented remedies appear to be functioning as intended and continue to protect human health and the environment.

Hydrazine, a chemical associated with rocket fuel, was reportedly used widely across the site. Since samples have never been analyzed for hydrazine, to ensure full characterization of the contaminants at the site, it is recommended that groundwater sampling for this compound be conducted. In addition, groundwater samples should be analyzed for natural attenuation (*i.e.,* degradation) parameters.

The deep monitoring wells have not been sampled for a sufficient enough time to identify any trends and the shallow monitoring wells were not sampled during the review period. The current network of deep and shallow monitoring wells should be sampled over the next five years to obtain further information on trends in contaminant levels in the deep aquifer and to monitor conditions in the shallow aquifer.

The Saratoga Economic Development Corporation has commenced the first phase of the construction of a technology center which will encompass the entire Malta Rocket Fuel Area site. In light of the presence of elevated volatile organic compounds in the groundwater, it is recommended that post-construction vapor intrusion sampling be performed at the building that is currently under construction. It is also recommended that future construction include vapor mitigation measures.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name *(from WasteLAN)*: Malta Rocket Fuel Area		
EPA ID *(from WasteLAN)*: NYD980535124		
Region: 2	**State:** NY	**City/County:** Malta and Stillwater/Saratoga

SITE STATUS	
NPL Status: ■ Final ☐ Deleted ☐ Other (specify)	
Remediation Status (choose all that apply): ☐ Under Construction ■ Operating ☐ Complete	
Multiple OUs? ■ YES ☐ NO	**Construction completion date:** 09/1999
Has site been put into reuse? ■ YES ☐ NO ☐ N/A	

REVIEW STATUS	
Lead agency: ■ EPA ☐ State ☐ Tribe ☐ Other Federal Agency	
Author name: Patricia Simmons Pierre	
Author title: Remedial Project Manager	**Author affiliation:** EPA
Review period: 2004 to 2009	
Date(s) of site inspection: 09/24/2008	
Type of review: ☐ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion ■ Statutory	
Review number: ☐ 1 (first) ☐ 2 (second) ■ 3 (third) ☐ Other (specify)	
Triggering action: ☐ Actual RA Onsite Construction at OU #____ ☐ Construction Completion ☐ Other (specify)	☐ Actual RA Start at OU# ■ Previous Five-Year Review Report
Triggering action date *(from WasteLAN)*: 09/21/2004	
Due date *(five years after triggering action date)*: 09/21/2009	
Does the report include recommendation(s) and follow-up action(s)? ■ yes ☐ no **Is human exposure under control?** ■ yes ☐ no **Is contaminated groundwater under control?** ■ yes ☐ no ☐ not yet determined **Is the remedy protective of the environment?** ■ yes ☐ no ☐ not yet determined **Acres in use or available for use:** **restricted:** 165 **unrestricted:** 0	

Issues, Recommendations, and Follow-Up Actions

Hydrazine, a chemical associated with rocket fuel, was reportedly used widely across the site. Since samples have never been analyzed for hydrazine, to ensure full characterization of the contaminants at the site, it is recommended that groundwater sampling for this compound be conducted. In addition, groundwater samples should be analyzed for natural attenuation (*i.e.,* degradation) parameters.

The deep monitoring wells have not been sampled for a sufficient enough time to identify any trends and the shallow monitoring wells were not sampled during the review period. The current network of deep and shallow monitoring wells should be sampled over the next five years to obtain further information on trends in contaminant levels in the deep aquifer and to monitor conditions in the shallow aquifer.

The Saratoga Economic Development Corporation has commenced the first phase of the construction of a technology center which will encompass the entire Malta Rocket Fuel Area site. In light of the presence of elevated volatile organic compounds in the groundwater, it is recommended that post-construction vapor intrusion sampling be performed at the building that is currently under construction. It is also recommended that future construction include vapor mitigation measures.

Protectiveness Statement

Based on the current and reasonably-anticipated site and groundwater uses, the Environmental Protection Agency has determined that the site-wide remedy currently protects human health and the environment. There are no current risks present at the site in either groundwater or soils and none are expected as long as the institutional and access controls are properly operated, monitored, and maintained. In order for the remedy to be protective in the long term, a post-construction vapor intrusion survey should be conducted at the building that is currently under construction at the Luther Forest Technology Campus.

I. Introduction

This third five-year review report for the Malta Rocket Fuel Area site, located in the Towns of Malta and Stillwater, Saratoga County, New York, was prepared by United States Environmental Protection Agency (EPA) Remedial Project Manager (RPM), Patricia Simmons Pierre. The review was conducted pursuant to Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. §9601 *et seq.* and 40 CFR 300.430(F)(4)(ii) and in accordance with the Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P (June 2001). The purpose of five-year reviews is to ensure that implemented remedies protect public health and the environment and that they function as intended by the site decision documents. This report will become part of the site file.

In accordance with Section 1.3.3 of the five-year review guidance, a subsequent statutory five-year review is triggered by the signing date of the previous five-year review report. The previous five-year review was signed on September 21, 2004.

Based upon this five-year review, it has been determined that the groundwater contamination at the site is under control, that no human receptors are exposed to site-related contaminants, and that the remedy is protective of the environment.

II. Site Chronology

Table 1 summarizes the site-related events from discovery to construction completion.

III. Background

Physical Characteristics

The Malta Rocket Fuel Area site, also known as the Saratoga Research and Development Center and the Luther Forest Technology Campus, is located off Plains Road in the Towns of Malta and Stillwater in Saratoga County, New York. Situated approximately 1.5 miles south of Saratoga Lake, and 2 miles northeast of Round Lake, the site includes a square parcel of approximately 165 acres of developed land, known as the Malta Test Station (the "Test Station"). The Test Station includes 33 buildings, numerous rocket test stands, concrete quench pits, leach fields/septic tanks, dry wells, storage areas, disposal areas, and a small artificial pond known as Muggett's Pond. A fence surrounds the majority of the Test Station, which is currently owned by the Luther Forest Technology Campus Economic Development Corporation (LFTCEDC). The site also includes portions of the predominantly undeveloped woodlands that surround the Test Station; the former General Electric (GE)/Exxon Nuclear building, which is currently owned by New York State Energy Research and Development Authority (NYSERDA); and areas located adjacent to the Test Station which have been impacted by site-related constituents in the groundwater. These areas are owned by NYSERDA and the Luther Forest Corporation (see Figure 1).

Site Geology/Hydrogeology

The site is underlain by several layers of unconsolidated sediment with a total thickness reaching up to 250 feet (ft.) in some areas. There is a surficial layer of aeolian (wind-blown) sand and silt deposits varying in thickness from 0 to 14 ft. Underlying the aeolian deposits is a thick (up to 220 ft.) sequence of glaciolacustrine (originating from glacial lakes) deposits. Below the glaciolacustrine deposits is approximately 10 to15 ft. of a dense glacial till consisting of shale fragments, silt, and clay. Directly above the bedrock and immediately below the glacial till lies a thin layer (less than 2 ft.) of fine to coarse sand with minor amounts of silt and clay.

Based upon the hydraulic gradients observed at the site, for both the shallow and deep aquifers, radial flow is to the north, west, and southwest from the center of the site. In addition, as groundwater flows laterally away from the source areas, it also flows downward.

Much of the groundwater in the vicinity of the site eventually breaks out as surface water springs and seeps into ravines surrounding the site. The site is situated on a drainage divide with surface water in the northern portion of the site flowing toward Saratoga Lake, and surface water in the southern portion of the site flowing toward Round Lake and Little Round Lake. The depth to groundwater at the site ranges from approximately 15 to 55 ft. below the land surface.

The water supply system for the site consists of two active production wells located at the Test Station. The Luther Forest Well Field (LFWF) is located approximately one mile southwest of the site and north of Knapp Road, in the Town of Malta. This well field consists of five production wells connected to the Luther Forest water distribution system, which are operated by the Saratoga Water Company. Regional groundwater flow in the vicinity of the LFWF is in a southwest direction toward Round Lake. The Cold Springs Well Field (CSWF) is located approximately one mile northeast of the site, along Cold Springs Road in the Town of Stillwater. This well field consists of one well that was installed in 1990, but was not connected to the Luther Forest water distribution system until 1993. There are two additional production wells in the vicinity of the site—the Saratoga Hollow and Saratoga Ridge Wells. These wells are located along Lake Road north of the CSWF, and they provide water to the Saratoga Glen Hollow housing development and the Saratoga Ridge Townhouse development, respectively. Regional groundwater in the vicinity of the CSWF is believed to flow northeast toward Saratoga Lake (see Figure 2).

Land and Resource Use

Established by the U.S. Government Department of War (which later became the Department of Defense (DOD) in 1945, the Test Station was used as a research and development facility for rocket and weapons testing for more than 50 years. These activities involved the use of carbon tetrachloride (carbon tet) and trichloroethylene (TCE) as solvents and degreasers.

In 1955, the U.S. Government established a perpetual restrictive safety easement around the Test Station to limit facility access to only those personnel who worked at the facility. This safety easement encompassed approximately 1,800 acres of pine forest in a circular area of a one-mile

radius from the center of the Test Station. The safety easement was eliminated in 1964. The land outside the former safety easement is zoned for residential use; approximately 12,000 people live within a two-mile radius of the site. The Luther Forest Residential Development, located to the west of the site, is owned by The Luther Forest Corporation. Potable water for the Luther Forest Residential Development is obtained from the LFWF and the CSWF.

History of Contamination

Operations at the facility resulted in the contamination of the soil and groundwater with volatile organic compounds (VOC) and metals.

Initial Response

In 1979, approximately eight grams of uranium hexafluoride gas were released in a portion of the former GE/Exxon Nuclear building, depositing a thin film on the floor of the room. The area was decontaminated and the contaminated material was sent to licensed disposal facilities. A subsequent radiation survey of the building indicated that all beta and gamma readings taken were within the limits of unrestricted use.

In 1980, the combustible contents of drums containing hydrazine and CAVEA-B, experimental liquid rocket propellants, were burned on-site by NYSERDA in accordance with a New York State Department of Environmental Conservation (NYSDEC) restricted burning permit. The non-combustible drum contents were transferred to new poly-lined drums and staged until they were disposed of off-site in 1981.

In June 1985, transformers located on a portion of the Test Station leased to Power Technologies, Inc. (PTI) were tested and found to contain polychlorinated biphenyls (PCBs). NYSERDA and PTI decontaminated the transformers in 1987.

In 1985 and 1986, groundwater at the site was sampled and found to contain carbon tet, TCE, chloroform, and several metals. In 1987, an air stripper was installed on the Test Station water supply wells by Wright-Malta (under an NYSDEC permit) to treat the groundwater prior to its use by employees at the Test Station.

In 1987, NYSERDA sampled liquid and sludge from several septic tanks. Based on detections of VOCs in these samples, NYSERDA subsequently pumped out and rinsed the septic tanks.

In July 1987, the site was placed on the National Priorities List (NPL). Following the listing of the site on the NPL, because of concerns regarding the potential for the contaminated groundwater from the site to affect the LFWF (the CSWF and the Saratoga Hollow and Saratoga Ridge wells did not exist at that time), groundwater and surface water quality monitoring between the site and the LFWF was initiated. This monitoring system serves as an "early warning" to ensure that contaminated groundwater from the site is not migrating toward the Luther Forest Residential Development.

In 1989, a drum containing 4,270 milligrams per liter (mg/l) of lead, 235 mg/l of zinc, and 93 mg/l of copper was disposed of off-site by NYSERDA in a Resource Conservation and Recovery Act (RCRA)-compliant facility.

In September 1989, EPA issued a Unilateral Administrative Order to eight potentially responsible parties (PRPs)[1] to perform a remedial investigation and feasibility study (RI/FS). In March 1990, GE, NYSERDA, and DOD entered into a participation agreement and undertook performance of the RI/FS.

From 1991 to 1994, a comprehensive RI was performed to define the nature and extent of the contamination at the site. A total of 48 distinct areas of concern and site-wide groundwater and surface water were investigated. Components of the RI field work include a groundwater investigation, including the installation of 30 wells to supplement the existing network of 18 monitoring wells; surface water and sediment investigations at six surface water bodies at the site; a radiation survey in the former GE/Exxon Nuclear building; geophysical surveys at 19 areas to identify locations of possible buried metal; soil gas surveys at 46 areas to provide a semi-quantitative evaluation of the extent of VOCs in shallow soil; a surface soil investigation of 67 samples collected from 60 locations, a subsurface soil investigation consisting of 254 shallow subsurface soil samples and three deep subsurface soil samples; a dry well investigation of 31 soil and sediment samples from 23 dry well features (dry wells, catch basins, floor drains, a swale and an open sump); and a septic tank investigation.

Several response actions were performed concurrent with the RI, including: the decommissioning and removal of two compressed gas cylinders; excavating and recycling 560 empty, buried, crushed drums; cleaning out several septic tanks, catch basins, and dry wells, and cleaning out a sump.

Basis for Taking Action

Groundwater samples collected during the RI confirmed the presence of VOCs above federal Maximum Contaminant Levels (MCLs) established for drinking water. Carbon tet and TCE were detected near the center of the Test Station at maximum concentrations of 220 micrograms per liter (µg/l) and 280 µg/l, respectively.

The results of the RI sampling and analysis were used to conduct human health and ecological risk assessments for the site. Based on these risk assessments, the levels of PCBs in soil at the Building 23P area (where lead was also detected) and the levels of mercury at the Muggett's Pond Drainage Ditch Intersection were found to be unacceptable.

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[1] The Respondents are Advanced Nuclear Fuels, Inc., Curtiss-Wright Corporation, GE, MTI, NYSERDA, Olin Corporation, PTI, and Wright-Malta.

IV. Remedial Actions

Remedy Selection

On July 18, 1996, Record of Decision (ROD) was signed, selecting a remedy for the site. The major components of the selected remedy are as follows:

1. Continued pumping of the Test Station water supply well(s) and treatment of the water by air stripping to provide an acceptable drinking water supply for the Test Station employees, which may be accomplished using the existing air stripper. Continued monitoring of the influent and effluent of the air stripper in accordance with New York State requirements to ensure that it effectively treats the on-site water supply to federal MCLs, or if more stringent, New York State drinking water standards.

2. Natural attenuation (*i.e.,* any combination of dilution, dispersion, adsorption, and degradation) and natural discharge to nearby surface water springs and seeps into ravines (where concentrations of VOCs would be reduced to acceptable levels in surface water through volatilization) to address the VOCs that are not captured by the pumping well(s) until the groundwater attains federal MCLs, or if more stringent, New York State groundwater standards. It was estimated that the concentrations of VOCs in groundwater would be reduced to acceptable levels in 110 years.

3. Monitoring of surface water and groundwater to ensure that off-site groundwater users are not impacted by contamination from the site, that contaminated groundwater does not migrate into uncontaminated areas (*i.e.*, that the groundwater plume is contained), and that natural attenuation is restoring the groundwater to the cleanup standards. The existing surface water and groundwater sample locations may be modified as necessary to meet the objectives of this monitoring program.

4. Excavation of contaminated soil at the Building 23P area to a depth of 1 foot or less having a concentration of greater than 10 milligrams per kilogram (mg/kg) of PCBs, soil at a depth below 1 foot having a concentration of greater than 25 mg/kg of PCBs, and soil at any depth with a concentration of lead of greater than 1,000 mg/kg

5. Excavation of contaminated soil at the Muggett's Pond Drainage Ditch Intersection at any depth with a concentration of greater than 2 mg/l of mercury.

6. Backfilling of excavations in the Building 23P area and at Muggett's Pond Drainage Ditch Intersection with clean fill material, grading to blend with the surrounding areas, and revegetation.

7. Transportation of the excavated soil from the Building 23P area and Muggett's Pond Drainage Ditch Intersection and disposal off-site at an appropriate EPA-approved facility, consistent with RCRA and all other applicable or relevant and appropriate requirements.

8. Implementation of institutional controls, which may include new deed restrictions, to prevent ingestion of contaminated groundwater, to restrict withdrawal of groundwater within the vicinity of the plume that could adversely impact groundwater remediation, and to restrict the Test Station to its current commercial/industrial land use.

9. Evaluation of site conditions at least once every five years to ensure that the remedy is protective of human health and the environment. If justified by the review, EPA may require that additional remedial actions be implemented.

Remedy Implementation

In September 1997, EPA and the PRPs signed a Consent Decree for the performance of the work called for in the ROD. GE was designated the performing party responsible for implementation of the selected remedy.

The components of the remedy were addressed in four remedial work elements (RWEs): RWE I (Drinking Water)[2], RWE II (Groundwater), RWE III (Soil) and RWE IV (Institutional Controls).

No further remedial action was required for RWE I and RWE II after issuance of the ROD since the air stripper was already in operation and no actions were required related to natural attenuation of the VOCs in the groundwater. The remedial design related to RWE III and RWE IV was approved by EPA in September 1997.

The remedial actions performed for RWEs III and IV include the following:

RWE III (Soil)

Approximately four cubic yards of soil were excavated from the Building 23P area in July 1998. Six post-excavation soil samples were collected from the excavation and analyzed for PCBs and lead. All of the samples contained less than 10 mg/kg of total PCBs and less than 1,000 mg/kg of lead. Thus, they met the cleanup criteria specified in the ROD. The excavated area was subsequently backfilled with clean fill and seeded. The excavated soil was transferred to a roll-off container and staged.

Approximately 62 cubic yards of contaminated soil, including visible elemental mercury in soil and debris, were excavated from the concrete trough at the Muggett's Pond drainage ditch intersection and from the surrounding areas in July and September 1998. The excavated soil was transferred to 20-cubic yard roll-off containers and one-cubic yard soil boxes and staged. The elemental mercury and associated soil were placed in two one-liter glass bottles, which were stored in a five-gallon pail for secondary containment. The excavated area (except the concrete trough) was subsequently backfilled with clean fill and seeded.

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[2] Wright-Malta provided bottled water for consumption by its Test Station employees during the time that the buildings were being used as office space. The Test Station is currently unoccupied.

Based on the analysis of samples for hazardous waste characterization, the excavated soil was determined to be nonhazardous and was shipped by truck to Waste Management Inc.'s facility in Model City, New York in November 1998. The two liter bottles containing elemental mercury and associated soil were determined to be hazardous and were transported by truck to Advance Environmental Technical Services's transfer station in Flanders, New Jersey in December 1998 and ultimately disposed of at AERC/MTI in Allentown, Pennsylvania in January 1999.

RWE IV (Institutional Controls)

The ROD required the implementation of institutional controls to prevent ingestion of contaminated groundwater, restrict withdrawal of groundwater within the vicinity of the plume that could adversely impact groundwater remediation, and restrict the Test Station to commercial/industrial use, which is its current land use. In 1999, to implement the institutional controls, an environmental restriction zone (ERZ)[3] was designated to prevent the capture zone of hypothetical future pumping wells from intersecting the groundwater plume of VOCs and thereby ensure containment of the plume and ERZ. Declarations of Restrictive Covenants were subsequently entered into with the property owners located within the ERZ (Luther Forest Corporation, NYSERDA, and Wright-Malta).

Construction Completion

A Preliminary Close-Out Report was approved on September 23, 1999.

Institutional Controls Implementation

As was noted above, the ROD called for institutional controls to prevent ingestion of contaminated groundwater, restrict withdrawal of groundwater within the vicinity of the plume that could adversely impact groundwater remediation, and restrict the Test Station to commercial/industrial use, which is its current land use. An ERZ was designated to prevent the capture zone of hypothetical future pumping wells from intersecting the groundwater plume of VOCs and thereby ensure containment of the plume and ERZ. Declarations of Restrictive Covenants were recorded with the Saratoga County Clerk for the property owners located within the ERZ (Luther Forest Corporation, NYSERDA, and Wright-Malta) on June 28, 1999, June 11, 1999, and June 11, 1999, respectively.

System Operations/Operation and Maintenance

As part of the operation and maintenance (O&M) program for RWEs I, II, and IV, the following activities are performed at the site:

- RWE I (Drinking Water): Influent and effluent water samples are collected from the on-site water supply system quarterly and analyzed for the presence of VOCs (specifically carbon

[3] The ERZ extends approximately 1,500 ft. from the upgradient and lateral edges of the VOC plume, and approximately 1,500 ft. from the downgradient edge of the VOC plume (see Figure 2).

tet and TCE) to ensure that the water supply is being effectively treated and meeting MCLs.

- RWE II (Groundwater): As part of the Early Warning Monitoring System (EWMS), groundwater and surface water samples are collected semi-annually, and analyzed for VOCs, hexavalent chromium, and total chromium, and groundwater elevations are measured at well locations to evaluate potential changes in the size and shape of the contaminant plume to ensure that off-site groundwater users are not impacted by site contamination.

- RWE IV (Institutional Controls): Site conditions are observed during the groundwater sampling activities in the ERZ to determine if any changes or development (specifically, installation of groundwater wells) have occurred. In addition, representatives from NYSERDA, Luther Forest Corporation, and Wright-Malta are asked about current or proposed changes in land use, groundwater usage, and compliance with the notice requirements in the respective deed restrictions.

In response to a request made by the New York State Department of Health, GE analyzed selected samples for ammonium perchlorate (a chemical associated with rocket fuel) during the period from February 2003 through November 2004. These analyses were discontinued because ammonium perchlorate was either not detected, or detected at levels below the method reporting limit in all of the samples. Hydrazine, another chemical associated with rocket fuel, was reportedly used widely across the site and was burned in one area (with an NYSDEC permit). Since samples for hydrazine have not been collected, it is recommended that groundwater sampling for this compound be conducted to determine whether or not it is present at the site.

GE submits operation and maintenance reports to the EPA semi-annually. These reports contain, among other things, an explanation of the operation, maintenance and monitoring activities performed, and the analytical results obtained during the reporting period.

The annual cost incurred by GE in relation to operation, maintenance, and long-term monitoring activities at the site is approximately $50,000.

V. Progress Since the Last Five-Year Report

The first and second five-year reviews were approved on September 23, 1999 and September 19, 2004, respectively, pursuant to OSWER Directives 9355.7-02 (1991), 9355.7-02A (1994), and 9355.7-03A (1995). Both previous five-year reviews concluded that the response actions implemented at the site were in accordance with the remedy selected by EPA and that the remedy continued to be protective of human health and the environment. However, in the 2004 five-year review, the EPA review team made several recommendations to improve the monitoring program at the site. Until the 2004 five-year review, groundwater samples were collected only from the shallow aquifer monitoring wells. The results showed no detections in several wells and stable concentrations in others. Due to the stable conditions in the shallow aquifer, the 2004 five-year review recommended that samples be collected only from the deep monitoring wells. In addition,

although groundwater and surface water samples collected during the prior review periods indicated that, in general, concentrations of VOCs were not increasing, it was determined that it was unclear whether or not this was a result of natural attenuation. The 2004 five-year review recommended sampling for natural attenuation (*i.e.*, degradation) parameters to evaluate whether natural attenuation is occurring. The recommendations also included sampling additional surface water locations north of the site and collecting groundwater level measurements from additional wells. The recommended monitoring program modifications were implemented beginning with the October 2004 sampling event.

VI. Five-Year Review Process

Administrative Components

The five-year review team consisted of Patricia Simmons Pierre (RPM), Chloe Metz (Risk Assessor), Richard Krauser (Hydrogeologist), and Michael Clemetson (Biological Technical Assistance Group), all of EPA.

Community Involvement

The EPA Community Involvement Coordinator (CIC) for the site, Kristen Pelhan Skopeck, published a notice in the *Saratogian,* a local newspaper, on March 15, 2009, notifying the community of the initiation of the five-year review process. The notice indicated that EPA would be conducting a five-year review to ensure that the remedies implemented at the site remain protective of public health and are functioning as designed. It was also indicated that once the five-year review is completed, the results will be made available in the local site repositories. In addition, the notice included the RPM's and the CIC's addresses and telephone numbers for questions related to the five-year review process or the site

Document Review

The documents, data, and information which were reviewed in completing the five-year review are summarized in Table 2.

Data Review

Influent and effluent water samples are collected from the on-site air stripper treatment system quarterly and analyzed for the presence of VOCs (specifically, carbon tet and TCE). Influent concentrations of both carbon tet and TCE tended to fluctuate throughout the review period. Carbon tet concentrations ranged from a maximum of 48 µg/l to a minimum of 9.4 µg/l, while TCE concentrations ranged from a maximum of 60 µg/l to a minimum of 11.8 µg/l. Carbon tet and TCE concentrations in the effluent samples remained either undetectable or at estimated levels below the 1 µg/l analytical method reporting limit and well below the 5 µg/l MCL.

As part of the modified EWMS, during the period from July 2004 through December 2008, deep aquifer and surface water samples were collected semi-annually and were analyzed for the presence of VOCs, hexavalent chromium, total chromium, and dissolved oxygen (DO) as an indicator of natural attenuation (*i.e.,* degradation), and groundwater elevations were measured regularly. Groundwater samples collected from deep aquifer monitoring wells M-4D, M-11D, M-14D, M-24D[4], M-25D, M-27D, M-29D and M-33I were analyzed for the presence of VOCs, while groundwater samples collected from monitoring wells M-13D and M-27D were analyzed for the presence of hexavalent and total chromium. Surface water samples collected from locations SW-A, SW-B, SW-D, SW-E, SW-F, and SW-G were analyzed for VOCs, and samples from location SW-B were analyzed for the presence of, hexavalent chromium, and total chromium. All sampling locations are depicted in Figure 1. The deep monitoring wells have not been sampled for a sufficient enough time to identify a clear trend in the deep aquifer, and the shallow monitoring wells were not sampled during this review period. So that overall trends can be assessed in both the shallow and deep aquifers, shallow and deep monitoring wells should be sampled during the next five-year period.

Groundwater monitoring results obtained during the review period were mixed; some wells showed increases in carbon tet and TCE levels (other VOCs were not detected), while others showed decreasing levels. Monitoring well M-11D showed carbon tet levels mostly above the remedial action objective (RAO) of 5 µg/l (levels range from 4.6 µg/l to 15 µg/l) and monitoring well M-24D showed increasing carbon tet concentrations (from 0.59 µg/l to 11 µg/l); TCE (RAO of 5 µg/l) was not detected in these two monitoring wells. During the review period, monitoring well M-25D showed an overall increase in TCE (from 16.1µg/l to 79 µg/l) and a steady decrease in carbon tet (from 86.6µg/l to 52µg/l). Monitoring well M-27D showed an overall decrease in TCE and carbon tet (from 22.7 µg/l to 11 µg/l and 22.1 µg/l to 9 µg/l, respectively) during the review period. Monitoring well M-29D showed a slight increase in TCE (from 6 µg/l to 14 µg/l) and an overall increase in carbon tet (from 10.8 µg/l to 38 µg/l) during the review period TCE and carbon tet were not detected in monitoring wells M-4D, M-14D, and M-33I

Hexavalent and total chromium were only detected in monitoring wells M-13D and M-27D at levels well below the RAO of 50 µg/l.

As was noted above, DO levels were measured in groundwater samples collected during this five-year review period as an indicator of natural attenuation (*i.e.,* degradation). However, to provide a more accurate assessment of whether or not degradation is occurring, groundwater samples should be analyzed for the full suite of degradation parameters, including oxygen, nitrate, iron II, sulfate, methane, oxidation reduction potential, temperature, alkalinity, chloride, and hydrogen (see

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4 A request was made by LFTCEDC to decommission M-33S/I and relocate M-24S/D because these wells were located within the footprint of one of the proposed LFTC buildings. EPA approved the relocation of M-24D with the provision that the new location be located adjacent to the old location (just outside the building footprint) and screened at the same depths. Since M-33S/I had shown no detections of VOCs since 1994, EPA approved the decommissioning of this well. This effort was completed in March 2009.

Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water, EPA/600/R-98/128).

Surface water sampling data collected during this review period indicate that VOCs and chromium were not detected in the surface water.

Interviews

For this five-year review, John Strang, NYSDEC Project Manager, Steven Meier, GE Remedial Project Manager, and GE's Consultant, Brian Neumann, Project Manager for Shaw Environmental, Inc. were interviewed regarding background information and site operations. Steve Groseclose, Director of Risk Management, Sustainability & Real Estate for Globalfoundries, was interviewed with regard to the redevelopment work that is currently underway at the site.

Site Inspection

A site inspection related to this five-year review was conducted on September 24, 2008. Those in attendance included Patricia Simmons Pierre, Richard Krauser, John Strang, Steven Meier, and Brian Neumann.

The site inspection revealed that the fence around the Test Station is intact, the monitoring wells are in good condition, maintenance activities are being performed according to schedule and that the air stripper treatment system is functional.

Institutional Controls Verification

The 1999 Declarations of Restrictive Covenants remain in force and are on file at the Saratoga County Clerk's office.

Other Comments on Operation, Maintenance, Monitoring, and Institutional Controls

Table 3 (attached) identifies an observation and offers a suggestion to resolve the issue.

VI. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The remedy is functioning as intended by the decision documents.

The ROD called for the excavation and off-site disposal of contaminated soils. Soil contamination has been addressed through removal of contaminated soil and backfilling with clean soil. This approach reduces or eliminates on-site exposures through dermal contact with and ingestion of

contaminated soil. Potential impacts of contaminated soil on groundwater have been addressed through removal of the contaminated source.

With regard to the groundwater, the ROD called for continued pumping of the Test Station water supply well(s) and natural attenuation (*i.e.,* dilution, dispersion, adsorption, and possibly degradation) and natural discharge to nearby surface water springs and seeps into ravines (where concentrations of VOCs would be reduced to acceptable levels in surface water through volatilization) to address the VOCs that are not captured by the pumping well(s) until the groundwater attains federal MCLs, or if more stringent, New York State groundwater standards. It was estimated in the ROD that the concentrations of VOCs in groundwater would be reduced to acceptable levels in 110 years.

Until the 2004 five-year review, groundwater samples were collected only from the shallow aquifer monitoring wells. The results showed no detections in several wells and stable concentrations in others. Due to the stable conditions in the shallow aquifer, the 2004 five-year review recommended that samples be collected only from the deep monitoring wells. The recommended monitoring program modification was implemented beginning with the October 2004 sampling event.

The deep monitoring wells have not been sampled for a sufficient enough time to identify any trends and the shallow monitoring wells were not sampled during the review period. The current network of deep and shallow monitoring wells should be sampled over the next five years to obtain further information on trends in contaminant levels in the deep aquifer and to continue to monitor the conditions in the shallow aquifer.

DO levels were measured in groundwater samples collected during this five-year review period as an indicator of natural attenuation (*i.e.,* degradation). However, to provide a more accurate assessment of whether or not degradation is occurring, groundwater samples should be analyzed for the full suite of degradation parameters, including oxygen, nitrate, iron II, sulfate, methane, oxidation reduction potential, temperature, alkalinity, chloride, and hydrogen.

Sentinel wells DGC-3S and DGC-4S, located upgradient of the LFWF, have consistently shown no detection of VOC contamination.

The ROD required the implementation of institutional controls to prevent ingestion of contaminated groundwater, restrict withdrawal of groundwater within the vicinity of the plume that could adversely impact groundwater remediation, and restrict the Test Station to commercial/industrial use; designation of an environmental restriction zone to prevent the capture zone of hypothetical future pumping wells from intersecting the groundwater plume of VOCs and thereby ensure containment of the plume and ERZ; and Declarations of Restrictive Covenants for the property owners located within the ERZ. These institutional controls were put into place. Also, site conditions are observed during the routine groundwater sampling activities in the ERZ to determine if any changes or development (specifically, installation of groundwater wells) have occurred. In addition, representatives from the New York State Energy Research and Development Authority, Luther Forest Corporation, and Wright-Malta are interviewed annually about current or proposed changes in

land use, groundwater usage, and compliance with the notice requirements in the respective deed restrictions.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

There are no changes in the physical conditions of the site or site uses that would affect the protectiveness of the selected remedy. Contaminated soils and sediments have been removed. Because ingestion of drinking water is not occurring, nor is it expected to occur in the next five years, this pathway is currently incomplete.

The exposure assumptions and the toxicity values that were used to estimate the potential risks and hazards to human health from exposure to site contaminants followed the general practice at the time the risk assessment was performed. Although specific parameters and toxicity values may have changed, the risk assessment process that was used is still consistent with current practice and the need to implement a remedial action remains valid.

For this five-year review, the evaluation of groundwater focused on two primary exposure pathways, direct ingestion (as a potable water source) and the possibility of vapor intrusion into buildings. The implemented remedy previously allowed for treated on-site groundwater to be used as a potable supply for the site. Groundwater is no longer being used for this purpose. However, the air stripper continues to treat water recovered from drinking water wells at the site. The effluent is consistently below MCLs. The site is currently being developed into a technology center. Drinking water for the technology center will be supplied by a public water supply (Saratoga County Water Supply) that utilizes the Hudson River as its source[5]. As observed in groundwater monitoring data from October 2008, the maximum detected concentrations of carbon tet and TCE exceed their respective groundwater standards. No private potable supply wells are in use in the vicinity of the site, and all neighboring residential communities obtain their potable water from either the LFWF or the CSWF, which are not impacted by site-related contaminants. Therefore, the ingestion of groundwater pathway is incomplete and the remedy is protective.

The evaluation of the second exposure pathway for groundwater – the potential for vapor intrusion – is based on the health-protective assumption that structures are located above the maximum detected groundwater concentrations and compared these concentrations to the health-based screening criteria provided in the *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils*. This guidance provides concentrations of chemicals in groundwater associated with indoor air concentrations at acceptable levels of cancer risk and noncancer hazard using residential exposure assumptions. The October 2008 data show that maximum concentrations of carbon tet (52 µg/l) and TCE (79 µg/l) exceed their vapor intrusion screening values of 13 µg/l and 5.3 µg/l, respectively. These screening values are set at the 1×10^{-4} cancer risk to account for commercial/industrial use of the property. The first phase of the construction of the technology

5 The ROD prohibits the installation of new groundwater wells within the ERZ and requires that any new construction or redevelopment evaluate off-site potable water supply sources to service the area.

center (a semiconductor fabrication plant) is currently underway. Although most of the test site will be unaffected by the first phase of development of the technology park, new buildings will be located close to its perimeter.

Consistent with the recommendation in the 2004 five-year review that construction of any buildings over the groundwater plume take into account the potential for vapor intrusion, before the property was purchased, the developer for the semiconductor fabrication plant collected groundwater and soil gas samples to perform a vapor intrusion evaluation. This evaluation was considered in the design of the building that is currently under construction. It is anticipated that the 12-inch thick slab and positive pressure from the HVAC system will significantly limit vapor infiltration. The developer also indicated that post-construction vapor intrusion sampling is planned and that they are willing to work with EPA to develop an acceptable sampling plan[6]. If, during this sampling, vapors are detected above levels of concern, then an appropriate mitigation system should be installed to remove the vapors. It is also recommended that future construction include vapor mitigation measures that entail either the installation of a vapor barrier and vapor mitigation system (followed by post-installation indoor air sampling to verify that the system is working as intended) or the performance of a vapor intrusion study once construction is completed that involves sampling the air that collects underneath the slab at regular intervals until groundwater concentrations decrease to a level where there is no longer the potential for vapor intrusion. If, during this sampling, vapors are detected above levels of concern, then an appropriate system should be installed to remove the vapors.

The remedy for soils included excavation and off-site disposal of soils contaminated with PCBs, lead, and mercury. The remedy also includes institutional controls which restrict the land use within the ERZ to commercial/industrial. In addition, only the land beyond the former safety easement, which encompassed approximately 1,800 acres of pine forest in a circular area of a one-mile radius from the center of the Test Station, is zoned for residential use. Therefore, no residential or recreational development is expected either on-site or within one mile of the Test Station. If, however, the land use changes in the future, the remedy for soils should be reevaluated, with a particular focus on the remedial goals of 10 mg/kg of total PCBs and 1,000 mg/kg of lead, to ensure that the remedy is protective for the newly identified types of land use.. Additionally, the recommended commercial/industrial cleanup goal for lead is currently 800 mg/kg. A review of the post-excavation sample data confirms that this goal was met despite the fact that the ROD only required that the soils be cleaned to 1,000 mg/kg.

Surface water sampling data collected during this review period indicate that VOCs and chromium were not detected in the surface water. An ecological risk assessment (ERA) was conducted during the RI and identified mercury in soil at the Muggett's Pond Drainage Ditch Intersection as posing a significant risk to terrestrial receptors. A cleanup goal of 2 mg/kg mercury was derived from the ERA. Subsequently, this area was excavated and backfilled with clean fill material. Since the

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6 Based upon an August 17, 2009 telephone conversation with Steve Groseclose, Director of Risk Management, Sustainability & Real Estate for Globalfoundries..

toxicity values have not changed, the remedial action goal of preventing unacceptable risk continues to be met.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

The Saratoga Economic Development Corporation is planning the construction of a $10 billion technology center on the Luther Forest Technology Campus which includes the entire Malta Rocket Fuel Area site. The groundbreaking for a semiconductor fabrication plant, the first phase of this multi-phased construction project, was on July 24, 2009. Although most of the test site will be unaffected by the first phase of development of the technology center, during later phases of development, new buildings will be located close to its perimeter.

The developer for the semiconductor fabrication plant performed a vapor intrusion evaluation. This evaluation was considered in the design of the building that is currently under construction. Post-construction vapor intrusion sampling is planned.

The redevelopment effort will continue to be monitored over the next five-year period to ensure that the remedy at the site remains protective of human health and the environment. Since the remedy includes institutional controls which restrict land use to commercial/industrial, any changes in this land use as proposed and implemented in the redevelopment plan must be evaluated. This includes assessing populations that are not consistent with commercial/industrial populations, such as children, who may potentially have access to the property if a facility such as a day-care center is included in the redevelopment plans. The construction of buildings over the groundwater plume should take into account the potential for vapor intrusion.

Technical Assessment Summary

Based upon the results of the five-year review, it has been concluded that:

- Site soils have been cleaned to protective levels;
- Surface water concentrations of VOCs and chromium are either not detected or below surface water protective values;
- The Test Station water supply extraction and treatment system is operating properly;
- The treated groundwater meets drinking water standards;
- Maintenance activities are being performed according to schedule;
- The fence around the Test Station is intact and in good condition;
- The groundwater monitoring wells are functional;

- There is no evidence of trespassing, vandalism or damage (to the monitoring wells or the fence);

- There are no drinking water wells within the plume of contamination and none are expected to be drilled

- The deep monitoring wells have not been sampled for a sufficient enough time to identify any trends. Therefore, the current network of monitoring wells should continue to be sampled over the next five years to obtain further information on trends in contaminant levels in the deep aquifer;

- The shallow monitoring wells were not sampled during the review period. Sampling of the shallow aquifer should resume so that conditions in this aquifer can continue to be monitored;

- The current network of EWMS wells should be sampled for the full suite of natural attenuation (*i.e.,* degradation) parameters to determine whether degradation is occurring; and,

- Sampling the monitoring well network for hydrazine is recommended to ensure full characterization of contaminants at the site.

VII. Recommendations and Follow-Up Actions

Ongoing monitoring and groundwater remediation are being conducted at the site. As anticipated by the decision documents, these activities are subject to routine modifications and adjustments.

EPA recommends sampling the monitoring well network for hydrazine to ensure full characterization of contaminants at the site.

Since the entire Malta Rocket Fuel Area site is included in the area proposed for the Luther Forest Technology Campus building site, in light of the presence of elevated VOCs in the groundwater, it is recommended that post-construction vapor intrusion sampling be performed at the building that is currently under construction. If, during this sampling, vapors are detected above levels of concern, then an appropriate mitigation system should be installed to remove the vapors. It is also recommended that future construction include vapor mitigation measures that entail either the installation of a vapor barrier and vapor mitigation system (followed by post-installation indoor air sampling to verify that the system is working as intended) or the performance of a vapor intrusion study once construction is completed that involves sampling the air that collects underneath the slab at regular intervals until groundwater concentrations decrease to a level where there is no longer the potential for vapor intrusion. If, during this sampling, vapors are detected above levels of concern, then an appropriate system should be installed to remove the vapors.

Groundwater samples should be analyzed for the full suite of natural attenuation (*i.e.*, degradation) parameters in order to determine whether degradation is occurring. In addition, the current network of monitoring wells should continue to be sampled over the next five years to obtain further information on trends in contaminant levels in the deep aquifer. Recommendations are listed in Table 4.

VIII. Protectiveness Statement

Based on the current and reasonably-anticipated site and groundwater uses, EPA has determined that the site-wide remedy currently protects human health and the environment. There are no current risks present at the site in either groundwater or soils and none are expected as long as the institutional and access controls are properly operated, monitored, and maintained. In order for the remedy to be protective in the long term, a post-construction vapor intrusion survey should be conducted at the building that is currently under construction at the Luther Forest Technology Campus.

IX. Next Review

The next five-year review for the Malta Rocket Fuel Area Superfund site will be completed before August 2014.

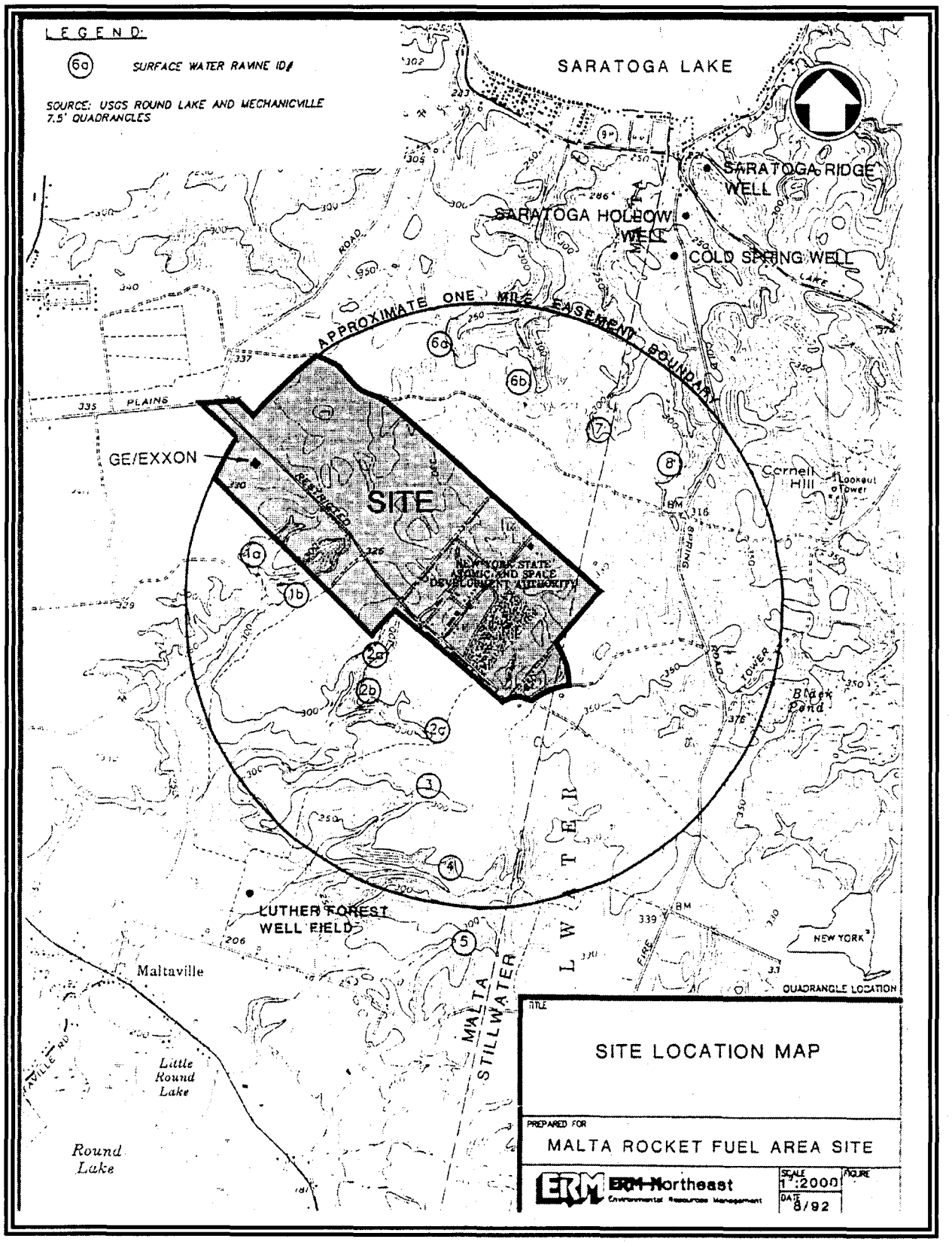
Approved:

Walter E. Mugdan, Director
Emergency and Remedial Response Division

August 27, 2009
Date

FIGURES

FIGURE 1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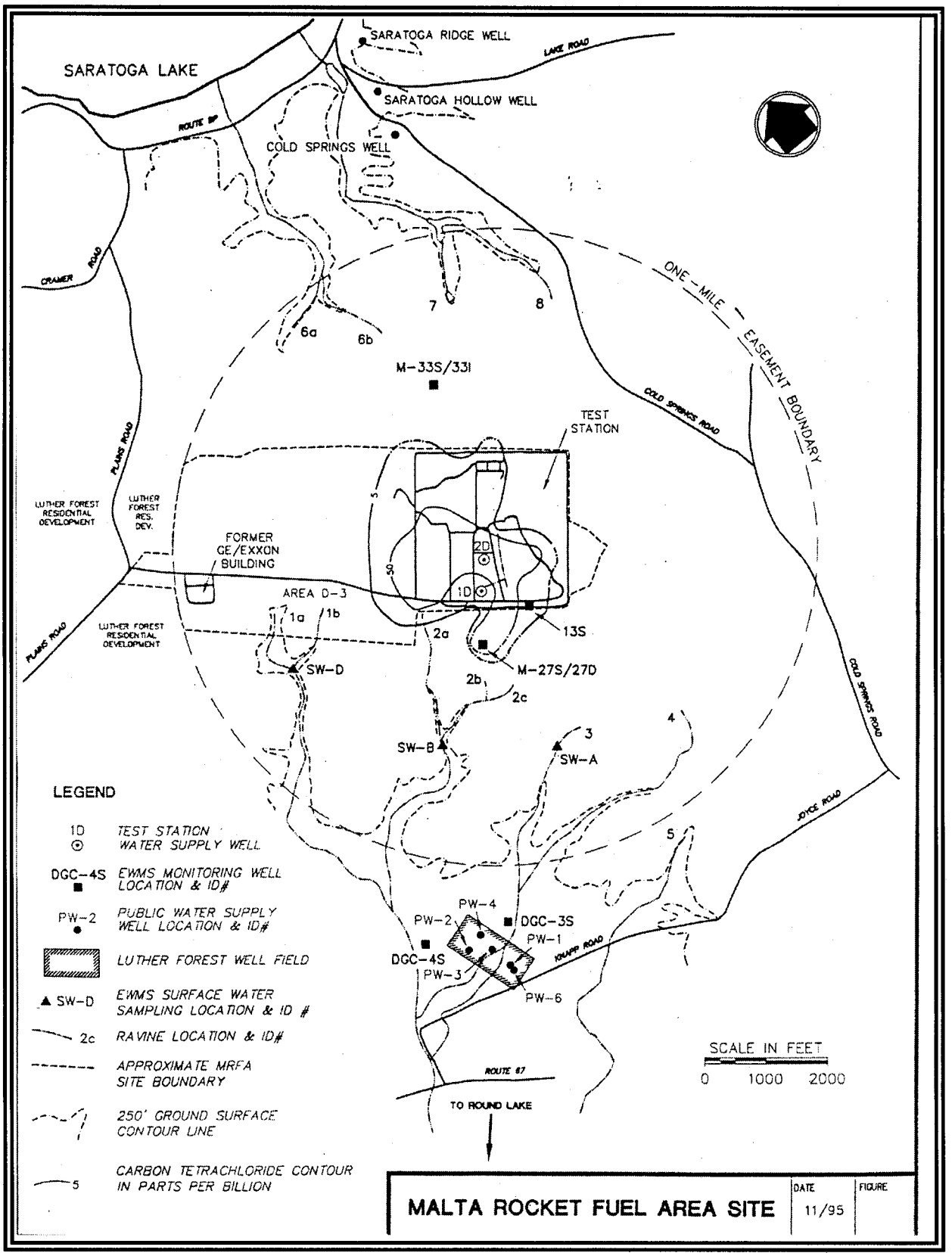
6a SURFACE WATER RAVINE ID#
SOURCE: USGS ROUND LAKE AND MECHANICVILLE 7.5' QUADRANGLES
SARATOGA LAKE
SARATOGA RIDGE WELL
SARATOGA HOLLOW WELL
COLD SPRING WELL
APPROXIMATE ONE MILE EASEMENT BOUNDARY
GE/EXXON
SITE
NEW YORK STATE ATOMIC AND SPACE DEVELOPMENT AUTHORITY
Cornell Hill
Lookout Tower
Black Pond
LUTHER FOREST WELL FIELD
Maltaville
Little Round Lake
Round Lake
MALTA STILLWATER
NEW YORK
QUADRANGLE LOCATION
SITE LOCATION MAP
PREPARED FOR
MALTA ROCKET FUEL AREA SITE
ERM-Northeast
Environmental Resources Management
SCALE 1:2000
DATE 8/92
FIGURE

FIGURE 2


SARATOGA LAKE
SARATOGA RIDGE WELL
LAKE ROAD
SARATOGA HOLLOW WELL
ROUTE 9P
COLD SPRINGS WELL
CRAMER ROAD
ONE-MILE EASEMENT BOUNDARY
7
8
6a
6b
M-33S/33I
TEST STATION
COLD SPRINGS ROAD
PLANK ROAD
LUTHER FOREST RESIDENTIAL DEVELOPMENT
LUTHER FOREST RES. DEV.
FORMER GE/EXXON BUILDING
2D
1D
AREA D-3
1a
1b
2a
13S
SW-D
M-27S/27D
2b
2c
SW-B
SW-A
3
4
5
JOYCE ROAD
PW-4
PW-2
DGC-3S
PW-1
DGC-4S
PW-3
PW-6
KNAPP ROAD
ROUTE 67
TO ROUND LAKE
SCALE IN FEET
0 1000 2000
LEGEND
1D TEST STATION / WATER SUPPLY WELL
DGC-4S EWMS MONITORING WELL LOCATION & ID#
PW-2 PUBLIC WATER SUPPLY WELL LOCATION & ID#
LUTHER FOREST WELL FIELD
SW-D EWMS SURFACE WATER SAMPLING LOCATION & ID #
2c RAVINE LOCATION & ID#
APPROXIMATE MRFA SITE BOUNDARY
250' GROUND SURFACE CONTOUR LINE
5 CARBON TETRACHLORIDE CONTOUR IN PARTS PER BILLION
MALTA ROCKET FUEL AREA SITE
DATE 11/95
FIGURE

TABLES

Table 1: Chronology of Site Events	
Event	**Date**
U.S. Government establishes the Test Station	1945
U.S. Government establishes restrictive safety easement around the Test Station	1955
New York State Energy Research and Development Authority's (NYSERDA's) predecessor purchases Test Station property and easement interest	1964-1968
A series of environmental incidents reported at the site and remedial responses are conducted by NYSERDA under New York State Department of Environmental Conservation supervision	1979-1985
NYSERDA sells 81 acres of the Test Station property and its interest in the easement to Wright-Malta Corporation	1984
Carbon tetrachloride and trichloroethylene found in the site groundwater	1985-1986
Site is placed on the National Priorities List and EPA assumes the enforcement lead	1987
Wright-Malta Corporation air stripper installed on Test Station water supply wells and EWMS is established at the site	1987
UAO issued for the performance of the remedial investigation and feasibility study (RI/FS)	1989
Performance of the RI/FS	1991-1994
Record of Decision signed	1996
Consent Decree signed by EPA and potentially responsible parties for the performance of the remedial design/remedial action (RD/RA)	1997
RD performed	1996-1997
Performance of RA	1998-1999
First Five-Year Review conducted	1999
Preliminary Site Close-Out Report	1999
Second Five-Year Review conducted	2004

Table 2: Documents, Data, and Information Reviewed in Completing the Five-Year Review
• Remedial Investigation Report, Volumes I - VIII, ERM-Northeast, Inc., February 1995
• Record of Decision, EPA, July 1996
• Remedial Design Reports, Remedial Work Elements I, III, and IV, ERM-Northeast, August 25, 1997
• Operation and Maintenance Manual, Remedial Work Element II, Groundwater, ERM-Northeast, Inc., January 1998
• Consent Decree, United States v. Curtiss-Wright Corporation, et al., Civil Action No. 98-CV-0014, entered in the United States District Court for the Northern District of New York on March 16, 1998
• Operation and Maintenance Manual, Remedial Work Element IV, Institutional Controls, IT Corporation, September 1999
• Operation and Maintenance Manual, Remedial Work Element I, Drinking Water, IT Group, January 2002
• Semi-Annual O&M Reports, Remedial Work Elements I, II, and IV, Shaw Environmental, Inc., July 2004 through December 2008
• EPA Five-Year Review Report, September 2004
• Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water, EPA/600/R-98/128
• EPA guidance for conducting five-year reviews and other guidance and regulations to determine if any new applicable or relevant and appropriate requirements relating to the protectiveness of the remedy have been developed since EPA issued the ROD

Table 3: Other Comments on Operation, Maintenance, Monitoring, and Institutional Controls	
Comment	**Suggestion**
New York State now requires annual certifications that institutional controls that are required by Records of Decision are in place and that remedy-related operation and maintenance is being performed.	Site conditions are observed during the groundwater sampling activities in the Environmental Restriction Zone to determine if any changes or development (specifically, installation of groundwater wells) have occurred. In addition, representatives from the New York State Energy Research and Development Authority, Luther Forest Corporation, and Wright-Malta are asked about current or proposed changes in land use, groundwater usage, and compliance with the notice requirements in the respective deed restrictions. The second semi-annual Operation and Maintenance report should include a summary of the findings of the above-noted activities, along with a certification that the institutional controls are in place and that remedy-related operation and maintenance is being performed.

Table 4: Recommendations and Follow-Up Actions

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Hydrazine, a chemical associated with rocket fuel was reportedly used widely across the site according to the RI Report, but not evaluated during the RI.	The current monitoring well network should be sampled for hydrazine to ensure full characterization of the site.	PRP	EPA	10/09	N	N
Groundwater samples are currently not analyzed for the full suite of the natural attenuation (*i.e.,* degradation) parameters. This does not provide information as to whether or not degradation of VOCs is occurring.	Analysis of groundwater samples for degradation parameters should be performed (in accordance with EPA's monitored natural attenuation guidance). The collected data should be summarized in a table and discussed in the Semi-Annual O&M Reports.	PRP	EPA	10/09	N	N
The deep monitoring wells have not been sampled for a sufficient enough time to identify trends. In addition, samples were not collected from the shallow monitoring wells during the review period.	The current network of deep and shallow monitoring wells should be sampled over the next five years to obtain further information on trends in contaminant levels in the deep aquifer and to continue to monitor the conditions in the shallow aquifer.	EPA/PRP	EPA	10/09	N	N
The proposed construction of the Luther Forest Technology Campus will include the entire site.	In light of the presence of elevated volatile organic compounds in the groundwater, it is recommended that post-construction vapor intrusion sampling be performed at the building that is currently under construction. If, during this sampling, vapors are detected above levels of concern, then an appropriate mitigation system should be installed to remove the vapors. It is also recommended that future construction include vapor mitigation measures that entail either the installation of a vapor barrier and vapor mitigation system (followed by post-installation indoor air sampling to verify that the system is working as intended) or the performance of a vapor intrusion study once construction is completed that involves sampling the air that collects underneath the slab at regular intervals until groundwater concentrations decrease to a level where there is no longer the potential for vapor intrusion. If, during this sampling, vapors are detected above levels of concern, then an appropriate system should be installed to remove the vapors.	PRP/ Developer	EPA	8/14	N	Y

Table 5: Acronyms Used in this Document	
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
CSWF	Cold Springs Well Field
EPA	United States Environmental Protection Agency
ERA	Environmental Risk Assessment
ERZ	Environmental Restriction Zone
EWMS	Early Warning Monitoring System
GE	General Electric Company
LFWF	Luther Forest Well Field
MCL	Maximum Contaminant Level
MSL	Mean Sea Level
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Protection
NYSERDA	New York State Energy Research and Development Authority
O&M	Operation and Maintenance
PCB	Polychlorinated Biphenyl
µg/l	Micrograms per liter
mg/kg	Milligrams per kilogram
mg/l	Milligrams per liter
PRP	Potentially Responsible Party
RA	Remedial Action
RCRA	Resource Recovery and Conservation Act
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
RWE	Remedial Work Element
TCE	Trichloroethylene
UAO	Unilateral Administrative Order
VOC	Volatile Organic Compound