Third Five-Year Review Report
Goose Farm Superfund Site
Plumsted Township, Ocean County, New Jersey

PREPARED BY:

U.S. Environmental Protection Agency
Region II
New York, New York

September 2008

Executive Summary

This is the third five-year review for the Goose Farm Superfund Site. The site is located in Plumsted Township, New Jersey. The site is being addressed under one operable unit. The ROD called for the extraction and treatment of contaminated groundwater, the re-injection of treated water into the aquifer, and flushing the soil using the treated water. The remedy was selected on the basis of its implementability and proven effectiveness in addressing the groundwater contamination. The goal of groundwater remediation is to comply with applicable federal and state drinking water quality and other environmental standards for contaminants at the site. When this goal is reached, EPA will evaluate soils to determine the need to cap the site.

The five-year review found that the remedy is functioning as intended by the decision documents and is protecting human health and the environment.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: **Goose Farm Superfund Site**		
EPA ID *(from WasteLAN)*: **NJD980530109**		
Region: 2	**State: N.J.**	**City/County: Plumsted Township, Ocean County**

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:** 06 / 1993
Has site been put into reuse? □ YES ■NO	

REVIEW STATUS	
Lead agency: ■ EPA □ State □ Tribe □ Other Federal Agency	
Author name: Trevor Anderson	
Author title: Remedial Project Manager	**Author affiliation: EPA**
Review period:** 09 / 25 / 2003 to 03 / 30 / 2008	
Date(s) of site inspection: 02 / 11 / 2008	
Type of review: □ Post-SARA ■ Pre-SARA □ NPL-Removal only □ Non-NPL Remedial Action Site □ NPL State/Tribe-lead □ Regional Discretion	
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)*: 09/30/2003 (Previous Five-Year Review)	
Due date *(five years after triggering action* **date)**: 09/30/2008	

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-year Review in WasteLAN.]

Five-Tear Review Summary Form (continued)

Issues, Recommendations, and Follow-Up Actions

EPA will evaluate the potential exposure pathway from the past migration of PCBs to sediments of the unnamed stream near the site and an associated pond. EPA will perform an inspection of the area and determine if sediment sampling is warranted. No PCBs are currently migrating from the site to the stream, however, there was a potential for this to have occurred in the past, prior to soils remediation that took place in the 1980's.

Other Comments on Operation, Maintenance, Monitoring and Institutional Controls

Routine O&M issues will continue to be performed by the responsible party including: routine O&M data collection and inspections; repair of some damaged paint found on the platform of the air stripper and the carbon unit; repair of the access road; and, proper abandonment of two non-functioning monitoring wells. As part of ongoing O&M activities, EPA will discuss the upward trend in contamination seen in recovery wells in the vicinity of the former waste pit with Rohm & Haas. Additional work may be required to determine if any sources remain at the site below the water table.

Protectiveness Statement

The remedy at the Goose Farm Superfund Site is protective of human health and the environment. The groundwater monitoring and treatment systems are operating as intended by the remedy and continue to address groundwater contamination. The slurry wall and security fence are intact and in good condition. The remedy currently protects human health and the environment because exposure to contaminated materials is restricted by the fence, the slurry wall, and the groundwater extraction and treatment system which serve to contain the contamination within the site.

Five-Year Review Report

I. Introduction

This five-year review was conducted by Trevor Anderson, United States Environmental Protection Agency (EPA) Remedial Project Manager (RPM). This review was conducted in accordance with the Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P (June 2001). The purpose of a five-year review is to determine whether the remedy at a site is protective of human health and the environment and functions as intended by the decision documents. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. This document will become part of the site file.

This is the third five-year review for the Goose Farm Superfund Site. The triggering action for the first five-year review was the issuance of the Preliminary Close-out Report in June 1993. The remedial action consisted of the construction of a groundwater recovery, treatment, and reinjection system. In September 1998, EPA completed the first five-year review for the site. In September 2003, EPA completed a second five-review. The 2003 five-review concluded that the remedy provided short-term protection of human health and the environment because the remedy prevented the further migration of the contaminated groundwater plume to potable water supplies and prevented the movement of contaminants to areas where exposure to human and environmental receptors could occur. The review suggested several modifications and adjustments to the site's monitoring and reporting programs, including the collection of soil samples and sampling of all existing groundwater monitoring wells, the installation and sampling of several new groundwater monitoring wells, and the development of a water budget which could be used to evaluate hydraulic control issues at the site.

II. Site Chronology

Table 1, below, summarizes site-related events from discovery to present operation and maintenance activities:

Table 1: Chronology of Site Events

Events	Date
Hazardous waste disposal site	1940 to 1970
The Plumsted Township Sheriff's office informed the New Jersey Department of Environmental Protection(NJDEP) of the existence of the site	1980
Removal Activities – NJDEP removed several containers of waste	1980
Interim Remedial Activities – collection and treatment of groundwater and the excavation and disposal of contaminated soil	1980
The termination of the groundwater collection and treatment system	1981

Table 1: Chronology of Site Events

Events	Date
Final Listing on the National Priorities List	1983
Remedial Investigation/Feasibility Study (RI/FS) was conducted by NJDEP	1982-1985
RI/FS was issued to public	1985
EPA issued Record of Decision (ROD)	1985
Potential Responsible Party (PRP) signed Consent Decree to conduct the remedial activities	1988
PRP submits Draft Design Report to EPA	1990
EPA approved Design Report	1992
Construction of groundwater pump and treat system began	1993
Operation of the groundwater treatment plant began	1993
EPA completed First Five Year Review	1998
Second Five Year Review	2003
Rohm & Haas completes comprehensive soil and groundwater sampling event.	2005

III. Background

Physical Characteristics

The Goose Farm Superfund Site (the site) is located on Block 58, Lots 1 and 12, and Block 46, Lot 1 in the Township of Plumsted, New Jersey. The site is located approximately two miles northeast of the town of New Egypt in Plumsted Township, Ocean County, New Jersey (see Figure 1). The site lies approximately one mile north of the intersection of county routes 528 and 539. Approximately 1.1 acres of the 6.6 acres is currently undergoing groundwater remediation. The site is located adjacent to an intermittent stream which is a tributary of Lahaway Creek. The site is owned by a potentially responsible party, Morton International, Inc., a wholly owned subsidiary of Rohm & Haas (hereinafter referred to as Rohm & Haas).

Geology/Hydrogeology

The site contains little vegetation and is gently sloping toward the north at about four percent. The site is well drained and is located adjacent to a pine/oak forest and a small stream which flows north into the Lahaway Creek which is a tributary of Crosswicks Creek and the Delaware River. Surface

elevations range from approximately 100-115 feet above sea level near the streams to 120-150 feet above sea level further upland.

Groundwater is used for the potable water supply throughout Plumsted Township and the surrounding area. Hornerstown is served by private wells, while New Egypt is served by the New Egypt Water Company. Regional groundwater at the site flows to the north-northwest.

The Goose Farm Superfund Site is located in the Atlantic Coastal Plain physiographic province. This province is characterized by unconsolidated deposits consisting of alternating layers of clay, silt, sand, and gravel that dip gently to the southeast and outcrop at the surface in generally parallel northeast-southwest striking bands. The Kirkwood Formation and the Vincentown Formation outcrop in the area around the site. Other regional units that could lie beneath the site include the Manasquan and Hornerstown formations.

Two major hydrostratigraphic units were observed during the potentially responsible party's (PRP) investigation of the site: a surficial aquifer that extends to a depth of 45 feet at the northwest side and 75 feet at the southeast side of the site and a confining unit, which underlies the surficial aquifer.

The surficial aquifer contains an upper and a lower unit, which are separated by a semi-confining unit that ranges in thickness from about 4 to 6 feet. The upper unit of the surficial aquifer is typically composed of fine sand with some medium sand and some silt. The uppermost 3 to 5 feet of the upper unit is not fully saturated. The thickness of the upper unit varies across the site from about 30 to 50 feet. A local silt layer consisting of micaceous silt, fine sand, and clay is present in the upper unit in the southern portion of the site at depths of about 4 feet to 14 feet below the ground. This local silt layer decreases in thickness from 14 feet at the southern edge of the site until it pinches out at the center of the site.

The underlying semi-confining unit consists of cemented fine sand, silty clayey sand, and calcareous clay, and is differentiated from the upper unit by its increase in percentage of fines and an increase in cementation. However, the bottom of the upper unit contains varying percentages of fines and is partially cemented in discrete layers as well. The presence of the discrete layers of cemented sand at the bottom of the upper unit is significant in that the areas of cemented sand will have a lower hydraulic conductivity than areas with non-cemented sand.

The lower unit of the surficial aquifer is typically partially cemented fine sand with some silt. A layer of abundant shells marks the contact between the lower unit and the underlying confining unit.

The confining unit beneath the site consists of glauconitic fine sand, clayey sand, and clay. Lab testing of clay from the clay beds indicates a vertical hydraulic conductivity of 1×10^{-8} centimeters per second.

Groundwater in the upper unit at the site contains organic and inorganic constituents. The semi-confining unit hinders vertical ground water flow and retards the transport of organic compounds from the upper into the lower unit. Site remediation is focused on the upper unit and the ground water in both the upper and lower units of the surficial aquifer is monitored.

A slurry wall was constructed around the area of contamination to prevent the migration of contaminants in the groundwater. A network of recovery wells within and around the wall is pumped to extract and treat the groundwater. As part of the remedy, the goal is to maintain an inward hydraulic gradient (water level is higher outside than inside) across the slurry wall during operation of the remedy.

Land and Resource Use

The site lies in a rural area characterized predominantly by agricultural land use and low density residential development. Residential homes lie within one-quarter mile of the sire and rely on private wells for potable water. Other significant types of land use in the vicinity of the site include the Great Adventure Amusement Park, Fort Dix, McGuire Air Force Military Base, and the Collier Mills Wildlife Management Area. The most highly developed area in the vicinity of the site is New Egypt, which is located approximately 2.5 miles southwest of the site. Hornerstown is located approximately one mile northwest of the site.

History of Contamination

The Goose Farm Superfund Site was used as a hazardous waste disposal site from the mid 1940's to the mid 1970's by Morton Thiokol Chemical Company, a manufacturer of polysulfide rubber and solid rocket fuel propellant. Morton Thiokol Chemical Company was later known as Morton International, Inc., a wholly owned subsidiary of Rohm & Haas The majority of wastes were dumped into a pit dug through the fine sand. The dimensions of the pit were approximately 100 by 300 and 15 feet deep. Lab packs, 55 gallon drums, and bulk liquids were dumped into this pit. In January 1980, during an investigation of pesticide contamination of local potable wells, the Plumsted Township sheriff's office informed the New Jersey Department of Environmental Protection (NJDEP) of the existence of the site as well as several other disposal sites in the area. From February to June 1980, the NJDEP conducted an investigation of the site. The investigation included the installation and sampling of 17 groundwater monitoring wells, and metal detection and resistivity surveys. The results of this work indicated that a contaminated plume of organic and inorganic compounds, which originated from the waste pit area, was migrating northwards toward the nearby stream. During the next phase of the investigation, NJDEP installed and sampled 34 additional wells. The data indicated that the contaminated plume was less than 140 feet wide and approximately 35 feet deep.

Initial Response

In September 1980, the NJDEP initiated remedial activities at the site in an attempt to prevent the further migration of the plume to the nearby stream. Approximately 5,000 containers of waste were removed from the waste pit area as well as an estimated 9,000 gallons of bulk liquids. These wastes were disposed of off-site. In addition, NJDEP installed a wellpoint collection and spray irrigation system downgradient of the waste pit area and upgradient of the stream. Following the collection and treatment of the groundwater, the effluent was re-injected into the aquifer. In March 1981, NJDEP terminated the flushing and treatment system. During its operation, the system treated approximately 7,800,000 gallons of contaminated groundwater. The final component of the interim remedy included

the excavation and disposal of contaminated soil from the waste pit areas. Approximately 3,500 tons of soil and an additional 12 drums of PCB waste were transported to an off-site facility for disposal.

Basis for Taking Action

The Goose Farm Superfund site was placed on the National Priorities List in September 1983. The Remedial Investigation/Feasibility Study (RI/FS) was initiated at the site by NJDEP to determine the nature and extent of the groundwater and soil contamination at the site. The RI/FS was completed in 1985. The RI/FS concluded that the groundwater and the soil at the site remained contaminated with significant levels of organic and inorganic contaminants.

IV. Remedial Actions

Remedy Selection and Implementation

On September 27, 1985, EPA issued a Record of Decision (ROD) to address groundwater and soil contamination at the site. Data collected during the RI/FS were used to develop the remedial objectives for the site. The remedial objectives for the site were divided into two groups:

Source Control Response Objectives:

- Remove, treat or contain contaminants
- Control general migration pathways
- Control release of volatile compounds in air
- Control water infiltration
- Control soil erosion
- Control direct contact

Management of Migration Response Objectives:

- Mitigate the potential contamination of potable water supplies
- Prevent the movement of contaminants to other areas where exposure to these compounds through direct contact may occur

The major components of the remedy selected in the ROD include the following:

- Groundwater extraction, treatment and reinjection. Reinjection of treated groundwater on site will result in soil flushing;

- Following groundwater recovery and treatment, and soil flushing, conduct an extensive testing program to determine the need to cap the site; and

- During and after groundwater recovery and treatment activities and soil flushing, conduct an extensive testing program to determine the extent of PCB contamination in the former drum pit area. Based on this program, determine the need, if any, to remediate PCB-contaminated soil.

Remedy Implementation

In a Consent Decree (CD) issued by EPA on July 22, 1988, Rohm & Haas agreed to undertake the remedial design/remedial action (RD/RA) for the Site. The RD was conducted in conformance with the ROD and the Scope of Work, which was included in the CD.

The CD and the attached Scope of Work specified that Rohm & Haas would undertake the following actions to remediate the site:

1. Excavate and treat and/or dispose of all soils with total PCB concentrations greater than, or equal to, 5 parts per million (ppm) and backfill the excavation with soil that contains less than 1 ppm PCBs;
2. Construct a slurry wall approximately 2,000 feet long and up to 65 feet deep that circumscribes that area of affected soil and groundwater;
3. Install and operate a groundwater extraction, treatment and reinjection system to provide soil flushing, and if feasible, utilize in-situ biological reclamation to enhance treatment and removal of contaminants;
4. Treat extracted groundwater using methods such as air stripping and vapor phase carbon adsorption to remove volatile organic compounds;
5. Achieve and maintain an inward hydraulic gradient across the slurry wall during groundwater flushing; and
6. Operate the groundwater flushing system as prescribed by the SOW.

The CD also established institutional controls for the site. These institutional controls included deed restrictions to prevent actions at the site that would be considered inconsistent with the remedy and a gate and fencing around the site to prevent access to the site. NJDEP also established a Well Restriction Area to require that any wells to be drilled in the restricted areas be drilled at least 150 feet deep.

The site cleanup was conducted in two phases. The first phase included the excavation and off-site disposal of all soils containing concentrations of PCBs equal to or greater than 5 ppm from the former drum pit area. This work began in November 1988 and concluded in July 1989. Approximately 9,000 cubic yards of soil were removed and disposed of at an off-site facility.

The second phase of cleanup included the design, construction, and operation of a groundwater extraction, treatment and soil flushing system, and the installation of a slurry wall, and the evaluation of the use of in-situ biodegradation to enhance the efficiency of the soil flushing/groundwater treatment system.

From December 1989 to September 1990, as part of the second phase of the cleanup, Rohm & Haas conducted pre-design field investigations including groundwater, soil and surface water sampling. A treatability study was conducted to determine if in-situ biodegradation was a viable option for enhancing the efficiency of the soil flushing/groundwater treatment system. The study indicated in-

situ biodegradation was not an appropriate technology for addressing groundwater contamination at the site. The RD was completed in August 1992. The design called for the installation of 41 groundwater extraction wells, a groundwater treatment system, which included an equalization tank, air stripper, carbon adsorption tanks, a thermal oxidizer, infiltration trenches to provide for soil flushing, and a slurry wall.

From September 1992 to April 1993, Rohm & Haas undertook the construction of the groundwater remediation system under EPA oversight. During this period, the installation of the slurry wall was completed. The slurry wall is keyed into the semi-confining unit found at a depth of 30 to 45 feet below the ground surface. The slurry wall was installed to enclose and prevent the further migration of the contaminated plume and to facilitate the soil flushing remedy. A relatively small area of contaminated groundwater in the northeastern portion of the site remained outside of the slurry wall due to its proximity to wetlands and the topography, which includes a steep slope down to the unnamed stream. Approximately 41 groundwater extraction wells were installed. Thirty-seven (37) wells were installed inside the slurry wall and four were installed outside the slurry wall in the northeastern portion of the site. In addition, a groundwater treatment plant was constructed to treat the contaminated groundwater. Four infiltration trenches were constructed, two located inside the area enclosed by the slurry wall, and two located in areas outside and to the north and west of the slurry wall. The infiltration trenches were constructed to re-infiltrate the treated water into the aquifer.

The site achieved construction completion status upon the issuance of the Preliminary Close-out Report and commencement of the groundwater remediation system in June 1993. EPA and the State determined that the RA construction activities were completed in accordance with the design specifications.

Following completion of groundwater remediation, a sampling program will be performed and the data will be evaluated to determine the need for any additional soil removal or installation of a cap.

System Operations/Operation and Maintenance (O&M):

Rohm & Haas has been operating the groundwater extraction, treatment and reinjection system and conducting long-term monitoring and maintenance activities according to the operation and maintenance (O&M) plan that was approved by EPA in April 1993. The primary activities associated with O&M include the following:

- Monitor, observe, and evaluate the distribution and migration of contaminants in groundwater, and to assess the ongoing performance of the treatment system;

- Collect and analyze groundwater and treatment plant discharge for volatile organic compounds; and

- Monitor the hydraulic gradient across the slurry wall and to evaluate the effectiveness of the slurry wall.

Water level measurements, and groundwater and surface water samples are collected semi-annually. The semi-annual sampling events include the collection of groundwater samples from approximately 38 groundwater monitoring and recovery wells at the site. The monitoring program allows for some flexibility in the amount of wells to be sampled. Surface water samples are collected from three locations in the unnamed stream. In addition, water level measurements are collected from 31 piezometers and wells both inside and outside the slurry wall. The water level data are used to calculate the horizontal and vertical hydraulic gradients across the slurry wall.

In addition, inspection of the slurry wall, security fence, piezometers, groundwater monitoring and recovery wells, infiltration trenches, and treatment plant are conducted quarterly. These visual inspections involve walking around the site and inspecting each component of the remedy to determine if they are in good working condition. In addition, to site inspections, recovery wells are electronically connected to the treatment plant computerized system which can detect indications that recovery wells are not functioning as intended and are in need of repair. Recovery wells are replaced or repaired on a regular basis. For example, in 2006, 17 recovery wells were replaced or repaired. Visual inspections of the wetlands in the vicinity of the site are also conducted quarterly and wetland assessments are performed semi-annually.

The groundwater treatment plant has treated a total of 329.3 million gallons of contaminated groundwater since it began operating in 1993. In addition, total concentrations of organic contaminants in groundwater have declined for an average concentration of 54,000 ppb in 1993 to an average of 316 ppb in 2006.

During its operation, a number of modifications have been made to improve the effectiveness and efficiency of the remedy. In 1994, Rohm & Haas completed the installation of a 1,800 gallon pre-treatment tank placed before the equalization tank to reduce iron fouling of the air stripper. In addition, since it was determined that the air discharge stream from the sir stripper would meet the NJDEP's air discharge permitting requirements without additional treatment, Rohm & Haas discontinued using the thermal oxidizer in 1998.

In 2003, Rohm & Haas upgraded the software and hardware within the treatment plant which control the air stripper and recovery wells. The portable air monitor was also replaced with an air monitor that is permanently affixed to the air stripper. The new air monitor transmits air quality data directly from the air stripper to the plant's computerized control system. Also, over the years, as part of O&M activitities, additional groundwater monitoring wells and piezometers have been installed to address data gaps. Most recently, six additional wells were installed in 2003. The installation of one additional well is planned for 2008. Currently, there are 50 groundwater wells, 21 piezometers, and 41 recovery wells at the site.

The groundwater extraction system and treatment plant were designed to handle groundwater at an average flow rate of 107.5 gallon per minutes (gpm) with a maximum of 150 gpm. During the start of plant operations, it was determined that the aquifer could not provide sufficient groundwater yield to meet this goal. The current average flow rate of groundwater through the treatment plant is between 35 and 40 gpm.

V. Progress Since the Last Review

This is the third five-year review for the site. The previous five-year review identified a number of issues for which progress has been made since that time. The first issue raised during the last five-year review related to hydraulic control. The desired gradient across the slurry wall is an inward and upward gradient, to assure that the groundwater contaminant plume is contained while the remedy is implemented. In the previous five-year reviews, EPA has noted the periodic loss of hydraulic control, particularly in the northeast portion of the slurry wall. Inward gradient has been difficult to maintain in this area, as this is the only area where groundwater extraction is occurring both inside and outside the slurry wall. This was the area where the slurry wall could not be constructed around the edge of the plume based on topography, as there is a steep slope to the unnamed stream present in the area. The last five-year review indicated that a water budget would be prepared to help with a detailed evaluation of the hydraulics in the area. Such a water budget was performed by Rohm & Haas and completed in 2005, and its results are discussed in the following section.

In August 2003, just prior to the last five-year review, 91 soil samples had been collected, but the results were not available for evaluation at the time of the five-year review. Those results are discussed below. In addition, under EPA oversight, Rohm & Haas installed and sampled six additional monitoring wells in October 2003, bringing the total number of monitoring wells at the site to 50.

VI. Five-Year Review Process

For this five-year review, the review team consisted of Trevor Anderson (EPA-Remedial Project Manager (RPM)), Charles Nace (EPA-Risk and Ecological Assessor), Grant Anderson (EPA-Hydro-geologist), and Wanda Ayala, (EPA, Community Involvement Coordinator).

Community Involvement

On March 1, 2008, EPA published a notice of the third five-year review in the "Asbury Park Press". The notice indicated that EPA would be conducting a third five-year review of the remedy for the site to ensure that the implemented remedy remains protective of public health and the environment and is functioning as designed. EPA indicated that once the five-year review is completed, the results will be made available in the site repository. In addition, the notice included the RPM's address, telephone number and e-mail address for questions related to the five-year review process or the Goose Farm Superfund site. The local Environmental Commission was contacted to inquire about any health-related complaints. They reported no complaints or comments from the residents. The EPA RPM was not contacted by any members of the community regarding this five-year review.

Document Review

This five-year review consisted of a review of the relevant documents including operation and maintenance records and monitoring data. Applicable ROD cleanup standards were reviewed as well as current groundwater cleanup standards. The documents, data, and information that were reviewed

in completing this third five-year review are summarized in Attachment A.

Data Review

Results of the data review are compiled in separate sections below:

Hydraulic Control

The site O&M Plan requires the collection of semi-annual water level measurements to evaluate the effectiveness of the slurry wall to maintain hydraulic control. As part of the remedy, an inward and upward groundwater gradient with respect to the slurry wall should be maintained. Although this hydraulic control has been maintained along most of the length of the slurry wall, the periodic loss of hydraulic control has been observed in the northeastern portion of the slurry wall over the years, starting in 1996. Note that while there has been periodic loss of hydraulic control over a portion of the slurry wall over the years of remedy implementation, the site's groundwater contaminant plume has not migrated downgradient. Downgradient groundwater wells are monitored regularly and remain unimpacted. Therefore, this issue has not affected the protectiveness of the remedy.

The northeastern portion of the slurry wall is approximately 200 feet long and is located approximately 50 feet from the unnamed stream. Treated groundwater is reinjected at the site through the use of four trenches, two of which are located inside the slurry wall and two outside. The slurry wall was intended to enclose and contain the groundwater contaminant plume while the extraction and treatment system addresses groundwater contamination. However, the slurry wall could not be constructed around the northeastern edge of the groundwater plume due to the topography, which includes a steep slope down to the unnamed stream. Based on the design, 37 of the 41 groundwater extraction wells are located within the slurry wall and four extraction wells are located just outside the northeastern section of the slurry wall to address the portion of the plume not enclosed within the slurry wall. A combination of factors are believed to be causing the periodic loss of hydraulic control over this portion of the slurry wall which all involve the hydraulics of the area. The combination of concurrent groundwater extraction on both sides of the slurry wall, along with contributions to the shallow groundwater table from the reinjection of treated groundwater to trenches located within the slurry wall as well as precipitation are all factors contributing to the situation.

In 1996, when the loss of hydraulic control was first seen over the northeastern portion of the slurry wall, the infiltration rate of treated groundwater inside the slurry wall was reduced from 15 gallons per minute (gpm) to 5 gpm, by increasing the discharge to trenches outside of the slurry wall. Reducing the infiltration rate within the slurry wall resulted in the reestablishment of an inward gradient over this portion of the slurry wall. The infiltration rate to the inside trenches was then increased over time back to 15 gpm. In July 2003, there was an observed outward gradient over the northeast section of the slurry wall indicating a loss of hydraulic control and once again, the infiltration rate of treated groundwater was reduced to 5 gpm. Hydraulic control of the northeastern section was regained and the infiltration rate to the inside trench was increased to 10 gpm.

The periodic loss of hydraulic control in the northeast section of the slurry wall prompted EPA to request that Rohm & Haas develop a water budget to gain a better understanding of hydaulics at the

site. The water budget was developed in 2005. The water budget discretized both the slurry wall and the semi-confining layer which the slurry wall is keyed into so that individual estimates of the loss of containment could be achieved. The water budget calculations indicated that before 2004, site hydraulics would allow for an infiltration rate of between 10 gpm of treated water into the slurry wall area without the loss of hydraulic control. However, this estimate is reliant on climatic conditions, seasonal variablility in water levels, and site operations. In fact, since 2004, EPA observed some loss of hydraulic control over a portion of the slurry wall while the infiltration rate of treated groundwater was 10 gpm. Therefore, in 2007, EPA directed Rohm & Haas to discharge all treated water to trenches located outside the slurry wall area for a period of one (1) year. Rohm & Haas implemented this action in February 2008. Also, EPA is requiring the collection of monthly water levels measurements from all wells and piezometers, the installation of a new monitoring well in the northeastern corner of the slurry wall, and the collection of groundwater samples from all piezometers and monitoring and recovery wells located outside the slurry wall during the semi-annual groundwater sampling events. Following the conclusion of this one-year period, Rohm & Haas will submit a report summarizing the data and information that was collect during the study. EPA will continue to monitor hydraulics at the site and adjust operations as appropriate.

Groundwater Monitoring

In 2003, under EPA oversight, Rohm & Haas installed 6 new monitoring wells to address data gaps. These wells are currently sampled during the routine O&M sampling events. Groundwater data over the past five years was collected and analyzed for volatile organic compounds and semi-volatile organic compounds. The groundwater is classified by NJDEP as a potable aquifer, indicating a potential drinking water source. Currently, the groundwater at the site is not being used for ingestion and the exposure pathway has been interrupted by the installation of the slurry wall, as well as some limited groundwater extraction occurring outside the slurry wall.

Overall, groundwater contamination continues to show a downward trend as measured by plant influent over the years. In 2003, the year of the last five-year review, the mean monthly influent contaminant concentration level was 703 ppb. In 2006, the last year that data is available for, the mean monthly influent contaminant concentration level was 316 ppb. Table 2 provides a list of chemicals that were detected at elevated concentrations in the groundwater over the last five years and the corresponding drinking water standards. Benzene and toluene are the contaminants detected most frequently and at the highest concentrations in groundwater.

While overall, groundwater shows a downward trend in contamination over time, there are a number of recovery wells located in the area of the former waste pit which are showing an upward trend in contamination. Geologic records indicate that there is a clay/silt layer within the water table, at a depth of 10 to 12 feet below ground surface in this area. It is possible that the clay/silt layer absorbed product around the time of disposal and is acting as a source. This would explain the upward trend in contamination seen in the recovery wells in the area. The possibility of the clay/silt layer acting as a contaminant source will be further evaluated, and sampling of this area considered. Note that this unit was not sampled during the 2003 soil sampling event, as that event included only soils above the water table.

The slurry wall constructed at the site surrounds most of the groundwater contaminant plume and is keyed into a semi-confining unit at a depth that varies between approximately 35 to 50 feet below ground surface. The slurry wall was designed to enclose and isolate the part of the upper unit most affected by site contamination concurrent with active pumping and treatment of this area in order to restore groundwater to protective levels. Due to topography, a portion of the groundwater plume in the northeast portion of the site was not enclosed within the slurry wall and 4 of the 41 recovery wells present at the site are located in this area. These four wells located outside of the slurry wall serve to extract contaminated groundwater from this area and prevent migration of contaminants to off-site areas. Volatile contaminant levels vary in these wells over time. During the last sampling event held in October 2007, levels of total volatile contaminants in these four recovery wells ranged from 2 to 16.4 ppb. Monitoring wells located downgradient of these recovery wells had no detected volatile contaminants during the October 2007 sampling event, indicating that there has not been downgradient contaminant migration in this area.

The groundwater data collected to date indicates that the groundwater remedy is effectively capturing contaminated groundwater. However, there are areas within the slurry wall were the groundwater contamination remains above current State and Federal drinking water standards. One such area is the former waste pit. As stated above, the slurry wall and recovery well system are effective in preventing the migration of contaminated groundwater to areas outside the slurry wall.

Soil

In August 2003, Rohm & Haas collected a total of 91 soil samples from 30 soil borings. All of the soils samples collected were in the vadose zone (above the water table). Prevalent contaminants in soils include benzene and toluene and the highest levels detected were in soils in the vicinity of the former waste pit.

Volatile organic contaminants were detected in areas throughout the slurry wall and were found at the highest levels in soils in the vicinity of the former waste pit. Results of PCB analysis indicate that five soil samples had total PCB concentrations that exceed 1 ppm, the EPA action level in a residential scenario. Only one soil sample had a total PCB concentration that exceeded the site-specific soil removal criterion of 5 parts per million, with 16 ppm detected at a depth of 8 feet. A data summary is provided in Table 3.

A preliminary evaluation of this data was performed by EPA which indicated that although some residual soil contamination remains at the site, the levels and frequency of detected contaminants do not indicate gross or widespread contamination. There are no immediate risks presented by site soils, as the site is not being put to residential or industrial use now and is owned by the PRP, who is using it for the sole purpose of implementing the remedy. However, a detailed risk assessment must be prepared in the future to fully evaluate any risks presented by site soils prior to completion of the remedy and any reuse of the site.

As discussed above, in order to address concerns with hydraulic control, discharge of all treated groundwater is currently taking place outside of the slurry wall. Therefore, residually contaminated soils within the slurry wall are not currently being flushed with the plant effluent. This may not be of

immediate concern as the soils are not grossly contaminated, however, the discharge scenario will continue to be monitored closely by EPA over time, and modifications made as appropriate.

Surface Water Monitoring

The O&M plan for the site requires the collection of surface water samples from three locations (SW-1, SW-2, and SW-3) along the small stream. Since the stream is intermittent and frequently dry, samples are usually collected when there is water in the stream. SW-1 and SW-2 are located in the vicinity of the northeastern portion of the site and SW-3 is located about 120 feet southeast and just before the boundary of the site outside the fence. A review of surface water data collected from the stream over a five years period reveals the presence of only three organic constituents (acetone, benzene, and toluene). Acetone was detected at all three locations. Benzene was detected at SW-3 at concentrations slightly above NJDEP Surface Water Quality Standards. Toluene was also detected at SW-3 at concentrations well below standards. The data were collected between 2002 and 2004. The stream was dry between 2005 and 2007, so no surface water samples were collected.

Wetlands

A long-term wetland monitoring program was developed to assess the effects of the slurry wall and groundwater withdrawal system on the adjacent wetlands. The October 2007-Wetlands Assessment Report revealed no significant impacts to the wetlands.

Site Inspection

An inspection of the Goose Farm Superfund site was conducted on February 11, 2008. The following parties were in attendance:

Trevor Anderson, EPA Region II Project manager
Grant Anderson, EPA Region II Hydrogeologist
Charles Nace, EPA Region II Risk Assessor
Wanda Ayala, EPA Region II Community Involvement Coordinator
Kenneth Walanski, Rohm & Haas Project Manager
Paul Morgan, Rohm & Haas Plant Manager
Todd Franz, Parsons (a Rohm & Haas' Environmental Consultant)

During the site inspection, the access road to the site, site cover, slurry wall perimeter, infiltration trenches, security fence and gates, monitoring and recovery wells, treatment plant, and the northeastern portion of the site were inspected. Areas outside the security fence, including the stream and the outside trench were also inspected.

The following sections present the results of the site inspection broken down by each major element:

Access Road

An inspection of the site's access road indicated that the road is in need of some repair. Several

potholes and depressions were observed in the stone and gravel road. Rohm & Haas representative indicated that the road will be repaired during the summer of 2008.

Landfill Cover, Slurry Wall, Infiltration Trench, Security Fence, and Monitoring and Recovery Wells

These components of the remedy were well maintained and appeared to be in good working condition. Water was detected in some of the concrete pits housing the monitoring and recovery wells. This was attributed to recent precipitation. However, it appears that the water was not interfering with the operation of the recovery wells. The security fence was intact and there was no evidence of animal burrowing or trespassing.

Treatment Plant

The treatment plant was inspected. During the inspection it was noted that the metal base beneath the air stripper and the carbon adsorption unit was corroded and rusting. The plant manager indicated that the corrosion was caused by the recent washing of the air stripper with acid. Rohm & Haas indicated that the metal base will be repaired in the summer of 2008. However the plant was clean, in good condition and all processing equipment was functioning as intended.

Northeastern Portion of the Site

The northeastern portion of the site within the fenced areas was inspected. Areas outside the fence were also inspected. A small bridge was used to cross the stream. Upon crossing the stream, two monitoring wells were discovered. These wells did not appear in any of the site maps and were not being used in the on-going groundwater monitoring program. Rohm & Haas indicated that these wells were abandoned. Also, Rohm & Haas indicated that the well casings would be cut to grade and the wells would be sealed and capped by the summer of 2008.

Wetlands

The wetlands area behind the site was inspected. No visual impacts to the wetlands were observed.

Interviews

Two interviews were conducted during the site inspection. Mr. R.H. Bitters, Commissioner of the local Environmental Commission for Plumsted Township, Mr. Kenneth Walanski, Project Manager for Rohm & Haas and Paul Morgan, Plant Manager for Rohm & Haas were interviewed. Both indicated that the treatment plant and remedy were operating as intended and did not believe that any upgrades were necessary at this time.

VII. Technical Assessment

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

Yes, a review of documents, applicable and relevant and appropriate requirements (ARARs), and the results of the site inspection indicate that the remedy is functioning as intended by the ROD. The

installation of the slurry wall and the groundwater treatment system have achieved the remedial objectives to mitigate the potential contamination of potable water supplies and prevent the movement of contaminants to other areas where exposure to these compounds through direct contact may occur.

The operation and maintenance of the site and structures, including the treatment plant, infiltration trenches, recovery wells, monitoring wells and piezometers have been generally effective. The wells and piezometers are generally in good working condition and are regularly inspected and repaired. Recovery wells on the outside of the slurry wall are capturing contaminated groundwater and downgradient wells show no elevated levels of contamination.

Surface water data collected from the intermittent unnamed stream located adjacent to the site show minimum impact to the stream. The wetlands located at the eastern portion of the site across from the stream and slurry wall remain unimpacted by the site, which indicate that the remedy is functioning as intended by the decision documents.

Institutional controls are in place. The security fence surrounding the site is in good repair. Security gates prevent occasional trespassers from unauthorized access to the site. The deed restriction as described in the July 1988 CD was filed with Ocean County Clerk's Office. Since purchasing the properties surrounding the site from the other two owners, the site's responsible party, Rohm & Haas, is the sole owner of the site and is using it only for cleanup-related activities.

Although the remedy is functioning as intended in the ROD, there are opportunities for system optimization. The slurry wall was constructed to restrict the movement of contaminated groundwater from the site. Overall, the slurry wall, in conjuction with groundwater extraction, is preventing the migration of contaminants off the site, as indicated by the groundwater and surface water data. Over the years of ongoing groundwater extraction and treatment, there has been occasional loss of hydraulic control in the northeastern portion of the slurry wall. This continues to be of concern to EPA. To address this concern, EPA has periodically directed Rohm & Haas to modify the discharge of treated groundwater to reduce discharge inside the slurry wall and increase discharge outside the slurry wall. In addition, Rohm & Haas performed a water budget analysis for the site, which was completed in February 2005 and provided useful information regarding site hydrology. Since outward gradients have been observed over a portion of the slurry wall in the last several years, at EPA's direction, in February 2008, Rohm & Haas began discharging all treated water outside of the slurry wall and began collecting monthly water level measurements. A new monitoring well is scheduled for installation in April 2008. Results of this work will be used by EPA to make determinations regarding whether any additional actions are need to assure that hydraulic control is achieved throughout the slurry wall.

Further, EPA has seen an upward trend in groundwater contamination in some recovery wells located in the vicinity of the former waste pit. A silt/clay layer underlying the former waste pit area at a depth of 10 to 12 feet is suspected as a potential source. Additional investigation of this area may be appropriate to determine the reason for the observed trend.

In 2005, Rohm and Haas completed a soil study at the request of EPA. A total of ninety-one (91) soil samples were collected from thirty (30) soil borings. As discussed above, while there were a number of contaminants detected in a number of borings that exceeded federal and state guidelines for future

residential or industrial use, overall, soil contamination was not detected at extremely elevated levels throughout the site. In order to address concerns with hydraulic control, discharge of all treated groundwater is currently taking place outside of the slurry wall. Therefore, residually contaminated soils within the slurry wall are not currently being flushed with the plant effluent. This may not be of immediate concern as site soils are not grossly contaminated, however, the discharge scenario will continue to be monitored closely by EPA over time, and modifications made as appropriate.

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

There have been no changes in the physical conditions of the site over the past five years that would change the protectiveness of the remedy. The site has limited access based on its location with a significant portion of the property being surrounded by a wooded area and wetlands; the closest private residences are located across the street opposite the site on Route 539. Exposure to site soils and groundwater by child and adult residents of the area has been eliminated by the installation of the security fence and gate. Although the site is zoned residential, Rohm & Haas owns the site and properties surrounding the site, and is using it for the sole purpose of implementing the remedy. The general land use and drinking water sources in the vicinity of the site have not changed since the issuance of the ROD in 1985. Groundwater use at the site is not expected to change.

Based on a review of the 1998 Endangerment Assessment, a potential exposure pathway identified included exposure of biota or humans to PCBs which may have migrated via surface runoff from the site to sediments of the unnamed stream and an associated pond located approximately 0.9 miles downstream of the site. This pathway no longer exists since all PCB sources and surficial soil has been remediated. However, past migration of PCBs to sediments is a pathway that may be subject to further evaluation. EPA will evaluate the current status of the unnamed stream and pond and determine if sediment sampling is warranted.

The following are the remedial action objectives for the site were established in the ROD:

- Remove, treat or contain contaminants
- Control general migration pathways
- Control release of volatile compounds in air
- Control water infiltration
- Control soil erosion
- Control direct contact

All of these objectives are still valid. The remedy continues to address groundwater contamination by containing, extracting, treating and then reinjecting treated groundwater to the aquifer.

<u>Groundwater</u>

The ROD required that concentrations of individual volatile organic compounds (VOC) in the groundwater plume should not exceed 50 parts per billion. This does not reflect current drinking water standards. The Federal and State's Safe Drinking Water Acts (SDWA) established Maximum

Contaminant Levels (MCLs) and Maximum Contaminant Levels Goals (MCLGs) for many of the contaminants detected in the groundwater plume at the site. The New Jersey Groundwater Quality Criteria (NJGWQC) were also considered during the five-year review. Federal and State MCLs and NJGWQC for eighteen (18) contaminants within the plume are more stringent than the technology standards that were established in the ROD. These contaminants and their respective Federal and State MCLs, and NJGWQC are shown in Table 2. The effluent from the treatment plant meets current Federal and State MCLs, and NJGWQC prior to its reinjection back into the aquifer.

Soil

The previous five-year review indicated that EPA recommended that a risk assessment be performed following the collection of soil data collected in August 2003. In October 2004, EPA requested that Rohm & Haas conduct a risk assessment for the soil using the October 2003 soil data. In a letter dated February 17, 2005, Rohm & Haas declined to conduct such a risk assessment. Rohm & Haas claimed that since the remediation of the site was ongoing, as per the Record of Decision, it was premature to conduct a soil risk assessment at the site at that time. However, a risk assessment to evaluate any risks posed by site soils will be conducted following the conclusion of the groundwater remedy, as required by the ROD, to determine if any additional remediation is necessary.

Soil Vapor Intrusion

Vapor intrusion was not evaluated as part of the original risk assessment. Given that there are volatile organic compounds present in the groundwater, an analysis was performed to determine if the vapor intrusion pathway is currently a completed pathway. Since there are no buildings located over the plume, there are no current receptors, and it does not appear that anyone will be living over the plume in the near future, the vapor intrusion pathway is currently not complete. Therefore at this time, vapor intrusion is not an issue at this site. If buildings were to be built over the plume in the future, a more thorough evaluation will need to be completed to ensure that the vapor intrusion pathway is not a potential problem.

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

No other information has come to light that could call into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed, the site inspection and the interviews, EPA has concluded that the remedy is functioning as intended by the decision documents. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

VIII. Issues, Recommendations and Follow-up Actions

There is one follow-up action which will be performed based on this five-year review. This action is summarized on Table 4 of this report. EPA will evaluate the potential exposure pathway from the past

migration of PCBs to sediments of the unnamed stream near the site and an associated pond. EPA will perform an inspection of the area and determine if sediment sampling is warranted. Note that no PCBs are currently migrating from the site to the stream, however, there was a potential for this to have occurred in the past, prior to soils remediation that took place in the 1980's.

Rohm & Haas is conducting routine O&M activities and adjustments are made on an on-going basis as needed. As part of O&M activities to address the hydraulic control issues at the site, EPA has requested that Rohm & Haas install a new monitoring well in the area outside the northeast portion of the slurry wall, collect monthly water level measurements from all wells at the site, and discharge all treated water to the trench located outside of the slurry wall. Rohm & Haas has agreed to these activities and they are underway. EPA will evaluate all data collected and make determinations regarding any additional actions required. Further, EPA will discuss the upward trend in contamination seen in recovery wells in the vicinity of the former waste pit with Rohm & Haas. Additional work may be required to determine if any sources remain at the site below the water table.

IX. Protectiveness Statement

The remedy at the Goose Farm Superfund Site is protective of human health and the environment. The groundwater monitoring and treatment systems are operating as intended by the remedy. The slurry wall and security fence are intact and in good condition. The remedy currently protects human health and the environment because exposure to contaminated materials is restricted by the fence, the slurry wall, and the groundwater extraction and treatment system which serve to contain the contamination within the site.

X. Next Review

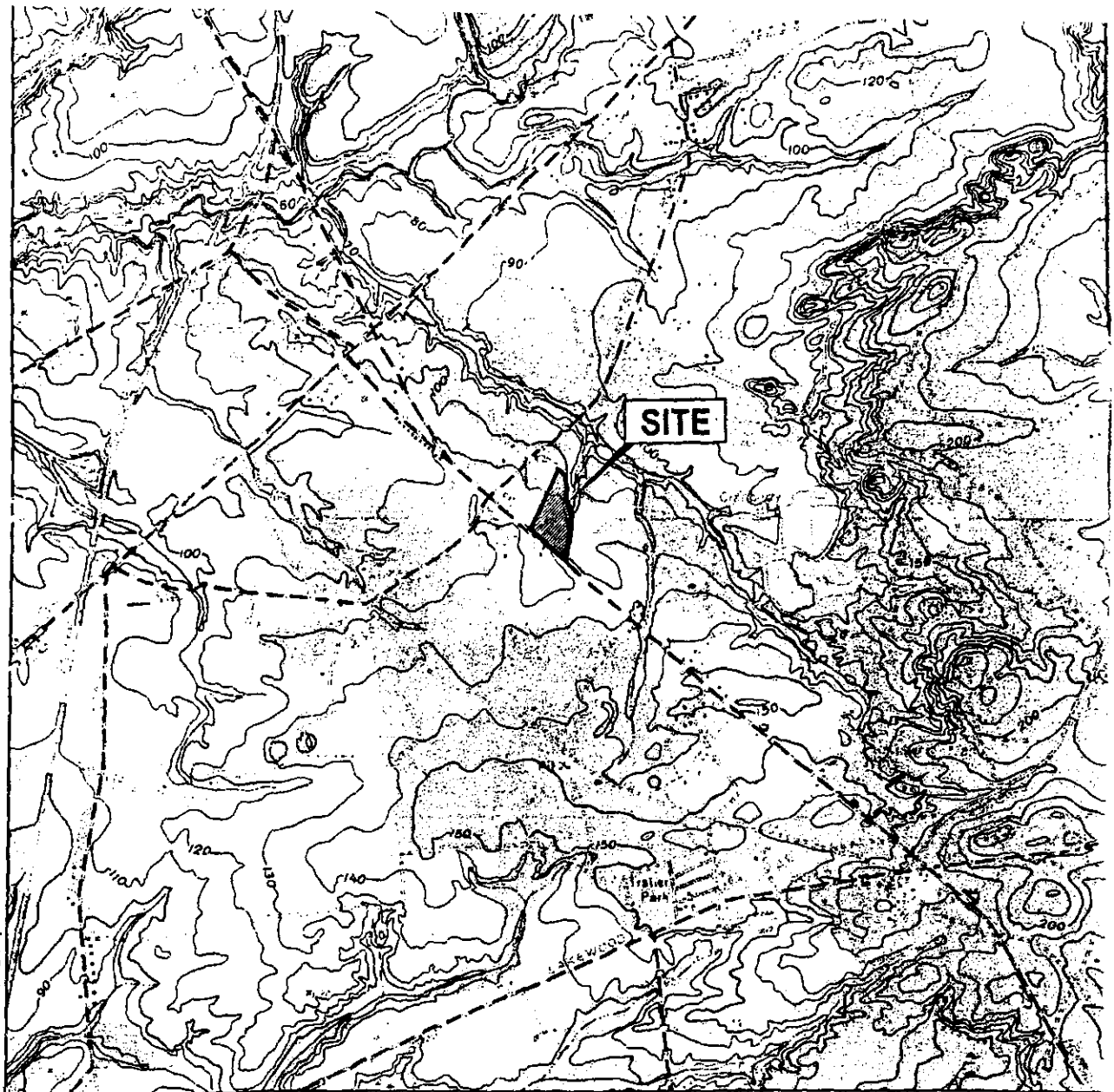
The next Five-Year Review for the Goose Farm Superfund Site should be completed by May 2013.

Approved By:

George Pavlou, Acting Director
Emergency and Remedial Response Division

9/25/08
Date

Figures



Base map from USGS Topographic Map
Cassville, N.J. Quadrangle and
New Egypt, N.J.Quadrangle

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SCALE IN FEET

GEOMATRIX

SITE LOCATION AND TOPOGRAPHY
Goose Farm Superfund Site
Plumsted Township, New Jersey

Figure
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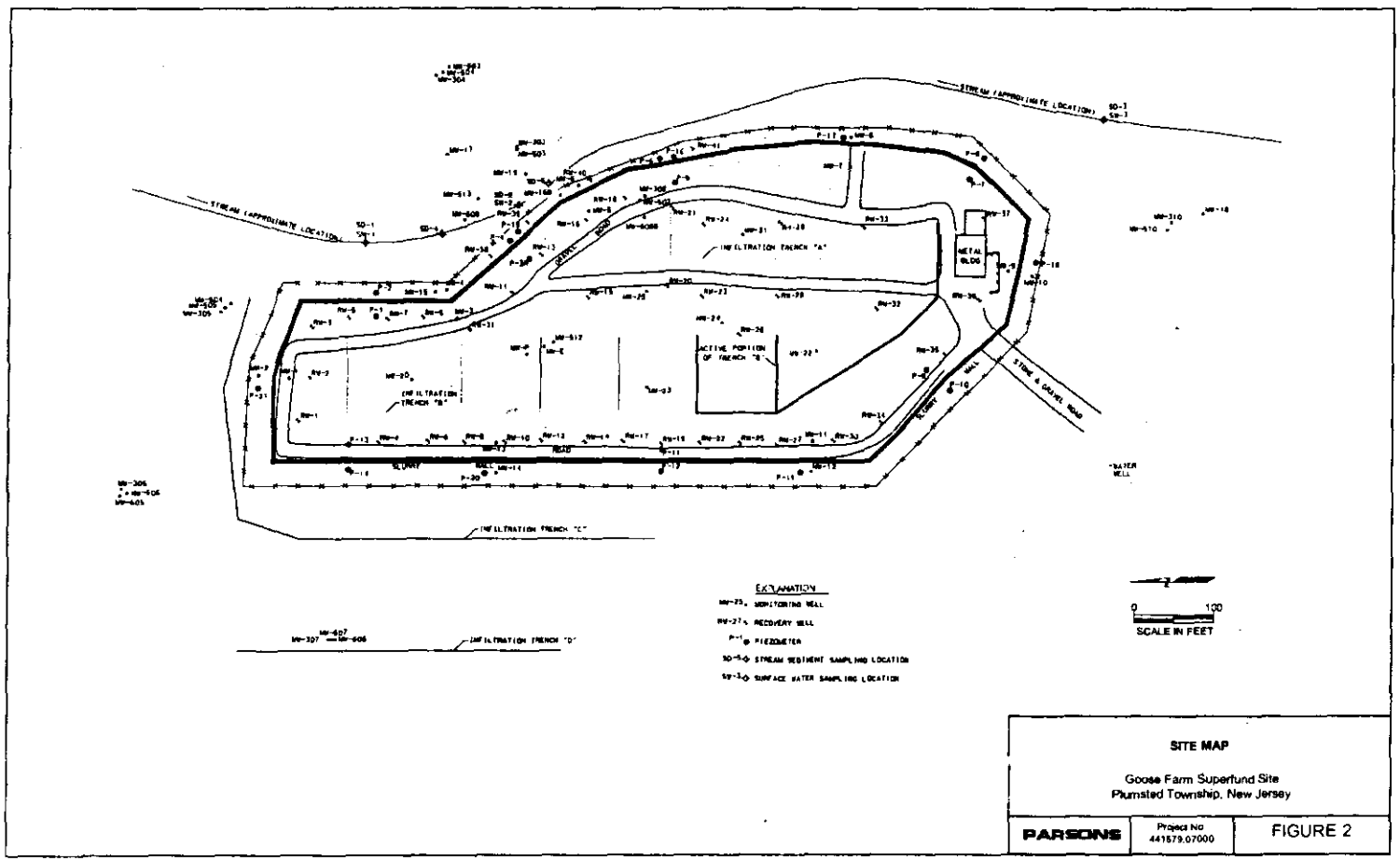

SITE MAP

Goose Farm Superfund Site
Plumsted Township, New Jersey

PARSONS	Project No 441579.07000	FIGURE 2

Tables

Table 1: Maximum Concentrations of Chemicals Detected in the Groundwater

Chemical	EPA MCL (µg/L)	NJDEP GWQS (µg/L)	NJ State Drinking Water Standards (µg/L)	Maximum Concentration (last 5 years of sampling) (µg/L)	Results
Benzene	5	0.2	1	2,900	Exceed NJGWQS and Drinking Water Standard
Toluene	1000	600	1,000	5,500	Exceed NJGWQS and Drinking Water Standard
Bis(2-chloroethoxy) methane	-	-	-	290	No Standards
Vinyl Chloride	2	0.08	2	150	Exceed NJGWQS and Drinking Water Standard
1,2-Dichloroethane	5	0.3	20	120	Exceed NJGWQS and Drinking Water Standard
1,1-Dichloroethane	-	50	50	110	Exceed NJGWQS and Drinking Water Standard
2-Methylphenol	-	-	-	61	No Standards
Methylene Chloride	-	3	3	1,300	Exceed NJGWQS and Drinking Water Standard
Cis-1,2- Dichloroethene	-	-	-	310	No Standards

TABLE 2

FREQUENCY OF VOLATILE ORGANIC COMPOUND DETECTIONS,
MAXIMUM VOLATILE ORGANIC COMPOUND CONCENTRATION AND LOCATION OF MAXIMUM

Goose Farm Superfund Site

Plumsted Township, New Jersey

Units are in milligrams per kilogram

	October 2003 Soil Sampling Event			Previous Soil Sampling Events		
Constituent	Number of Detections[1]	Maximum Organic Constituent Concentration	Location of Maximum Concentration	Number of Detections[2]	Maximum Organic Constituent Concentration	Location of Maximum Concentration
Acetone	49	0.036	GP28-4	4	0.37	SB6 @ 1'
Benzene	18	29 J	GP19-7	7	223	Sample #4[3]
Bromoform	ND	NA	NA	1	0.017	SB23 @ 30'
Toluene	16	2,100 J	GP19-7	18	640	SB3 @ 3'
Methylcyclohexane	15	200	GP19-7	2	0.155	SB23 @ 12'
Methylene Chloride	ND	NA	NA	30	47.3	Sample #9[3]
Ethylbenzene	13	95 J	GP19-7	10	20	SB3 @ 3'
Total Xylenes[3]	13	570	GP19-7	1	1.648	SB23 @ 12'
Trichloroethene	8	16 J	GP15-8	9	134	Sample #4[3]
2-Butanone	5	0.01 J	GP21-6	ND	NA	NA
cis-1,2-Dichloroethene	5	8.7	GP15-12	ND	NA	NA
trans-1,2-Dichloroethene	ND	NA	NA	2	107	Sample #4[3]
1,1-Dichloroethane	4	0.61 J	GP22-7	1	0.036	SB8 @ 10'
Cyclohexane	3	31 J	GP19-7	ND	NA	NA
1,2-Dichloroethane	2	2.5	GP22-7	2	0.206	Sample #4[3]
Carbon Disulfide	2	0.007 J	GP14-8	5	0.19	SB24 @ 16'
1,2-Dichloropropane	1	0.79 J	GP22-7	ND	NA	NA
1,1,2,2-Tetrachloroethane	ND	NA	NA	4	0.53	SB12 @ 10'
Chloroethane	1	0.003 J	GP9-1	ND	NA	NA
Methyl Acetate	1	0.51 J	GP22-7	ND	NA	NA
Vinyl Chloride	1	0.004 J	GP29-10	ND	NA	NA

J - Estimated quantity. The analyte was positively identified, but the reported value may not be accurate or precise.

[1]Ninety-one (91) samples were analyzed for VOCs.

[2]Data set includes 39 soil samples.

[3]Sample depth unknown.

Table 3: Changes in Chemical-Specific Standards and TBCs Requirements

Contaminants	ROD Cleanup Standards (ppb)	Federal MCLs Standards (ppb)	State MCLs Standards (ppb)	NJ GWQC (ppb)
Benzene	50	5	1	0.2
Bromoform	50	-	-	4
Carbon Tetrachloride	50	5	2	0.4
Chlorobenzene	50	100	50	50
Chloroform	50	-	-	70
1,2-Dichloroethane	50	5	2	0.3
1,1-Dichloroethene	50	7	2	1
1,2-Dichloropropane	50	5	5	0.5
Cis 1,3,-Dichloropropene	50	-	70	0.4
Trans 1,3-Dichloropropene	50	-	100	0.4
Methylene Chloride	50	-	3	3
1,1,2,2-Tetrachloroethane	50	-	1	1
Tetrachloroethene	50	5	1	0.4
1,1,1-Trichloroethane	50	200	30	30
1,1,2-Trichloroethane	50	30	3	3
Trichloroethene	50	5	1	1
Vinyl Chloride	50	2	2	0.08
Xylenes (total)	50	10,000	1,000	1,000

Table 4: Recommendations and Follow-up Actions

Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Actions: Affects Protectiveness (Y/N)	
				Current	Future
EPA will evaluate the potential exposure pathway from the past migration of PCBs to sediments of the unnamed stream near the site and an associated pond. EPA will perform an inspection of the area and determine if sediment sampling is warranted.	EPA	EPA	8/15/2009	N	Y

ATTACHMENTS

List of Acronyms:

ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	(United States) Environmental Protection Agency
FS	Feasibility Study
MCL	Maximum Contaminant Level
NJDEP	New Jersey Department of Environmental Protection
RAO	Remedial Action Objective
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
VOCs	Volatile organic compounds
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NPL	National Priorities List
GWQS	Groundwater Quality Standard
OSWER	Office of Solid Waste & Emergency Response
RAOs	Remedial Action Objectives
MCLGS	Maximum Contaminant Level Goals
NJGWQS	New Jersey Groundwater Quality Standard
SDWA	Safe Drinking Water Act
SARA	Superfund Amendments & Reauthorization Act

List of Documents Reviewed

1. Five -Year Review Report dated September 1998.
2. Second Five-Year Review date September 2003.
3. The Record of Decision for Goose Farm Superfund Site dated September 1985.
4. Operation and Maintenance Manual dated August 1993.
4. 2006 Annual Operational Report dated March 2007.
5. Monitoring Event Reports for April 2004, October 2004, April 2005 and October 2005, April 2006, October 2006, April 2007, and October 2007.
6. NJDEP Soil Cleanup Criteria dated May 12, 1999
7. Project Completion Report dated November 1994
8. Basis for Design Report dated November 1990.
9. Goose Farm Final Detailed Design Report, dated June 1992.
10. NJDEP Ground Water Quality Standard (N.J.A.C. 7:9-6), dated January 7,1993
11. EPA National Primary Drinking Water Standards.
12. New Jersey Drinking Water Standards.
13. Report on monitoring Well Installation and Sampling, Soil Chemical Characteristics Inside the Slurry Wall Area, and Water Budget for the Goose Farm Superfund Site, dated February 2005
14. Final Report: Endangerment Assessment Goose Farm Superfund Site, dated March 1988.