Five-Year Review Report
CALDWELL TRUCKING CO. Superfund Site
Fairfield Township
Essex County, New Jersey

September 2002

Table of Contents

Five-Year Review Summary Form

SITE IDENTIFICATION

Site name *(from WasteLAN)*: Caldwell Trucking Co.

EPA ID *(from WasteLAN)*: NJD048798953

Region: 2	**State:** NJ	**City/County:** Fairfield/Essex

SITE STATUS

NPL status: ■ Final Deleted Other (specify)

Remediation status (choose all that apply): ■ Under Construction Constructed ■ Operating

Multiple OUs? ■ YES NO	**Construction completion date:** NA

Has Site been put into reuse? YES ■ NO

REVIEW STATUS

Lead agency: ■ EPA State Tribe Other Federal Agency

Author name: Rick Robinson

Author title: Remedial Project Manager	**Author affiliation:** EPA

Review period: 08/1995 to 09/2002

Date(s) of site inspection: 06/06/2002

Type of review:

■ Post-SARA Pre-SARA NPL-Removal only
Non-NPL Remedial Action Site NPL State/Tribe-lead
Policy Regional Discretion

Review number: ■ 1 (first) 2 (second) 3 (third) Other (specify)

Triggering action:

■ Actual RA On-site Construction at OU # 01 Actual RA Start at OU#____
Construction Completion Previous Five-Year Review Report
Other (specify)

Triggering action date *(from WasteLAN)*: 08/14/1995

Does the report include recommendation(s) and follow-up action(s)? ■ yes no
Is human exposure under control? ■ yes no not yet determined
Is contaminated groundwater under control? ■ yes no not yet determined
Is the remedy protective of the environment? yes no ■ not yet determined

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

I. Introduction

This is the first five-year review for the Caldwell Trucking Co. Superfund Site (Site), located in the Township of Fairfield, Essex County, New Jersey. Rick Robinson, the Remedial Project Manager (RPM) of the U.S. Environmental Protection Agency (EPA) conducted this review. This five-year review was conducted pursuant to Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), 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 are protective of public health and the environment and they function as designed. This document will become part of the site file and administrative record.

The Site has two operable units. Operable Unit No. 1 (OU1) focused on soil contamination at the Site, and contamination to both public and private potable water wells. Operable Unit No. 2 (OU2), addressed remediation of contaminated groundwater at the Site. Remedial activities are still ongoing for both OU1 and OU2.

In accordance with Section 1.2.1 of the five-year review guidance, a statutory review is triggered for this site since hazardous substances, pollutants, or contaminants remain on site, a Record of Decision (ROD) was signed after October17, 1986 and the remedial action was selected under CERCLA Section 121.

EPA issued a pre-SARA ROD on September 26, 1986 for OU1. In May 1991 and February 1993, EPA amended the remedy by issuing Explanations of Significant Differences (ESDs). In 1994, the group of potentially responsible parties (PRPs), performing the remedial action under EPA oversight, implemented the remedy as modified by the ESDs. During this remedial action the PRPs performed a focused feasibility study (FFS). Based on the results of the FFS, the PRPs requested that EPA consider further amending the 1986 ROD remedy. On February 27, 1995, EPA issued a ROD Amendment that included in-situ stabilization of the lead contaminated soils. This soil stabilization remedy was the first remedy to be implemented at the Site that allowed hazardous substances, pollutants, or contaminants to remain on site after CERCLA was amended. Therefore, the trigger for this five-year review was the start of the in-situ stabilization activities for OU1 on August 14, 1995.

II. Site Chronology

Table 1, below, summarizes site-related events from discovery to the present.

Table 1 – Chronology of Site Events

Event	Date
George and Rose O'Connor start Caldwell Trucking Company	1946
Waste disposal into unlined lagoons	Early 1950s until 1973
Groundwater contamination identified	1970
Underground storage tanks used for waste handling prior to off-site disposal	1974 to the early 1980s

NJDEP begins extensive sampling in the area	1980
NJDEP recommends that all residents between the Site and the Passaic River be placed on public water	March 1982
Site placed on NPL	September 1983
Initial RI/FS Completed	June 1986
Initial Record of Decision for Site soils and alternate water supplies (OU1)	September 1986
Caldwell Trucking Company ceases operations	1988
EPA connects 55 homes and 9 commercial establishments to municipal water system.	Summer 1989
OU2 RI/FS Completed	July 1989
Record of Decision for OU2	September 1989
Interim Remedial Measures including site clearing, fencing, covering lagoons, and placing gravel on access roads	1990
ESD issued to address decision not to restore Municipal Water Supply Well Number 7	May 1991
ESD issued to address decision to stabilize contaminated soils	February 1993
ESD issued to address decision to implement ground water contingency remedy	July 1993
PRPs installation of perimeter fence	May 1994
PRPs complete excavation and off-site disposal of PCB and VOC contaminated soils	September 1994
EPA, NJDEP, US Dept. of Interior sign RD/RA Consent Decree with PRP Group	November 1994
OU1 ROD amended to select in-situ stabilization of lead contaminated soils	February 1995
PRPs start soil stabilization	August 1995
PRPs operate Soil Vapor Extraction System	June 1996 – March 1997
EPA allows the PRPs to construct and test iron reactive wall at the seep	February 1997
Start of OU2 on-site construction activities	September 1997
Iron reactive wall constructed	May 1998
PRPs complete soil stabilization activities	September 1998
EPA approval of PRP Group pilot test for accelerated biological treatment and construction of a supplemental seep treatment system	December 2000

PRPs identify additional lead contaminated soils	February 2001
Supplemental seep treatment system constructed	February 2002
PRP Group completes accelerated biological treatment pilot test	July 2002

III. Background

Physical Characteristics

The Caldwell Trucking Company Site is located in Fairfield Township, Essex County, New Jersey. The physical property is an 11.25-acre tract of land located in the eastern portion of the Township between O'Conner Drive and Sherwood Lane, immediately east of Passaic Avenue. Map coordinates for the Site are latitude 40° 50' 23" north, longitude 74° 16' 16" west on the Pompton Plains 7.5-minute series USGS quadrangle map.

Deepavaal Brook and the Passaic River are significant surface water bodies in the vicinity of the Site. Deepavaal Brook flows to the northeast and discharges to the Passaic River. The Passaic Valley Water Commission has a water intake located on the Passaic River, approximately 2.2 miles downstream of its confluence with Deepavaal Brook.

A groundwater seep is located approximately 0.75 miles northeast of the Site. The seep feeds an unnamed tributary that flows in a northerly direction into Deepavaal Brook.

Geology/Hydrogeology

Fairfield Township is located at the extreme northern edge of the Buried Valley Aquifer System recharge zone. The recharge zone of this aquifer system underlies the central basin of the Passaic River in western Essex and southeastern Morris Counties. This aquifer system is designated as a sole-source aquifer, a designation that indicates that it is the sole or principal source of drinking water in the area. Although, at present, it is no longer a source of drinking water in the area. Groundwater in the area generally flows in a northerly direction toward the Passaic River.

Three distinct lithologic units have been identified within the unconsolidated deposits underlying the Site. In descending order, the three units are: an upper layer consisting mainly of silty sand (A Zone); a middle layer consisting mainly of silty clay (the Clay Layer); and a basal layer consisting of silt, sand, and gravel with occasional cobbles and boulders (B Zone).

The bedrock surface in the area is irregular as a result of erosion and weathering. The uppermost bedrock zone (C Zone) in the area consists of basalt. In areas that have not been subject to glacial erosion, the surface of the basalt is highly fractured due to the geologic cooling process. The fractured water bearing bedrock zone is defined as the Upper C Zone.

More competent bedrock is exposed in areas where glacial erosion has removed the fractured Upper C Zone. The competent basalt is finely crystalline with few open fractures. This zone, which has been defined as the Lower C Zone, extends down to what has been termed the

"hornfels" layer. The hornfels layer, or D Zone, represents an "interflow" sedimentation period between basalt flows.

Most private and commercial drinking water wells were screened in the A and B Zones. The D Zone was the primary source of drinking water for the municipal water system prior to the Township of Fairfield decision to abandon its municipal well system and instead purchase water from the Passaic Valley Water Commission.

Land and Resource Use

The Caldwell Trucking Site is located in a mix of light industrial, commercial, and residential areas. The 11.25-acre tract was unimproved prior to 1946 when the Caldwell Trucking Company was incorporated. The Site is surrounded by various industries. About 500 single-family homes are located within one mile of the Site. West Essex Regional High School is adjacent to the southeastern boundary of the Site.

History of Contamination

The Caldwell Trucking Company disposed of residential and commercial septic waste, as well as industrial waste, in unlined lagoons on the Site from the early 1950s until about 1973. When the lagoons were full, they were backfilled and a new series of lagoons was excavated, sometimes over pre-existing lagoons. Liquids from the lagoons were transported to the northwestern portion of the property where they were pumped to a large seepage area. In 1973, Caldwell Trucking Company stopped land disposal of the waste and installed a series of four underground storage tanks. From 1973 to the early 1980s wastes were consolidated in the underground storage tanks prior to disposal off-site. By 1984, the Caldwell Trucking Company stopped using the storage tanks and operated as a transport facility. In 1988, the company ceased the remainder of its trucking operations and went out of business.

Disposal in the unlined lagoons resulted in the contamination of on-site soils and groundwater. EPA identified a variety of hazardous substances at the Site in soils, sludges and groundwater. Heavy metals, especially lead, and a variety of volatile and semivolatile organic substances were identified in the soils and sludges. Trichloroethylene (TCE), 1,1,1 trichloroethane (1,1,1 TCA), chloroform and other organic compounds were found in the groundwater. Caldwell Trucking's tanks contained lead, volatile and semivolatile organic compounds and some polychlorinated biphenyls (PCBs). Groundwater contamination, consisting primarily of chlorinated volatile organic compounds (VOCs), extends approximately 4000 feet downgradient from the Site to the Passaic River.

Basis for Taking Action

In 1980, the New Jersey Department of Environmental Protection (NJDEP) began an extensive sampling program of private wells in the Fairfield area. In early 1982, NJDEP notified the Fairfield health officer that wells in the area showed extremely high levels of VOCs, and recommended that residents in the area be placed on public water. In December 1982, the Site was proposed for the Federal Superfund National Priorities List (NPL). On September 8, 1983, EPA placed the Site on the NPL by publication in the Federal Register (48 Fed. Reg. 40658.)

Initial Response

In the early 1980s, a number of residents near the Site decided to connect to the municipal water system when they learned about the contamination. In 1990, EPA implemented several interim measures to reduce the potential for exposure to site contaminants. Chain link gates and fences were installed at critical points to restrict site access. The exposed lagoon and the four underground storage tanks were covered and surrounded with snow fencing. Portions of the access road were covered with geotextile fabric and stone to minimize exposure of trespassing dirt bike riders to the lead contaminated surface soils. EPA also posted warning signs on the fences and at the entrance to the Site.

IV. Remedial Actions

Remedy Selection

In September 1986, EPA signed a ROD selecting a remedy for OU1. The selected cleanup included: (1) restoring a lost potable water resource by providing treatment, through air stripping, of Municipal Water Supply Well No. 7; (2) providing an alternate water supply for residents potentially affected by ground water contamination from the site, and (3) excavating and treating approximately 28,000 cubic yards of contaminated soils and waste materials via low temperature thermal treatment, and disposing of treated soils in a secure landfill to be constructed at the site in accordance with Resource Conservation and Recovery Act (RCRA) requirements.

The Township of Fairfield subsequently decided not to use Municipal Well No. 7, and instead rely on the Passaic Valley Water Commission as an alternative potable water supply for the entire community. Accordingly, EPA issued an ESD in May 1991, to delete the provision of well-head treatment for Municipal Well No. 7 as a component of the remedy.

During the remedial design for the contaminated soils and waste materials, studies revealed new information about the levels and combinations of contaminants in the soils and sludge materials at the site. This information indicated that additional treatment before disposal was necessary to conform with RCRA disposal regulations. In February 1993, EPA issued an ESD to explain modifications to this component of the 1986 ROD, and to identify the increased costs. The modified remedy included off-site treatment and disposal of certain waste materials called "California List Wastes", and stabilization of the lead contaminated soils to meet RCRA disposal regulations.

In April 1993, EPA issued a unilateral administrative order (UAO) to 11 PRPs to implement this modified remedy. In February 1994, the PRPs formally requested permission to prepare a focused feasibility study (FFS) to evaluate an alternative remedy for the remaining soil contamination at the site. The alternate remedy included excavation and off-site disposal of highly contaminated wastes, as described in the existing remedy. In addition, soils with VOC concentrations greater than 100 milligrams per kilogram (mg/kg) would be excavated and disposed of off-site, and the remaining contaminated waste stabilized or solidified in place. The FFS compared the existing remedy with this alternate remedy. The FFS concluded that a hazardous waste landfill would no longer be necessary because the off-site disposal of highly contaminated wastes, together with on-site stabilization/solidification of the remaining contaminated wastes, would be protective of human health and the environment. In February 1995,

EPA signed a Record of Decision Amendment, formally changing the 1986 ROD remedy to the alternate remedy.

In September 1989, EPA issued the second ROD for the site selecting a remedy for OU2. The selected remedy required the installation of ground water recovery wells at various locations throughout the study area to intercept the entire contaminated ground water plume. The 1989 ROD also provided for a contingency remedy if EPA could not obtain community acceptance regarding access to the properties needed for implementation of the selected remedy.

In 1993, after much discussion and debate with the community, EPA determined that local property owners would not provide the necessary access. EPA then issued an ESD explaining its intent to implement the contingency remedy. The contingency remedy included installation of ground water recovery wells to intercept the most contaminated portions of ground water in the lower water table aquifer (B Zone) and the upper bedrock aquifer (Upper C Zone). The extracted ground water would be treated through an air-stripper and the effluent would be discharged to the Passaic River. The remedy also included cleanup of the seep that is recharged with contaminated ground water and flows into a tributary to Deepavaal Brook, and a program for the sealing of all private wells in the contaminated ground water plume, some of which are still being used for non-potable purposes such as irrigation.

On June 29, 1993, EPA issued a UAO to 15 PRPs to conduct studies to evaluate the current hydrologic conditions in the contaminated ground water aquifers and effects the site may have on the Passaic River. This study was completed in October 1994.

In November 1994, EPA, NJDEP and the U.S. Department of Interior signed a consent decree with nine PRPs (Caldwell Trucking PRP Group). The Caldwell Trucking PRP Group agreed to perform the remedial work necessary to contain the contaminated ground water plume, in addition to the site work being done according to the UAO's. Under the terms of the Consent Decree, the Department of Interior's U.S. Fish and Wildlife Service has been monitoring the cleanup actions at the Site. The U.S. Fish and Wildlife Service did not require any remedial actions regarding environmental impacts other than restoration of areas affected by cleanup efforts at the Site.

In January 2002, EPA entered into a Consent Decree with the site owners, the OKON Corporation and the O'Connor family. OKON agreed in this Consent Decree to provide the Caldwell Trucking PRP Group and EPA access to the Site for all remedial efforts. It also agreed to place a Deed Notice on the property when requested to do so by EPA. The O'Connors have granted and filed an easement to the Caldwell Trucking PRP Group and EPA along the access road to the property.

Remedy Implementation

In the summer of 1989, EPA connected 55 homes and nine commercial establishments, which had been using water from the contaminated ground water plume, to the municipal water system. Some residents along the eastern edge of the plume refused the connection. In 1999, the Caldwell Trucking PRP Group offered to connect these homes with private wells to municipal water. One resident agreed and was connected to the municipal system.

In May 1994, the Caldwell Trucking PRP Group installed a seven-foot high security fence around the entire site. In September 1994, it excavated approximately 1650 cubic yards (2640 tons) of contaminated soil and waste materials and disposed of them off-site.

Construction of the soil stabilization phase of the remedial action started in August 1995. In October 1995, the Caldwell Trucking PRP Group suspended the stabilization activities because of high levels of odors and emissions coming from the soils. In November 1995, it proposed to construct a soil vapor extraction (SVE) system to reduce the levels of odors and emissions during stabilization activities. EPA approved this request and, in June 1996, the Caldwell Trucking PRP Group started the SVE system. It operated the SVE system from June 1996 to March 1997, and removed over 25,000 pounds of VOCs (over 12 tons) from the soil. In March 1997, the Caldwell Trucking PRP Group restarted stabilization activities and completed the work in September 1997. Approximately 40,000 cubic yards (64,000 tons) of contaminated soils were stabilized. In October 1997, the site owner informed EPA of a new area of contamination. In September 1998, Caldwell Trucking PRP Group stabilized an additional 1,000 cubic yards of lead-contaminated soils. In February 2001, the Caldwell Trucking PRP Group found additional lead contaminated-soils in the North Lagoon Area of the site. In August 2001, it delineated the extent of contamination and submitted plans for the cleanup of the contamination. The Caldwell Trucking PRP Group plans to stabilize these soils in the Fall of 2002.

In February 1997, EPA modified the ground water remedial action schedule, and allowed the Caldwell Trucking PRP Group to test the effectiveness of an innovative technology, an iron reactive wall system, to intercept the contaminated ground water before it discharges at a surface water seep. In May 1998, the Caldwell Trucking PRP Group completed construction of this system. Monitoring results on the effectiveness of the iron reactive wall indicate that the wall reduces the VOC levels in the seep but not to acceptable levels. In February 2002, the Caldwell Trucking PRP Group completed installation of the "supplemental seep remediation system" to further reduce the levels of contamination reaching the surface water bodies. Recent data indicate that the supplemental seep remediation system has nearly eliminated the level of VOCs in the seep and has cut off a main source of contamination reaching the surface water.

In October 2000, the Caldwell Trucking PRP Group requested permission to pilot test an enhanced biological treatment system in the VOC source area at the site. The Caldwell Trucking PRP Group also requested permission from EPA to perform a focused feasibility study for the purpose of amending the current ground water extraction and treatment system remedy. From January 2001 to July 2002, the Caldwell Trucking PRP Group conducted the pilot test, and EPA has performed a preliminary evaluation of the results of this test. The results indicate that the enhanced biological treatment system appears to be reducing the level of VOCs in the source area at the site. EPA is currently reviewing the Caldwell Trucking PRP Group's pilot test and its request to perform a focused feasibility study. Construction of the ground water extraction and treatment system is on hold, pending EPA's evaluation of the Caldwell Trucking PRP Group's alternate ground water cleanup plans.

The Caldwell Trucking PRP Group is currently monitoring the performance of the supplemental seep remediation system, including monthly monitoring of the treatment system discharge and downstream surface water. This program includes monthly reporting under a New Jersey Discharge Pollution Elimination System (NJPDES) Permit equivalent.

System Operations and Maintenance (O&M)

In March 2002, the Caldwell Trucking PRP Group completed the most recent area-wide groundwater-monitoring event. A long-term program for monitoring groundwater quality associated with the Site is currently being developed. In addition, it is performing monthly monitoring of the supplemental seep treatment system discharge and downstream surface water. This program includes monthly reporting under a New Jersey Discharge Pollution Elimination System (NJPDES) Permit equivalent.

After the soil remediation is complete, a long term O&M Plan will be developed for maintenance of the soil cap to ensure the future protectiveness of the soil remedy. This Plan will include regular inspections to ensure that the vegetative soil cover remains intact and the surface water drainage of the Site occurs within the engineered drainage features. Currently, the Caldwell Trucking PRP Group is regularly conducting inspections of the site.

V. Five-Year Review

Identification of Five-Year Review Team Members

The Five-Year Review Team consisted of Rick Robinson (EPA-RPM), Andy Crossland (EPA-Hydrogeologist), Michael Sivak (EPA-Risk Assessor), Natalie Loney, (EPA- Community Involvement Coordinator), and Riché Outlaw (NJDEP-Case Manager).

The Caldwell Trucking PRP Group also assisted EPA in development of the Five-Year Review. Included in the process were representatives from ***de maximis, inc.*** (Project Coordinator), Blasland, Bouck & Lee, Inc. (BBL), and Golder Associates Inc.

Community Involvement

A Public Notice was published in the *Caldwell Progress*, a local/regional newspaper, on Thursday, July 25, 2002 to notify the community of the five-year review, solicit the public's comments, and to notify the community that a Public Availability Session would be held on Monday July 29th, 2002 from 2 - 4 PM and from 7 – 9 PM. In addition, EPA mailed the Notice to all persons listed on the Caldwell Trucking Site mailing list and the Township of Fairfield placed the notice on its local cable channel. The Notice included the EPA RPM's name, work address, and telephone number for public inquiries related to the five-year review process and the Site. The notice also indicated that once the five-year review was completed, the results would be made available in the local repository at the Fairfield Town Hall Building, Engineering Department, 230 Fairfield Road, Fairfield, NJ 07004.

One local business owner, five residents, and a representative from the Township of Fairfield's Engineering Department attended the availability sessions. EPA informed them of the current status of the remedy and the findings of this five-year review. Questions generally related to the status of the remedy, the schedule for future work at the Site, and the possible re-use of the Site when work is completed.

Document Review

The documents, data, and information that were reviewed in completing the five-year review are summarized in Table 3 at the end of this document. Table 4 provides a listing of acronyms used in this document. This five-year review was prepared with the assistance of the Caldwell Trucking PRP Group's Risk Evaluation. The Risk Evaluation will be included in the Administrative Record for the Site.

Data Review

The Five-Year Review Team reviewed the historic and recent groundwater and surface water data for this five-year review. They also reviewed performance-monitoring data from the seep remediation systems, the accelerated biological treatment pilot test and the soil stabilization work.

The approved remedial design for the OU2 remedy consists of a 180-gallon per minute extraction and treatment system that is intended to capture the core of the contaminated groundwater plume. EPA believed that this system would contain the most contaminated portion of the plume and would also reduce the threat posed by direct contact to the seep.

Information obtained from the Caldwell Trucking PRP Group's iron wall reactive system and enhanced biological system pilot tests indicated that the hydrogeology of the area is much more complex than originally understood. It identified a number of discrete flow zones within the B and Upper C Zone aquifers. Within these zones, gravel lenses and fracture zones with high permeability were identified. The discrete flow zones are discontinuous due to the variability of the distribution of the channels, the extent of the fracturing, and the localized glacial erosion. The Caldwell Trucking PRP Group believes that the complexity of the hydrogeologic conditions would significantly limit the effectiveness of the OU2 remedy, as designed.

In March 2002, the Caldwell Trucking PRP Group completed an area-wide groundwater evaluation. This evaluation indicated that since 1988 the plume mass in the B Zone aquifer in the core of the plume has decreased, while contaminant levels in the C Zone have remained unchanged. Chloroform, a historically significant contributor of mass with concentrations as high as 48,000 micrograms per liter (µg/l), has diminished to nearly non-detect levels. Contaminants of concern were not detected in residential wells along the eastern edge of the plume. However, there are insufficient data to determine the western and northern boundaries of the contaminant plume. Additional monitoring wells are needed in these areas.

In August 2002, the Caldwell Trucking PRP Group submitted a report on its enhanced biological pilot test to EPA. The Caldwell Trucking PRP Group believes its enhanced biological pilot test has removed significant amounts of TCE from the source zone in areas where previously little or no degradation was occurring. EPA is currently reviewing this report. After completing the review, EPA will decide whether to proceed with full-scale implementation.

The iron reactive wall system and the supplemental seep remediation system together have significantly reduced VOC levels in the seep area. Monthly monitoring is being conducted under a NJPDES Permit Equivalent. EPA believes that these seep remediation systems have reduced the VOC levels in the seep sufficiently to provide protection to human health and the environment for the short-term. However, a final determination on the future protectiveness of

the remedy for the seep area will be determined when EPA decides whether to amend or implement the current remedy for OU2.

Site Inspection

A site inspection was performed on June 6, 2002 as part of this Five-Year Review process. The inspection included a review of the soil cap, access roads, monitoring wells and fencing on-site. Similarly, the area around the seep was inspected, including operative equipment, fencing, site restoration work and downstream surface water.

Those participating in the inspection included:

Rick Robinson, EPA-RPM
Andy Crossland, EPA-Hydrogeologist
Jake Nemergut, PRP Representative
Chris Young, ***de maximis, inc.***
Jack McBurney, ***de maximis, inc.***
Steve Finn, Golder Associates
Alain Hebert, Blasand, Bouck & Lee, Inc.

At the Site, no signs of unauthorized access were noted. Small amounts of erosion of the soil cover and the access road were observed in a few areas. Minor improvements to these areas will be needed following the completion of the additional soil stabilization activities in the North Lagoon Area.

In the area around the seep remediation system, the perimeter fence was intact but in need of minor repair. The Caldwell Trucking PRP Group has not completed final landscaping of the area.

Site Interviews

Rick Robinson of EPA has discussed the remedies with the five-year review team, NJDEP, the PRP Group, and the Township of Fairfield. Rick Robinson also answered questions about the Site during the public availability sessions.

VI. Technical Assessment

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

OU-1

Yes, the review of documents and the results of the site inspection indicate that the completed elements of the OU1 Remedy are functioning as intended by the ROD, as modified by the ESDs, and ROD Amendment. The stabilization of contaminated soil, fence, site drainage system, and monitoring wells are intact and in good repair. O&M appears to be properly performed.

The objectives of the OU1 soil remedy were to reduce the potential for exposure and mobility of site related contaminants. The fence along the site boundaries has prevented unauthorized access. Excavation and off-site disposal of four underground storage tanks, the California List Waste soils and sludges, and the soils containing greater than 100 mg/kg of VOCs, along with the in-

situ stabilization of the lead contaminated soils has greatly reduced the potential for exposure and mobility of site related contaminants. EPA anticipates that the OU1 soils remedy will be fully functional when the remaining lead contaminated soils have been stabilized. In addition, the connection of residents to the municipal water supply has eliminated their exposure to contaminated groundwater.

A Deed Notice detailing the restrictions on the future use of the property will be filed to discourage any unacceptable future use of the Site.

OU-2

To date, no components of the OU2 Remedy, as described in the ROD or in the ESD have been implemented. The PRP Group has implemented a number of interim actions and pilot tests designed to reduce the exposure and mobility of site-related contaminants in the groundwater. Contaminated groundwater is not being withdrawn for potable use. The iron reactive wall system and supplemental seep remediation system are intact and in good repair. These systems have reduced the level of VOCs in the seep reaching the surface water.

The Caldwell Trucking PRP Group has applied to NJDEP for a Classification Exception Area/Well Restriction Area (CEA/WRA) for groundwater. The establishment of this institutional control will afford continued public protection over a wide area. It has also developed a plan for closure of the private wells that have not been properly abandoned.

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

OU-1

The exposure assumptions, toxicity data, site-specific cleanup criteria, and remedial action objectives for the OU1 soil remedy are still valid. The commercial/industrial soil remediation criterion for lead of 1000 mg/kg specified by the ROD was used to define the limits of remediation. The concentration of 1000 mg/kg of lead in soil is protective for adult worker populations. This is consistent with the recommendations from EPA's Technical Review Workgroup for Lead. Cleanup to soil remediation criterion for lead of 1000 mg/kg will allow for the future commercial use of the property.

The Caldwell Trucking PRP Group conducted additional investigations of previously unknown disposal locations that were disclosed by the site owner. Three additional areas with elevated lead levels were identified. The Caldwell Trucking PRP Group has completed remediation of two areas, and plans to start the cleanup of the third and final area in the Fall of 2002.

OU-2

Since the time of the 1989 risk assessment, EPA has modified certain exposure assumptions and toxicity data. However, current VOC concentrations in the unnamed tributary, Deepavaal Brook, and the Passaic River are much lower than the concentrations used in EPA's 1989 risk assessment. The Caldwell Trucking PRP Group has performed its own risk assessment to re-evaluate risks based on current methodology and recent monitoring data. EPA is currently reviewing this risk assessment.

No groundwater cleanup standards were identified in the 1989 ROD. Because of the extent of the groundwater plume and levels of contaminants within the plume, and the impact of other sources in the Fairfield area, EPA noted that it would take more than 100 years to clean the aquifer to drinking water standards. Accordingly, in the 1989 ROD, EPA invoked a waiver based on technical impractability, stating that the Federal and State Safe Drinking Water Act Maximum Contaminant Levels (MCLs) were not attainable within a reasonable time frame. No alternate concentration limits were identified. Information obtained since the 1989 ROD has confirmed that the MCLs cannot be achieved within a reasonable time frame.

The remedial action objectives for the OU2 remedy are still valid, with the exception that EPA did not consider vapor intrusion from the contaminated groundwater plume into basements. Further information regarding this is discussed below.

The Remedial Project Manager noticed no apparent impacts from this Site on the Deepavaal Brook and the Passaic River. However, the Passaic River is a complex water body that is subject to numerous physical and environmental stresses. An evaluation of these conditions is beyond the requirements of CERCLA for this Site. However, it is recognized that federal and/or State authorities could conduct detailed environmental studies of the Passaic River and its tributaries in the future.

In 2002, the Caldwell Trucking PRP Group sampled the unnamed tributary and Deepavaal Brook and performed a Risk Assessment based on the resulting data. The Caldwell Trucking PRP Group risk calculations indicate that the excess cancer risk for a child wading in the unnamed tributary is $7x10^{-8}$, which is below EPA acceptable risk range of $1x10^{-4}$ to $1x10^{-6}$, and the Hazard Index for non-carcinogenic effects is 0.04, which is below the threshold of 1. Risks for an adult are lower. For Deepavaal Brook, the Caldwell Trucking PRP Group risk assessment calculations indicate for swimming exposures an excess cancer risk of $1x10^{-9}$, and a hazard index of 0.004 for a child.

For the Passaic River, EPA used modeled concentrations in its 1989 risk assessment. In its risk assessment, the Caldwell Trucking PRP Group used actual 1993 and 1994 data measured in the Passaic River just downstream of the confluence with the Deepavaal Brook. The Caldwell Trucking PRP Group's calculated risk for potable water indicates a hazard index of 0.2 and an excess cancer risk of $1x10^{-6}$, both within EPA's acceptable risk range.

The PRP risk calculations indicate that the actions taken by the Caldwell Trucking PRP Group are currently protective for surface water. EPA believes this information is reliable and that these actions appear to be protective for surface water.

EPA's 1989 risk assessment did not consider the possibility of inhalation exposures to VOCs volatilizing from shallow groundwater into basements. Locations where this pathway may exist involve areas where the Clay Layer is absent. These locations include: (1) the area of the seep, (2) around monitoring well MW-A4, and (3) around monitoring wells MW-BL1 and MW-BL2. Areas (1) and (2) are within residential areas, and area (3) is located east of Passaic Avenue between O'Connor Drive and Sherwood Lane in a commercial/industrial area. Groundwater is located about 8 feet below ground level at MW-A4, and 10 feet below ground level at well MW-BL1. Current groundwater concentrations (December 2001) at MW-A4 include 4,000 µg/l of TCE, 3,900 µg/l of cis-1,2 dichloroethlene and 840 µg/l of 1,1,1 TCA.

In 1995, the Caldwell Trucking PRP Group took air samples in the basement of a Pier Lane residence (downgradient of the seep). VOCs were not detected in the basement air. In 2000, it also collected air samples in the basement and first floor of another residence on Pier Lane, between the seep and MW-A4. The only detection was for ethanol, a constituent not related to the Caldwell Trucking Site.

Potential areas of concern still exist around areas where the Clay Layer is absent. Elevated VOC concentrations were identified in the shallow groundwater aquifer around monitoring wells MW-A4 and MW-BL1/MW-BL2. Evaluation of this pathway in these areas is appropriate to ensure the protectiveness of the remedy.

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

No.

VII. Recommendations and Follow-Up Actions

Table 2, below, summarizes the recommendations and follow-up actions stemming from this five-year review:

Table 2: Recommendations and Follow-up Actions

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Data	Affects Protectiveness (Y/N)	
					current	future
OU1						
Soil Contamination in Extended North Lagoon Area	Complete soil stabilization activities and restore area	Caldwell Trucking PRP Group	EPA	Summer 2003	N	Y
O& M Plan has not been approved	Prepare and implement O&M Plan	Caldwell Trucking PRP Group	EPA	Summer 2003	N	Y
Future use of Site property could affect remedies	Prepare and place Deed Notice on property	Prepare Deed Notice: Caldwell Trucking PRP Group Place Deed Notice: Site Owner – OKON Corp.	EPA	Fall 2003	N	Y
OU2						
Remaining exposure to surface water from site contaminants not fully evaluated	Re-assess the risks of exposure to the surface waters of the unnamed tributary, Deepavaal Brook and the Passaic River.	EPA	EPA	Summer 2003	N*	Y
Vapor inhalation pathway not fully evaluated	Evaluate risk posed by inhalation of vapor from site related constituents.	Caldwell Trucking PRP Group	EPA	Summer 2003	N*	Y

Institutional control needed for long-term protection of groundwater use	Approve Classification Exemption Area and Well Restriction Area (CEA/WRA)	NJDEP		Summer 2003	N	Y
Non potable private wells could cause improper exposure	Abandon wells	Caldwell Trucking PRP Group	EPA/NJDEP	Fall 2003	N	Y
Potable wells on Carlos Drive could become contaminated	Continue monitoring on a yearly basis	Caldwell Trucking PRP Group	EPA	-	N	Y
Groundwater Remedy not fully completed	Evaluate the results of the PRP pilot test of the bioremediation system and complete review of Caldwell Trucking PRP Group's request to perform focused feasibility study	PRP Group/EPA	EPA	Summer 2003	N	Y

*** Not yet determined. Further evaluations will be conducted. No detrimental exposure of human and environmental receptors to site contaminants have been identified.**

VII. Protectiveness Statement(s)

Protectiveness Statement(s) Developed at the OU level

OU-1

A security fence restricts access to the Site property. Therefore, the Site does not pose a threat to human health in the short- term. Final restoration of the Site property needs to be completed. The Caldwell Trucking PRP Group plans to complete the final restoration of the site including environmentally impacted areas after remediation of the Extended North Lagoon Area. When these remedial efforts are completed, the Site property will be protective of human health and the environment. A deed notice will provide future protection of the source remedy and prevent improper use of the property.

OU-2

While groundwater in the area is not being used as a drinking water supply, the establishment of a Classification Exemption Area and Well Restriction Area will provide additional protection. Site impacted groundwater, surface water, and sediments are protective of human health and the environment in the short-term, as a result of interim measures. EPA is currently evaluating the findings of the Caldwell Trucking PRP Group's risk assessment, the potential VOC contamination in the basements where contamination in the shallow A Zone aquifer is present, and the Caldwell Trucking PRP Group's bioremediation pilot test. Following these evaluations, EPA will decide if further adjustments or modifications are appropriate to address long-term risks.

VIII. Next Review

The next five-year review should be completed before September 2007.

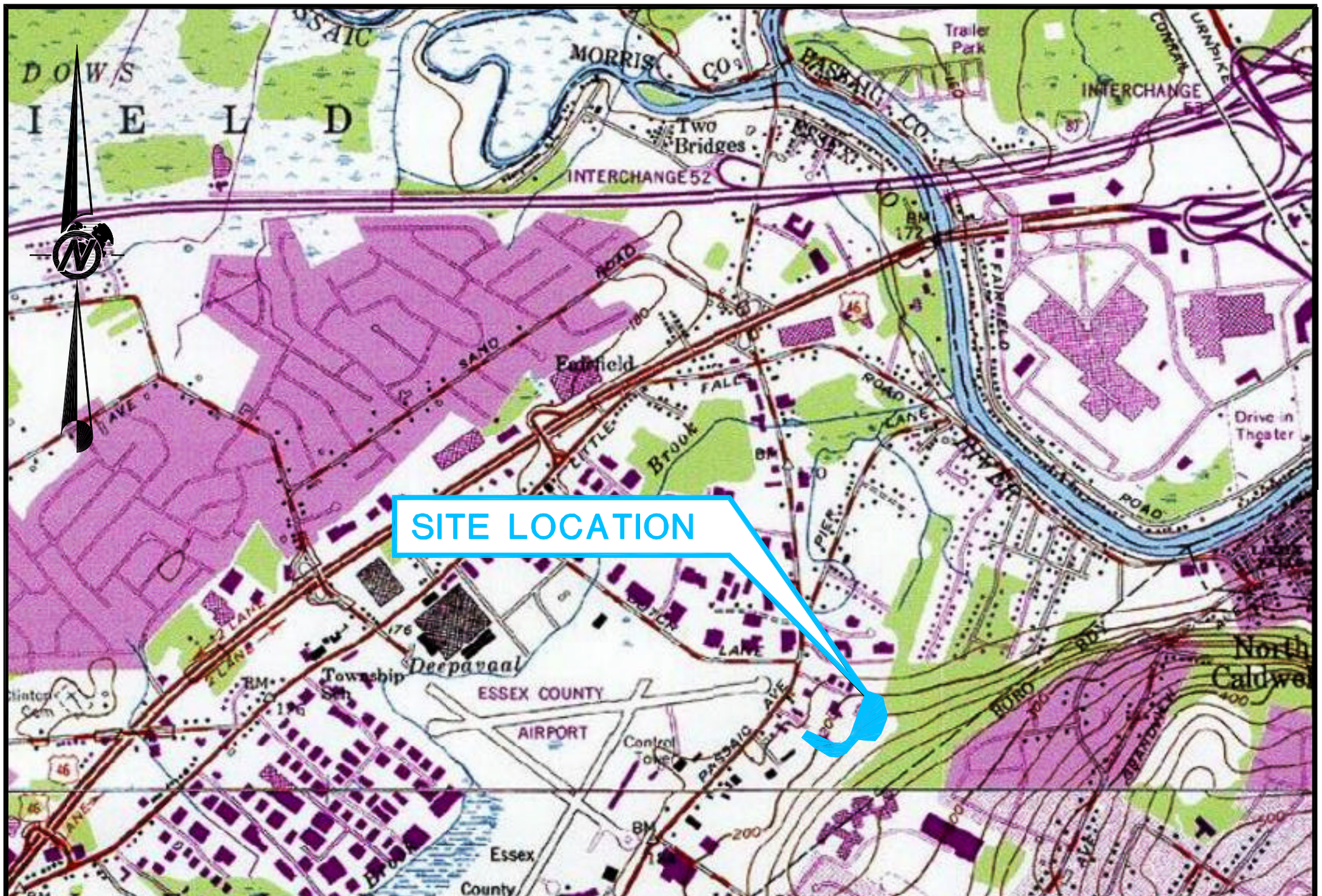
Approved by:

George Pavlou, Director
Emergency and Remedial Response Division

9/24/02
Date

Table 3: Documents, Data, and Information Used in Completing Five-Year Review
• Remedial Investigation Report, NUS Corp. 1986
• Feasibility Study, NUS Corp., 1986
• Caldwell Trucking OU1 Record of Decision, EPA, September 1986
• Remedial Investigation Report for Off-Site Area, Ebasco, 1989
• Feasibility Study, Ebasco, 1989
• Caldwell Trucking OU2 Record of Decision, EPA, September 1989
• Explanation of Significant Differences, EPA, May 1991
• Explanation of Significant Differences, EPA, February 1993
• Explanation of Significant Differences, EPA, September 1993
• Unilateral Administrative Order, EPA, April 1993
• Unilateral Administrative Order, EPA, July 1993
• Consent Decree, EPA, NJDEP, Dept. of Interior and Caldwell Trucking PRP Group, November 1994
• Off-Site Groundwater Remediation Pre-Design Investigation Report, Eckenfelder, January 1995
• Focused Feasibility Study, Blasland, Bouck & Lee, Inc., October 1994
• Record of Decision Amendment, EPA, February 1995
• Remedial Action Completion and Certification Report for Operable Unit No. 1, Caldwell Trucking PRP Group, April 1999
• Source Area New Monitoring Wells, Field Investigation and Sampling Data and Updated Site Conceptual Model, Golder Sierra, May 2000
• Report on Final Design for Supplemental Seep Treatment System Above-Ground Iron Reactor and Air Stripper, Golder Sierra, May 2001
• Area-Wide Groundwater Evaluation, Golder Associates, March 2002
• Caldwell Trucking PRP Group Five-Year Evaluation, Caldwell Trucking PPR Group, August 2002

Table 4: Acronyms used in this Document			
1,1,1 TCA	1,1,1 Trichloroethane	RCRA	Resource Conservation and Recovery Act
ARARs	Applicable or Relevant and Appropriate Requirements	RI/FS	Remedial Investigation/Feasibility Study
BBL	Blasland, Bouck & Lee Inc.	ROD	Record of Decision
CEA/WRA	Classification Exception Area/Well Restriction Area	RPM	Remedial Project Manager
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	SARA	Superfund Amendments and Reauthorization Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Act Information System	Site	Caldwell Trucking Co. Superfund Site
CFR	Code of Federal Regulations	SVE	Soil Vapor Extraction
EPA	U.S. Environmental Protection Agency	TCE	Trichloroethylene
ESD	Explanation of Significant Differences	UAO	Unilateral Administrative Order
FFS	Focused Feasibility Study	U.S.C.	United States Code
MCLs	Maximum Contaminant Levels	VOCs	Volatile Organic Compounds
mg/kg	milligrams per kilogram		
µg/l	micrograms per liter		
NJDEP	New Jersey Department of Environmental Protection		
NJPDES	New Jersey Pollution Discharge Elimination System		
NPL	National Priorities List		
O&M	Operation and Maintenance		
OU1	Operable Unit 1		
OU2	Operable Unit 2		
OSWER	Office of Solid Waste and Emergency Response		
PCBs	Polychlorinated Biphenyls		
PRP	Potentially Responsible Party		
RAO	Remedial Action Objective		



REFERENCES

1.) BASE MAP TAKEN FROM U.S.G.S. 7.5 MINUTE QUADRANGLES OF POMPTON PLAINS, NJ AND CALDWELL, NJ.

2000 0 2000

SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

CALDWELL TRUCKING SITE
FIVE YEAR REVIEW
FAIRFIELD, NEW JERSEY

TITLE

SITE LOCATION MAP

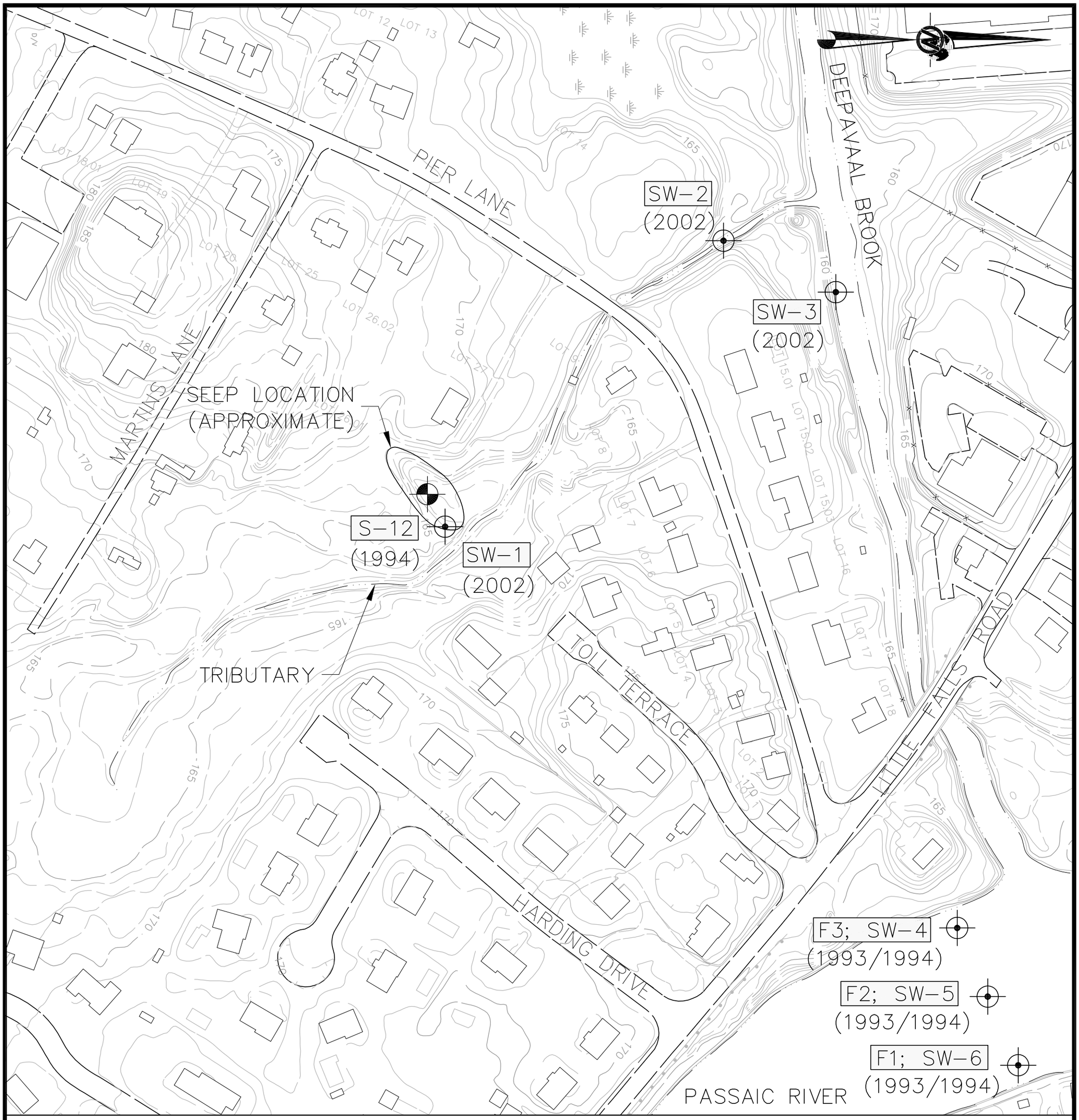
Golder Associates
Philadelphia USA

PROJECT No.	003-6045	
DESIGN	ACK	07/01/02
CADD	AM	07/01/02
CHECK		
REVIEW		

FILE No. 0036045H002
SCALE AS SHOWN REV. 0

Figure 1

Drawing file: 0036045H002.dwg Jul 01, 2002 - 4:30pm



LEGEND

S–12

SEDIMENT SAMPLE ID LOCATION AND MOST RECENT SAMPLE YEAR

SW–3

SURFACE WATER SAMPLE ID LOCATION AND MOST RECENT SAMPLE YEAR

200 0 200

SCALE FEET

NOTE

1.) LOCATIONS ARE APPROXIMATE.

2.) SW–1 IS THE DISCHARGE OF THE SEEP TREATMENT SYSTEM.

REFERENCES

1.) BASE MAP TAKEN FROM DRAWING NO. C001, ENTITLED "SITE PLAN", PROVIDED BY MCLAREN HART.

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

CALDWELL TRUCKING SITE
FIVE YEAR REVIEW
FAIRFIELD, NEW JERSEY

TITLE

SURFACE WATER AND SEDIMENT SAMPLE LOCATIONS

Golder Associates
Philadelphia USA

PROJECT No.		003–6045	FILE No.	0036045H001
DESIGN	ACK	06/27/02	SCALE AS SHOWN	REV. 0
CADD	AM	09/26/02	ATTACHMENT 2	
CHECK				
REVIEW				

Drawing file: 0036045H001.dwg Sep 26, 2002 - 3:20pm