

**Five-Year Review Report
GCL Tie and Treating Site
Village of Sidney
Delaware County, New York**

Prepared by

**U.S. Environmental Protection Agency
Region 2
New York, New York**

September 2003

Five-Year Review Summary Form

SITE IDENTIFICATION

Site name (from WasteLAN): GCL Tie and Treating Site

EPA ID (from Wasteland): NYD981566417

Region: 2

State: NY

City/County: Sidney/Delaware

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: 09/30/2004

Has site been put into reuse? YES NO N/A Continued Use Site

STATUS

Lead agency: EPA State Tribe Other Federal Agency _____

Author name: Monica Baussan and Dean Maraldo

Author title: Remedial Project Manager

Author affiliation: EPA

Review period:** 09/15/1998 to 09/16/2003

Date(s) of site inspection: 09/16/2003

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 Onsite Construction at OU #1

Actual RA Start at OU#_____

Construction Completion

Previous Five-Year Review Report

Other (specify) _____

Triggering action date (from Wasteland): 09/15/1998

Does the report include recommendation(s) and follow-up action(s)? yes no

Is human exposure under control? yes no

Is contaminated groundwater under control? yes no

Does the remedy protect the environment? yes no

* ["OU" refers to operable unit.]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in Wasteland.]

I. Introduction

This five-year review was conducted by Monica Baussan and Dean Maraldo, U.S. Environmental Protection Agency (EPA) Remedial Project Managers (RPMs). This review was conducted pursuant to Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §9601 *et seq.* and 40 CFR 300.430(f)(4)(ii) and in accordance with the Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P (June 2001). The purpose of a five-year review is to assure that implemented remedies protect public health and the environment and that they function as intended by the decision documents. This document will become part of the site file.

This is the first five-year review for the GCL site (the “Site”). The triggering action for this statutory review is the initiation of construction activities on September 15, 1998. The five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

This Site is being addressed in two phases, addressing the source of contamination and the clean up of the groundwater. Operable Unit 1 (OU1), completed in August 2000, consisted of the excavation and on-site treatment of approximately 109,000 tons of soil, sediment, and debris by a thermal desorption process. The Operable Unit 2 (OU2) remedial action consists of the construction of an on-site groundwater treatment facility for the extraction, collection, and on-site treatment of contaminated groundwater. The first phase of construction for the OU2 groundwater remedy began in October 2002 and construction completion is scheduled for fall 2004.

II. Site Chronology

Table 1, below, summarizes Site-related events from discovery to construction completion.

Table 1: Chronology of Site Events	
Event	Date
The Site first came to the attention of the New York State Department of Environmental Conservation (NYSDEC), after one of the pressure vessels used at the GCL facility malfunctioned, causing a release of an estimated 30,000 gallons of creosote.	1986
At the request of NYSDEC, EPA initiates removal action activities including Site stabilization, installation of a chain-link fence, identification and disposal of hazardous wastes, and segregation and staging of approximately 6,000 cubic yards of contaminated soil and wood debris for disposal.	1991
Site placed on National Priorities List	1994

Event	Date
Record of Decision for soil and debris (OU1)	1994
Record of Decision for groundwater (OU2)	1995
EPA Remedial Design for OU1	1997
EPA Remedial Action for OU1 started	1998
EPA Remedial Action for OU1 completed	2000
EPA Remedial Design for OU2	2001
EPA Remedial Action for OU2 started	2002

III. Background

Physical Characteristics

The Site includes approximately 60 acres in an industrial/commercial area of Delaware County, New York. The Site includes two major areas, generally referred to as the "GCL property" and "non-GCL property." The GCL property is bordered on the north by a railroad line. A subsidiary of Mead Corporation, At-A-Glance, which manufactures time management products, and a municipal airport are located to the north of the railroad line. Route 8 and Delaware Avenue generally delineate the eastern and southern borders of the Site, respectively. A drainage ditch (known as Unalam Tributary) runs west to east across the Site and woodland areas exits in the southern portion of the Site. The western portion of the GCL property includes a wetlands area. The Site eventually drains via overland flow to the Susquehanna River, which is located within one mile of the Site. In general, groundwater in the area flows in the north-northwesterly direction, toward the Susquehanna River.

The 26-acre GCL property housed a wood-treating facility called GCL Tie & Treating, and included four structures. The primary building housed the wood pressure treatment operations including two treatment vessels, an office, and a small laboratory. Wood (mostly railroad ties) and creosote were introduced into the vessels which were subsequently pressurized in order to treat the wood. The other three structures housed a sawmill and storage space. The non-GCL property includes two active light manufacturing companies (which did not conduct wood treatment operations) located on a parcel of land adjacent to the GCL property.

The Route 8 Landfill and the Hill Site, are nearby sources that have contributed to the groundwater contamination in the area. The Route 8 Landfill is located approximately 500 feet east of the GCL Site, and the Hill Site is approximately 1,600 feet southeast of the GCL Site.

Land and Resource Use

The GCL property was originally developed as a railroad tie manufacturing and treating facility by the Delaware and Hudson Railroad Company (D&H), in 1940. Railcon Wood Products/ Railcon Materials, Inc., acquired the property in 1979 and sold it to GCL Tie and Treating in 1983. The owners filed for bankruptcy in 1987 and abandoned the property in 1988.

The GCL Site is located in a light industrial/commercial zone. Approximately 1,100 people are employed in a nearby industrial area. About 5,000 people live within 2 miles of the Site and depend on groundwater as their potable water supply. The nearest residential well is within 0.5 mile of the Site. Two municipal wells, which supply the Village of Sidney with potable water, are located within 1.25 miles of the Site. A shopping plaza consisting of fast-food restaurants and several stores is located approximately 300 feet south of the Site. Other facilities (i.e., a hospital, public schools, senior citizen housing, and child care centers) are located within 2 miles of the Site.

Geology/Hydrogeology

The GCL Site is located in the Appalachian Plateau Geomorphic Province of south central New York. The province is characterized by the forested hills with moderate to steep slopes that are separated by relatively flat and broad valleys. Much of the shape of the unconsolidated deposits are attributable to the Wisconsin ice sheet advance. The Site lies in the broad Susquehanna River Valley, approximately 4,000 ft southeast of the river. The Site and surrounding areas are characterized by Devonian bedrock overlain by glacial till, glaciofluvial, and glaciolacustrine deposits.

The hydrogeology of GCL and surrounding area can be roughly subdivided into bedrock and unconsolidated (glacial deposit) aquifer systems. Within bedrock the groundwater moves primarily through fractures, joints, and bedding planes. The general direction of groundwater flow in the bedrock and intermediate unconsolidated aquifers is to the north-northwest at the GCL Site, in the direction of the Susquehanna River.

History of Contamination

The GCL property was originally developed in 1940 by D&H as a railroad tie & treating (creosote) facility. D&H tie treating operations continued until the late 1950's. GCL eventually purchased the property in 1983 and operated a wood processing and treating facility that cut and treated wood products, predominantly railroad ties, with creosote. Contaminants are known to have been released to the environment through direct contact with the surface soil as a result of open drip-drying of treated products and one documented spill. The practice of drip-drying creosote-soaked lumber with no containment safeguards contaminated the soil in numerous areas on the Site.

In 1986, one of the two treatment vessels inside the GCL process building malfunctioned causing a release of an estimated 30,000 gallons of creosote. GCL representatives excavated the contaminated surface soil and placed it in a mound; no further action was taken at the time.

Initial Response

In September 1990, NYSDEC sent a written request to EPA to conduct a removal assessment at the Site to determine whether it was eligible for a response action pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). EPA initiated a removal action in March 1991, including installation of fencing and warning signs to limit trespassing; removal of 14,159 gallons of creosote from tanks and associated piping; and removal of 500 gallons of creosote from floors, tanks, sumps, and other equipment. The Site was proposed for inclusion on the National Priorities List (NPL) in February 1994 and was added in May 1994.

IV. Remedial Actions

Remedy Selection

The GCL Site was divided into two operable units; OU1, which included the contaminated soils in areas adjacent to the abandoned buildings and the known drip drying areas; and OU2, which addressed Site-wide contaminated groundwater, sediments, and any remaining source areas.

Soils

On September 30, 1994, a Record of Decision (ROD) was signed to address contaminated soils. The ROD called for the implementation of OU1, which called for the excavation and on-site treatment of approximately 36,100 cubic yards (cy) of contaminated soil and debris by a thermal desorption process. The final design was completed in September 1997. The contract for the OU1 remedial action was awarded in March 1998 and construction activities began with mobilization to the Site in September 1998.

The major components of the selected remedy included an expected depth of excavation range from 2 to 8 feet below grade, which included excavation of non-native soils and debris located below the water table which exceed health-based cleanup levels. Another major component was the replacement of the treated soils (mixed with clean fill as necessary) to the excavated areas, followed by grading and revegetating and also the demolition and off-site disposal of existing structures on the GCL property which were either contaminated, structurally unsound, or would interfere with remediation.

Residual waste from the treatment process and excavation activities would be treated on-site and/or disposed of at an off-site facility permitted to handle such wastes. As a contingency, wood debris classified as nonhazardous under the Resource Conservation and Recovery Act (RCRA) could also be disposed of off-site at a facility permitted to burn creosote-treated wood for energy generation. In addition, EPA recommended to local agencies that institutional control measures be undertaken to ensure that land use of the property continues to be industrial/commercial.

Groundwater

On March 1995, a ROD was signed to address the groundwater. The selected remedy included extraction, collection, and on-site treatment of groundwater using carbon adsorption or biological treatment, and discharge of treated groundwater to the surface water. The final remedial design package for the groundwater extraction and treatment system was completed in September 2001. Construction of the portion of the groundwater extraction and treatment system located on the GCL property began during October 2002. The construction of the groundwater extraction wells and associated piping to be located on nearby properties is anticipated to begin in fall 2003.

Remedy Implementation - (OU1) Soils

The remedial design package for soil and sediment excavation and on-site treatment to address the ROD for OU1 was prepared by the United States Army Corps of Engineers (USACE). The contract for the OU1 remedial action was awarded in March 1998 and construction activities began with mobilization to the Site in September 1998. Increased volumes of soil above the original estimate requiring excavation and treatment were identified during activities conducted as part of the OU1 remedial effort. At the completion of OU1 remedial activities in August 2000, approximately 109,000 tons of soil, sediment, and debris were excavated and treated on the Site.

Excavations were backfilled with treated soil and clean soil brought from off-site sources, graded and compacted. These activities included removal of all buildings and soil piles from the surface of the Site. Soils were excavated to depths of up to 20 feet below the surface and thermally treated on the Site in a low temperature thermal desorption unit. In addition, several underground structures were located and removed from the Site.

Operation and Maintenance

No O&M costs are associated with OU1.

V. Progress Since the Last Five-Year Review

This was the first five-year review for the Site.

VI. Five-Year Review Process

Administrative Components

The five-year review team consisted of Monica Baussan (RPM), Dean Maraldo (RPM/Hydrogeologist) and Michael Sivak (Risk Assessor) of EPA.

Community Involvement

The EPA Community Involvement Coordinator for the GCL Site, James Haklar, published a notice in the *Press & Sun-Bulletin*, on August 20, 2003, notifying the community of the initiation of the five-year review

process. The notice indicated that EPA would be conducting a five-year review of the remedy for the Site to ensure that the implemented remedy remains protective of public health and the environment. It was also indicated that once the five-year is completed, the results will be made available in the local Site repository. In addition, the notice included the RPM's address and telephone number for questions related to the five-year review process of the GCL Site.

Document Review

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

Data Review

Initial concentrations of total PAHs in the untreated and stockpiled soil ranged from 54,600 ppm to nondetectable levels. In the worst grids, contamination was in excess of 250,000 ppm. Upon completion of the land treatment, surface soils down to 8 feet below grade were treated to the ROD cleanup levels presented in Table 3. In general, the perimeter of the excavation area was defined by an active railroad line to the north, and wetlands to the west and south. In the northern and most heavily contaminated areas of the Site, subsurface soil remediation was conducted to depths approaching 20 feet below grade.

The contractors conducted sampling and analysis on the soils on a daily basis. Soil was tested at 500 cy intervals throughout the excavation process. Sidewall samples were performed at 100 foot intervals, and excavation base samples at 2,500 square foot intervals. In addition, the USACE independent laboratory performed quality assurance testing of the samples of treated soil. The USACE laboratory confirmed the treatment goals were obtained consistently throughout the project.

The facility north of the Site reported experiencing nuisance odors occasionally when contaminated soils were stockpiled during the summer. In response, stockpiling was curtailed when Site wind currents were blowing to the north. No further comments were received during the land remediation operation. Water sampling was done in 20,000 gallon batches, and no water was discharged that did not meet the State standards.

Site Inspection

A Site inspection was performed on September 16, 2003. The following parties were in attendance.

Dean Maraldo, EPA Region II, RPM/Hydrogeologist
Michael Sivak, EPA, Region II, Risk Assessor

Interviews

An interview was conducted with Martin Brand, NYSDEC project manager for GCL, on September 8, 2003. No significant problems or concerns regarding the Site were identified during the interview. Several

attempts to contact the adjacent Mead Corporation facility manager were made. Finally, a phone message was left asking the facility manager to contact EPA with any concerns or issues with regard to the GCL Site. To date, no significant problems or concerns were identified by Mead Corporation.

VII. Technical Assessment

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

Based upon the tests and observations, as documented in previous letters and reports, it appears that the remedial design and subsequent remedial action for the GCL Site (OU1), was completed and is functioning as intended in the ROD. The level of remediation conforms with that recommended in the remedial design and remedial action reports, as updated during the remedial action, and has been completed in substantial accordance with performance standards as stipulated in the remedial design.

The excavation and on-site thermal treatment of contaminated soils, and the replacement of treated soils, reduced the concentrations of contaminants in the soils to levels which are protective of human health and the environment to allow for continued industrial/commercial use of the property.

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

There have been no changes in the physical conditions of the Site that would effect the protectiveness of the remedy.

Soil and groundwater use are not expected to change during for the next five years, the period of time considered in this review. The land use considerations and potential exposure pathways considered in the baseline human health risk assessment are still valid. However, since the ROD was signed, several toxicity values have been revised. These changes have resulted in risk-based cleanup levels that are lower than those presented in the ROD. These values are presented in Table 3, along with the risk-based cleanup levels identified in the ROD. The lower cleanup levels will be evaluated by reviewing post-treatment soil sample results to determine if the concentrations pose an unacceptable risk to the populations that have current access or exposure to the Site (i.e., trespassing, remediation workers, etc.), as well as future users. This evaluation will also take into account the fact that the bulk of the Site soil was excavated and treated to below ROD cleanup levels. In general, the only areas where higher levels of contamination may exist, following thermal treatment, are areas where limited access defined the excavation perimeter. These areas include an active railroad line to the north, and wetlands to the west and south.

The evaluation of groundwater focused on two primary exposure pathways, direct ingestion (as a potable water source) and the possibility of vapor intrusion if buildings were to be constructed over the plume. The evaluation of the direct contact pathway showed that all nearby residents are either receiving public water, or have wells that are beyond the contaminated area. Since there are no residential or public supply wells in the contaminated area, there is no exposure. Therefore, the remedy is protective for this exposure pathway.

Soil vapor intrusion was evaluated based on the conservative (healthprotective) assumption that residences are located above the maximum detected concentrations and utilized the health-based screening criteria provided in the draft *Evaluating the Vapor Intrusion into Indoor Air (USEPA 2002)* guidance document. This guidance provides calculations of concentrations in groundwater associated with indoor air concentrations at acceptable levels of cancer risk and noncancer hazard. This review looked at groundwater data collected from the past 5 years, and included data from sampling events from March 1998 and March 2000. As shown in Table 4, only the maximum detected concentrations of cis-1,2-dichloroethene (37 ug/l), 1,1,2,2-tetrachloroethane (36 ug/l), naphthalene (630 ug/l), 1,2,3-trimethylbenzene (120 ug/l), benzene (49 ug/l), and toluene (200 ug/l) exceeded their screening criteria at the most protective screening level of 10^{-6} or a noncancer hazard of 0.1, which is consistent with the screening levels used for the baseline human health risk assessment. This does not indicate that a vapor intrusion problem would occur at the adjacent Mead Corporation facility, or at any future building erected over the plume. This merely indicates that further evaluation would be necessary, including Site-specific considerations such as the location of the existing Mead Corporation facility with respect to the maximum detected concentration, and the subsurface characteristics at the Site.

The most recent groundwater data from March 2000 also identified the presence of a NAPL at MW03S in the shallow overburden. Although the potential for vapor intrusion from NAPL cannot readily be screened, the presence of NAPL associated with creosote in the shallow overburden at a depth of 9' - 19' indicates that the possibility of vapor intrusion should be investigated more comprehensively using Site-specific information.

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

No.

Technical Assessment Summary

According to the data reviewed, the Site inspection, and the interviews, the remedy is functioning as intended by the ROD. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. The land use considerations and potential exposure pathways considered in the baseline human health risk assessment are still valid. However, since the ROD was signed, several toxicity values have been revised. These changes have resulted in risk-based cleanup levels that are lower than those presented in the ROD. The lower risk-based cleanup levels will be evaluated this fall by reviewing post-treatment soil sample results to determine if the concentrations pose an unacceptable risk to the populations that have current access or exposure to the Site (i.e., trespassing, remediation workers, etc.), as well as future users. This evaluation will also take into account the fact that the bulk of the Site soil was excavated and treated to below ROD cleanup levels. The Site is currently fenced or has restricted access. Any changes in use will be known to EPA and will be evaluated before being implemented.

The potential for soil vapor intrusion was evaluated based on groundwater data collected from the past 5 years. The evaluation indicated that further study would be necessary, including Site-specific considerations

such as the location of the existing Mead Corporation facility with respect to the maximum detected concentration, and the subsurface characteristics at the Site. A work plan outlining the steps needed to evaluate the potential for soil vapor intrusion will be developed during the fall of 2003.

The general extent of the contaminated groundwater plume is known. There are no drinking water wells within the plume of contamination and none are expected to be drilled over the next five years. No degradation of wetlands or flora was observed by the RPM during the Site visit.

The final remedy (OU2) needs to be implemented and the full monitoring program put in place. Institutional controls will be needed. These are all part of the ongoing remedial action at this Site.

VIII. Recommendations and Follow-up Actions

The Site has a remedial action and various other ongoing activities. The report includes several suggested activities, including evaluations of revised risk-based cleanup levels and the potential for soil vapor intrusion, which should be included with other ongoing activities. There are no recommended actions or follow-up actions, needed to protect public health and the environment, that result from this review.

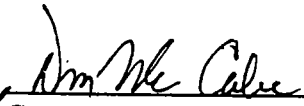
IX. Protectiveness Statement

The OU1 remedy protects human health and the environment, in the interim, by controlling exposure pathways that could result in unacceptable risks. The risk posed by direct contact with soils was addressed by the installation of security fencing and warning signs, excavation and on-site thermal treatment of contaminated soils, and the replacement of treated soils. The remedy reduced the concentrations of contaminants in the soils to levels which were determined to be protective of human health and the environment to allow for continued industrial/commercial use of the property. In addition, interim actions to prevent use of contaminated groundwater are also protective of human health.

X. Next Review

The next five-year review for the GCL Tie and Treating Site should be completed before September 2008, five years from the date of this review.

Approved:



George Pavlou, Director
Emergency and Remedial Response Division

9-30-03
Date

List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COCs	Contaminants of Concern
EPA	(United States) Environmental Protection Agency
MCL	Maximum Contaminant Level
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
OU	Operable Unit
PAH	Polyaromatic hydrocarbons
RA	Remedial Action
RD	Remedial Design
ROD	Record of Decision
RPM	Remedial Project Manager

Table 2: Documents, Data, and Information Reviewed in Completing the Five-year Review

- Initial Remedial Investigation/Feasibility Study Report, Ebasco Services, January 1995.
- Record of Decision (Soil Remediation - OU1), EPA, September 1994.
- Remedial Design for OU1 1997.
- Record of Decision (Groundwater - OU2), EPA, March, 1995.
- Remedial Design for OU2, March 1998.
- Final-Pre Design Investigation Report (OU2), US Army Corps of Eng., August 2002.
- Remedial Action Report (OU1), 2000.
- EPA guidance for conducting five-year reviews and other guidance and regulations to determine if any new applicable or relevant and appropriate requirements relating to the protectiveness of the remedy have been developed since EPA issued the RODs.

Table 3: Comparison of Risk-Based Soil Cleanup Levels in the 1994 ROD with Recommended Risk-Based Cleanup Levels:

Contaminant	Soil Cleanup Level identified in the 1994 ROD (ppm)	Recommended Soil Cleanup Level (ppm)
Benz[a]anthracene	78	2.1
Benzo[b]fluoranthene	78	2.1
Benzo[k]fluoranthene	78	21
Benzo[a]pyrene	8	0.21
Dibenz[ah]anthracene	8	0.21
Indeno[1,2,3-cd]pyrene	78	2.1
Total PAHs	500	Not Applicable

Table 4: Comparison of Maximum Detected Concentrations with Risk-based Concentrations to Evaluate the Potential for Vapor Intrusion: Shallow Overburden

Parameter	Vapor Intrusion Screening Concentration (ppb) Cancer risk = E-06; HQ = 0.1	Maximum Detected Concentration (ug/l)	Location/Depth (Date)
1,1-Dichloroethane	220	9	MW01S/6' - 16' (03/08/00)
1,1-Dichloroethene	19	7	MW01S/6' - 16' (03/08/00)
cis-1,2-Dichloroethene	21	37	MW01S/6' - 16' (03/08/00)
1,1,2,2-Tetrachloroethane	3	36	MW01S/6' - 16' (03/08/00)
Trichloroethene	0.053	27	MW01S/6' - 16' (03/08/00)
Naphthalene	15	630	MW06S/8' - 18' (03/17/98)
Fluorene	NA	52	MW06S/8' - 18' (03/17/98)
Phenanthrene	NA	70	MW06S/8' - 18' (03/17/98)
Fluoranthene	NA	0.24	MW01S/6' - 16' (03/08/00)
Acenaphthene	NA	150	MW06S/8' - 18' (03/17/98)
Acetone	22000	44	MW01S/6' - 16' (03/08/00)
2-Butanone	NA	3	MW01S/6' - 16' (03/08/00)
Isopropylbenzene	NA	11	MW01S/6' - 16' (03/08/00)
N-Propylbenzene	32	5	MW01S/6' - 16' (03/08/00)
Styrene	890	150	MW01S/6' - 16' (03/08/00)
1,3,5-Trimethylbenzene	25	120	MW01S/6' - 16' (03/08/00)
Benzene	1.4	49	MW01S/6' - 16' (03/08/00)
Toluene	150	200	MW01S/6' - 16' (03/08/00)
Ethylbenzene	700	210	MW01S/6' - 16' (03/08/00)
m & p Xylenes	2300	840	MW03S/9' - 19' (03/08/00)

NA = No screening value is available

Bold indicates that the maximum detected concentration exceeds its screening value.