

GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

Project Name	<u>VINELAND CHEMICAL</u>	ProjectID: 02-12
Last Updated:	07/18/01	
City:	Vineland	
County:	Cumberland	
State:	NJ	
Country:	USA	
Bodies of Water:	Upstream Blackwater Branch tributary (upstream of Mill Road Bridge); Maurice River; Union Lake	
US EPA Region:	II	
Status (Active, Complete, or Monitoring Only):	Active	
Date On NPL:	1984	
ROD/ESD Date:	1989 (all four OUs)	
Operable Unit:	OU-3 (Blackwater Branch tributary and Maurice River); OU-4 (Union Lake)	
Areas of Concern (length or acres):	8.5 miles (Blackwater Branch tributary and Maurice River); 870 acres (Union Lake)	
Other Characteristics of Water Body:	The Blackwater Branch is immediately north of the plant site and flows east to west and discharges into the Maurice River approximately 1.5 river miles downstream from the plant. The Upper Maurice River flows approximately 7 river miles downstream into Union Lake, which is approximately 2 miles long. The Maurice River then flows approximately 25 river miles downstream from the lake into the Delaware Bay.	
Contaminants of Concern:	arsenic	
Source of Contamination:	Uncontrolled runoff from herbicide waste by-product salts, historically stored onsite in open piles and in unlined lagoons.	
Contaminated Area Physical Characteristics:	Arsenic levels in sediments and floodplain soils of the Blackwater Branch tributary have been measured as high as 6,500 ppm, with average levels being 1,000 - 3,000 ppm. Arsenic contamination has been detected in surface waters and sediments as far as 36 miles downstream from the plant.	
Type of Regulatory Action:	Superfund. Final.	
Overall Status Summary:	<p>Design of source control in the form of a 2 million gallon-per-day groundwater pump and treat system was completed in late 1996 (OU-2); the contract for pump and treat was awarded in September 1997 and the system began operation in August 2000. Remediation of OU-3 is to begin by isolating portions of the upstream Blackwater Branch tributary (upstream of Mill Road Bridge) and excavating contaminated sediments and floodplain soils. As of August 1999, the remedial design was essentially complete and IT Corporation was awarded the contract to perform the remediation of the Blackwater Branch tributary. Sediment removal was originally anticipated to begin in early Spring 2000. Targeted sediment volume was 70,000 cy. Removed sediments will be washed ex-situ and the resultant clean sediments will be deposited onsite and the contaminated residue will be disposed offsite. The remedial action is scheduled to take 18 months. Following completion of the Blackwater Branch tributary, the Maurice River will be allowed to undergo 3 years of natural river flushing. Remaining high levels of arsenic in the river will be addressed at that time, followed by an evaluation and recommendation of remedial actions for Union Lake.</p> <p>As of June 2000, the project was on hold due to higher than anticipated final design costs for sediment/soil washing operations. EPA is re-evaluating material handling options. The Corps</p>	

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of Engineers was meeting with EPA in an attempt to resolve outstanding issues.

As of June 2001, EPA is working on selecting and finalizing plans with a removal contractor for excavation of on-site arsenic contaminated soils (OU-1). EPA is anticipating that soil removal can begin by the end of Summer 2001 -- this work is estimated to take 18 months. Blackwater Branch tributary sediments will be addressed following completion of on-site soil remediation (start in 2003 at earliest).

Sediment volumes targeted for removal in the tributary, river, and lake now total 151,650 cy, plus 56,200 cy of floodplain soils.

Remedial Action Planned: ☒

Risk Assessment: ☒

Remedial Action Implemented: ☐

Status of Dredging ☐

PRPs: ☒

Contacts: ☒

References: ☒

Modeling: ☐

Fishing Advisory: ☐

Key Conditions: extended (> 1 mile) river, particle separation/soil washing

REMEDIAL ACTION PLANNED

Project Name	<u>VINELAND CHEMICAL</u>	ProjectID: 02-12
Last Updated:	01/18/02	
Target Sediment Cleanup Standards (TSCS):	120 ppm arsenic (Blackwater Branch and Maurice River sediments); in Union Lake, arsenic levels to 20 ppm in high access areas (public and residential) and to 120 ppm in low access areas.	
How TSCS Established:	Corresponds to a human health risk of 1×10^{-5} .	
Target Bank and Floodplain Cleanup Levels (if applicable):	20 ppm (due to human exposure)	
Other Target:		
Environmental Sample Data References:	<ul style="list-style-type: none">• Sediment:• Water:• Fish:	
Estimated Target Volume:	OU-3 (Blackwater Branch and Maurice River): sediment: 21,000 cy; floodplain soil: 56,200 cy. OU-4 (Union Lake): sediment: 34,000 cy (high access areas) and 96,650 cy (low access areas).	
Planned Disposal Method:	Ex-situ washing to < 20 ppm arsenic followed by deposition on-site.	
Estimated Calendar Time to Implement Remedy:	Was originally to begin in early 2000 and continue thru late 2001; currently not expected to begin until 2003 at the earliest.	
Estimated Time to Implement Remedy:	18 months	
Estimated Cost to Implement Remedy:	OU-3: \$14.1 million (net present worth); OU-4: \$12.9 million (net present worth)	
Stated Remedial Action Objectives (and Source):	Source: ROD, Sept. 28, 1989 (Reference: A-139): “Operable Unit Three addresses the river areas sediments. The primary objective is to minimize public exposure, either through containment, removal, or institutional controls, for those areas with unacceptably high sediment arsenic concentrations, such as the exposed former sediments in the Blackwater Branch floodplain.” “Operable Unit Four addresses the sediments in Union Lake. The primary objective is to reduce potential human health risks by minimizing public exposure to sediments with unacceptably high arsenic concentrations, either through removal, containment, or institutional controls.	
Measures of Success to be Used:		
Planned Monitoring and Restoration:	No restoration activities are planned for in-water sediment removal. Removed floodplain soils will be treated by extraction with water and redeposited in the floodplain.	

REMEDIAL ACTION PLANNED

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**Agency Position on Sediment
Removal (and Source):**

Source: ROD, Sept. 28, 1989 (Reference A-139):

“Remedial action on the exposed Blackwater Branch floodplain sediment will begin soon after arsenic flow in the groundwater to the Blackwater Branch is stopped . . . At about the same time, approximately 6,400 cubic yards of contaminated submerged sediments in the Blackwater Branch adjacent to and downstream of the Vineland Chemical plant site will be dredged. Prior to removing any sediments, an environmental assessment of the impact of dredging will be performed and a confirmation that these sediments are a source of contamination for the river system will be made.”

“Contamination in the submerged sediments of the Maurice River is expected to be significantly reduced over time, by the natural scouring and dissolution effects of the river, especially after arsenic flow from the plant site has been stopped. Therefore, remediation of these submerged sediments will occur, as necessary, beginning no sooner than three years after the arsenic flow from the plant site has stopped . . . Similar to the Blackwater Branch, dredging the Maurice River will be subject to an environmental assessment of its effect on the ecology.”

“Remediation of Union Lake sediments will involve removing sediments from those portions of the lake’s periphery which contain arsenic at concentrations that present an unacceptable exposure risk to the public. Sediments in the upper end of the lake, above the submerged dam, will be removed by dredging and excavation. However, prior to dredging any sediments, an environmental assessment of the impact of removal will be performed. Sediments in the remainder of the lake, below the submerged dam, will be excavated after lowering the water level.”

“This is an interim remedy for Union Lake sediments which is protective of the public health while further study is done. The interim remedy will not begin until after the submerged river sediments have been remediated (if necessary, and after an assessment of the river’s natural cleansing performance).”

RISK ASSESSMENT

Project Name **VINELAND CHEMICAL**

ProjectID: 02-12

Last Updated: 01/18/02

RA Type: Human Health

RA Status: Complete

RA Objectives:

Company

Performing RA:

RA Reference Report: ROD, Sept. 28, 1989 (Reference A-139)

RA Summary and Conclusions: A semi-quantitative risk analysis was performed for the Blackwater Branch and Upper Maurice River and a qualitative analysis was performed for the lower Maurice River. The results of these analyses follow:

- “In the Blackwater Branch, the total worst case and most probable carcinogenic risks from arsenic were 5×10^{-3} and 5×10^{-5} , respectively. In the upper Maurice River, the total worst case and most probable carcinogenic risks were 1×10^{-3} and 1×10^{-4} , respectively. Noncarcinogenic risks were generally minor. In all cases, ingestion, either of sediment, water or fish, constituted most of the risks. Dermal contact with the water and inhalation of dried sediments were insignificant.”
- “In the lower Maurice River, it was estimated that none of the exposure pathways posed increased health risks from arsenic. This was based both on differences in exposure pathways between the upper and lower river, and on the generally lower arsenic concentrations in the lower river.”
- “The ingestion of fish from the upper Maurice River posed risks of approximately 1×10^{-4} . However, the actual risks may be much lower than the calculated risks. The form of arsenic in fish is generally non-toxic and is easily excreted by humans. Also, the levels of arsenic found in the samples were within the range of arsenic normally found in fish and shellfish.”
- “An increased health risk from ingesting mercury in fish was calculated. However, the risk was based on estimated mercury concentrations in the biota determined from the mercury concentration in the surface water and the bioconcentration factor. The fish samples were not analyzed for mercury, therefore their actual mercury concentration is unknown.”

Four different lake full/lake drawdown scenarios were evaluated as potential exposure pathways to the arsenic found in the Union Lake media. The results of the analysis of these scenarios follow:

- “The worst case risk from sediments and water was estimated to be 7×10^{-4} under all four lake full/lake drawdown scenarios. The most probable case risk from sediments and water was estimated to be 1×10^{-5} under all four lake full/lake drawdown studies.”
- “The sediment exposure pathways were considered valid only for shallow water areas, less than approximately two and one-half feet deep. At greater depths, it is unlikely that intimate sediment contact could occur that could cause accidental sediment ingestion.”
- “The fish ingestion pathway was evaluated for arsenic as well as for other organics found in the fish. Of the total fish ingestion risk, approximately 86% resulted from the presence of PCBs thought unrelated to the Vineland Chemical Company site. The arsenic risks from fish were somewhat lower than those found in the river areas.”

POTENTIALLY RESPONSIBLE PARTIES

Project Name **VINELAND CHEMICAL**

ProjectID: 02-12

PRP Name: PRP INFORMATION NOT RELEASED

PRPID:

Street Address:

City:

State:

KEY CONTACTS

Project Name **VINELAND CHEMICAL**

ProjectID: 02-12

Last Name: KEY CONTACT INFORMATION NOT RELEASED

Contact ID:

First Name:

Title:

Company:

Address:

City:

State:

Postal Code:

Work Phone # :

Other Phone #:

Fax # :

Email Address:

REFERENCES

Project Name VINELAND CHEMICAL

ProjectID: 02-12

Reference Type: A

ReferenceID: 139

Title: *Superfund Record of Decision: Vineland Chemical, Cumberland County NJ. (EPA Region II) (First Remedial Action)*

Location: AEM

Category: ROD/Proposed Plan/Action Memo/Decision Document

Prepared by/Author: US EPA Region II

**Preparer/Author
Address:**

Prepared For: General Public

Date Published: September 1989

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 166

Title: *EPA National Priorities List: Vineland Chemical Company, Inc.*

Location: AEM

Category: Site Update

Prepared by/Author: US EPA Region II

**Preparer/Author
Address:** http://www.epa.gov/region02/superfun/site_sum/0200209c.htm

Prepared For: General Public

Date Published: June 2, 1997

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 167

Title: *General Site Information (Vineland Chemical Company, Inc.)*

Location: AEM

Category: Site Update

Prepared by/Author: New Jersey Department of Environmental Protection

**Preparer/Author
Address:**

Prepared For: General Public

Date Published: Undated

**Key Words and
Phrases:**

REFERENCES

Project Name VINELAND CHEMICAL

ProjectID: 02-12

Reference Type:

B

ReferenceID: 353

Title:

NPL Site Fact Sheet - Vineland Chemical Company, Inc.

Location:

AEM

Category:

Site Update

Prepared by/Author:

US EPA Region II

**Preparer/Author
Address:**

http://www.epa.gov/r02earth/superfnd/site_sum/0200209c.htm

Prepared For:

General Public

Date Published:

April 1998

**Key Words and
Phrases:**

Reference Type:

B

ReferenceID: 538

Title:

***EPA's Fox Views Contaminated Groundwater Treatment System
In Operation At Vineland Chemical Superfund Site In
Cumberland County***

Location:

AEM

Category:

Site Update

Prepared by/Author:

US EPA Region II

**Preparer/Author
Address:**

290 Broadway
New York, NY 10007-1866

Prepared For:

Distribution

Date Published:

August 16, 2000

**Key Words and
Phrases:**

Reference Type:

B

ReferenceID: 569

Title:

***EPA to Modify Cleanup Plan for Arsenic-Contaminated Soil at
Superfund Site in Vineland, New Jersey***

Location:

AEM

Category:

Site Update

Prepared by/Author:

US EPA Region II

**Preparer/Author
Address:**

Prepared For:

General Public

Date Published:

December 12, 2001

**Key Words and
Phrases:**

REFERENCES

Project Name VINELAND CHEMICAL

ProjectID: 02-12

Reference Type: C

ReferenceID: 95

Title: *Vineland Chemical approaches 65% design.*

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author

Address:

Prepared For: Superfund Week

Date Published: June 17, 1994

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 96

Title: *Bids near for 34M Vineland pump-test*

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author

Address:

Prepared For: Superfund Week

Date Published: January 19, 1996

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 161

Title: *Date set for Vineland p/t bids*

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author

Address:

Prepared For: Superfund Week

Date Published: May 30, 1997

**Key Words and
Phrases:**

REFERENCES

Project Name VINELAND CHEMICAL

ProjectID: 02-12

Reference Type: C

ReferenceID: 237

Title: *Vineland Chemical remedy gets second look*

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author

Address:

Prepared For: Superfund Week

Date Published: April 7, 1995

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 241

Title: *\$343M Vineland pump-treat to Fall bid*

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author

Address:

Prepared For: Superfund Week

Date Published: August 9, 1996

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 242

Title: *CERCLA funds cleared for Vineland g.w. fix*

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author

Address:

Prepared For: Superfund Week

Date Published: October 4, 1996

**Key Words and
Phrases:**

REFERENCES

Project Name VINELAND CHEMICAL

ProjectID: 02-12

Reference Type: C

ReferenceID: 483

Title: *\$14M Dredging Portion of Vineland Cleanup Expected to Start this Year*

Location: AEM

Category: Site Update

Prepared by/Author:

**Preparer/Author
Address:**

Prepared For: Superfund Week

Date Published: June 18, 1999

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 492

Title: *IT Group Snags Millions in Cleanups At Vineland, Bunker Hill, Other Sites*

Location: AEM

Category: Site Update

Prepared by/Author:

**Preparer/Author
Address:**

Prepared For: Superfund Week

Date Published: September 3, 1999

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 516

Title: *N.J.: Soil Washed at Source Control*

Location: AEM

Category: Site Update

Prepared by/Author:

**Preparer/Author
Address:**

Prepared For: Hazardous Waste/Superfund Week

Date Published: September 3, 2001

**Key Words and
Phrases:**

REFERENCES

Project Name VINELAND CHEMICAL

ProjectID: 02-12

Reference Type: C

ReferenceID: 726

Title: **Region 2 Administrator, Congressmen Get Close-Up View of Superfund**

Location: AEM

Category: Site Update

Prepared by/Author:

**Preparer/Author
Address:**

Prepared For: Superfund Week

Date Published: September 15, 2000

**Key Words and
Phrases:**

Reference Type: K

ReferenceID: 27

Title: **Project Photos**

Location: AEM

Category: Miscellaneous

Prepared by/Author: Severson

**Preparer/Author
Address:**

Prepared For: Distribution

Date Published: Undated

**Key Words and
Phrases:**

Reference Type: L

ReferenceID: 7

Title: **Memo re: Vineland Chemical Company**

Location: AEM

Category: Site Update

Prepared by/Author: AEM, Inc.

**Preparer/Author
Address:** Malvern, PA 19355

Prepared For: Internal file

Date Published: August 5, 1997

**Key Words and
Phrases:**

REFERENCES

Project Name **VINELAND CHEMICAL**

ProjectID: 02-12

Reference Type: M

ReferenceID: 32

Title: ***Health Assessment for: Vineland Chemical Company Vineland, New Jersey, Region 2, CERCLIS No. NJD002385664***

Location: AEM

Category: Site Update

Prepared by/Author: Vicki J. Brumback and Robin K. White, Ph.D

Preparer/Author Address: Office of Risk Analysis, Oak Ridge National Laboratory

Prepared For: Agency for Toxic Substance and Disease Registry

Date Published: May 25, 1989

Key Words and Phrases:
