

**THIRD FIVE-YEAR REVIEW REPORT FOR
NASCOLITE CORPORATION SUPERFUND SITE
CUMBERLAND COUNTY, NEW JERSEY**



Prepared by

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

A handwritten signature in black ink, appearing to read "P. Evangelista", is written over a horizontal dashed line.

**Pat Evangelista, Acting Director
Superfund and Emergency Management Division**

A handwritten date "9/25/19" in black ink is written over a horizontal dashed line.

Date

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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
IA	Interagency Agreement
ICs	Institutional Controls
MCL	Maximum Contaminant Limit
MW	Monitoring Well
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NJDEP	New Jersey Department of Environmental Protection
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives
ROD	Record of Decision
RPM	Remedial Project Manager
USACE	United States Army Corps of Engineers
VOC	Volatile Organic Compound

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of remedies in order to determine if the remedies are and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and identify recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the third FYR for the Nascolite Corporation Superfund site. The triggering action for this statutory review is the signing date of the previous FYR report, March 19, 2014. The FYR has been prepared due to the fact that hazardous substances, pollutants or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The site consists of two Operable Units (OUs), which will be addressed in this FYR. OU 1 addresses the contaminated groundwater, and OU 2 addresses other contaminated source areas, i.e., buildings, soil and debris.

The Nascolite Corporation Superfund site FYR was led by Lawrence Granite, the EPA Remedial Project Manager (RPM). Participants included Robert McKnight (Northern New Jersey Remediation Section Chief), Robert Alvey and Rachel Griffiths (Geologists), Natalie Loney (Community Involvement Coordinator (CIC)), Mindy Pensak (Ecological Risk Assessor) and Abbey States (Human Health Risk Assessor) of EPA. EPA notified the Potentially Responsible Party (PRP) Group of the initiation of the FYR on April 6, 2017.

Site Background

The Nascolite Corporation site is located at the western end of Doris Avenue on the municipal boundary of the cities of Millville and Vineland, Cumberland County, New Jersey (see Figure 1). The Maurice River is located approximately one mile to the southwest of the site. The river runs north to south, feeding and draining the man-made Union Lake approximately 1.5 miles west of the Nascolite property, located in Cumberland County.

The underlying geology at the site consists of alternating layers of sand and silt of the Cohansey Formation. The permeable zones include the "Upper Zone" extending to a depth of approximately 25 feet, "Zone A" from approximately 38 to 65 feet deep, and "Zone B" from approximately 80 to 120 feet deep. These permeable zones are separated by finer-grained deposits of silt and clay that restrict, to a degree, the vertical movement of water. Lateral groundwater flow at the site is from north/northeast to south/southwest in all three aquifer zones.

Wetlands are located in the southern portion of the site.

The Nascolite property covers an area of about 17.5 acres. Seven dilapidated structures that were formerly occupied by the Nascolite Corporation were demolished from 1999 to 2000 as part of EPA's remedial action at the site.

Access to the groundwater remediation system constructed at the site is limited by a gated fence. The remediation system includes groundwater extraction wells, underground conveyance piping to a treatment plant building, tanks and groundwater injection wells. In addition, an access road and groundwater monitoring wells are present.

Conrail railroad tracks lie on the site's western border. The area surrounding the site is zoned for both residential and industrial use.

EPA issued an Administrative Determination in June 2011 which documented that certain parcels owned by the Nascolite Corporation were not considered by EPA to be part of the Nascolite Corporation Superfund site. These parcels, which largely consist of forested land, are hydraulically upgradient of the groundwater contaminant plume. Subsequently, a Deed of Conservation Easement (conservation easement) was placed on these portions of the property, as well as a portion of the property that is considered to be part of the Superfund site.

During its operation, the Nascolite Corporation was a manufacturer of polymethyl methacrylate (MMA) sheets, commonly known as acrylic or plexiglass and operated between 1953 and 1980. In its production of MMA, the Nascolite Corporation used both scrap acrylic and liquid MMA monomer. The scrap material was reclaimed through a depolymerization or "cracking" process, which included several distillation steps. Wastewaters from non-contact cooling water and other on-site sources were discharged to a ditch southwest of the plant along the Conrail railroad tracks. Waste residues from the distillation were found in several previously buried tanks in the north plant area during subsequent site investigation. Perforations in one of the tanks excavated indicated the likelihood of liquid waste leaking into the soils.

NJDEP began investigating the site in 1981. Analysis of groundwater samples collected in 1981 and 1983 showed significant concentrations of VOCs. During the 1983 effort, a strong "sweet" odor emanated from one groundwater monitoring well. In addition, the aqueous sample contained a red plastic material which hardened after being extracted from the well. A strong fuel-like odor was evident in other groundwater monitoring wells. NJDEP had identified more than one hundred 55-gallon drums and several buried tanks on the site.

The site was included on the National Priorities List (NPL) on September 21, 1984.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: NASCOLITE CORPORATION		
EPA ID: NJD002362705		
Region: 2	State: NJ	City/County: Cities of Millville and Vineland/Cumberland

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	Has the site achieved construction completion? Yes
REVIEW STATUS	
Lead agency: EPA <i>[If "Other Federal Agency", enter Agency name]:</i>	
Author name (Federal or State Project Manager): Lawrence A. Granite	
Author affiliation: EPA	
Review period: 3/19/2014 - 6/20/2019	
Date of site inspection: 4/17/2019	
Type of review: Statutory	
Review number: 3	
Triggering action date: 3/19/2014	
Due date (five years after triggering action date): 3/19/2019	

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

Following the listing of the site on the NPL in 1983, EPA began a remedial investigation/feasibility study (RI/FS) to determine the nature and extent of contamination at the site and to develop and evaluate remedial alternatives. The RI/FS concluded that the groundwater underlying the site was contaminated, particularly with MMA, benzene, toluene, ethylbenzene and trichloroethene, and there was a potential for the contamination to migrate to downgradient potable wells. In addition, hazardous substances were found in the surface soils, which provided an exposure pathway through dermal contact and incidental ingestion. The primary contaminant of concern in soils was lead. Due to the high concentrations of metals in soils, it was determined that surface soils may pose a risk to burrowing animals.

Response Actions

EPA performed a removal action at the site from November 1987 to March 1988. It included removal of drums and storage tanks containing waste material at the site. EPA's removal action also included soil excavation. Twenty cubic yards (yd³) of MMA-contaminated soil were excavated and 30 yd³ of asbestos insulation were removed from abandoned buildings at the site. The wastes were transported off site for disposal at EPA-approved facilities. Fencing was installed at the site and a plastic tarpaulin was placed over soils contaminated with inorganic compounds.

At the conclusion of the initial RI/FS, both the NJDEP and EPA determined that a remedy could be selected for the contaminated groundwater at the site, but that additional data were necessary to assess contaminated source areas. Therefore, the site was divided into two OUs: OU 1 addressed the contaminated groundwater, and OU 2 addressed other contaminated source areas, such as buildings, soil and debris.

On March 31, 1988, EPA issued a Record of Decision (ROD) for OU 1. The ROD required the following actions:

- provision for an alternate water supply for potentially affected residents; and
- groundwater extraction with on-site treatment and reinjection.

The Remedial Action Objective (RAO) was to control the waste disposal areas and to manage contamination migration.

A supplemental RI/FS was initiated by EPA in March 1988 to identify remedial alternatives for site soils and structures. On-site structures were in a dilapidated condition and portions of them were contaminated with asbestos and asbestos-contaminated materials, which were in a friable state. On June 28, 1991, EPA issued a ROD for OU 2. The major components of the selected remedy for OU 2 were:

- structure demolition including asbestos abatement with appropriate disposal;
- excavation and solidification/stabilization of unsaturated and wetlands soils contaminated above cleanup standards;
- replacement of solidified soils on the site;
- restoration of affected wetlands; and
- appropriate environmental monitoring to ensure the effectiveness of the remedy.

The RAOs were focused on controlling migration of lead contaminated soil, reducing exposure to surficial soils contaminated with lead, and protecting the sensitive environment of the wetlands.

The 1991 ROD called for excavation and solidification/stabilization of unsaturated and wetlands soils contaminated above cleanup standards, with replacement of solidified soils on the site. The ROD anticipated that the majority of site soils would meet regulatory levels after treatment. However, the ROD also anticipated that there would be a volume of wetlands soils that would not be amenable to solidification/stabilization. The ROD stated that this volume would be determined during field activities and that it would be transported for appropriate off-site treatment and disposal. The ROD further stated that localized areas of soil contaminated with organic compounds may be excavated and disposed of off site at an appropriate facility if they were determined to interfere with or be unaffected by the solidification/stabilization process. The ROD indicated that, for cost estimation purposes, 10 percent of the contaminated soils would not be amenable to solidification/stabilization treatment and would have to be disposed of off site.

The 1991 ROD also stated that approximately 8,000 yd³ of soil exceeded the remediation goal for lead of 500 ppm. However, sampling performed in November and December 2000 and in July 2002 indicated that the volume of contaminated soil (lead and other site COCs) at the site was approximately 21,000 yd³ and that it was somewhat more widely distributed than originally anticipated. In addition, the sampling indicated that soils were more significantly contaminated with MMA than previously believed. EPA determined that it would be more economical to treat contaminated soils off site in lieu of incurring costs associated with mobilizing and demobilizing a solidification/stabilization unit at the

site. With no solidified material remaining on site, operation and maintenance (O&M) costs also would not be required and there was no expected need for institutional controls. For these reasons, EPA issued an Explanation of Significant Differences (ESD) in September 2004 to explain a change to the remedy selected in the 1991 ROD. This change was related to that portion of the remedy which addressed the treatment of soil and was the result of information obtained subsequent to the 1991 ROD. The other components of the remedy selected in the 1991 ROD did not change. The major components of the ESD for OU 2 were:

- excavation and solidification/stabilization of unsaturated and wetlands soils contaminated above cleanup standards was changed to excavation of contaminated soils with off-site treatment and/or disposal; and
- the cleanup goal for lead in soils was changed from 500 parts per million (500 ppm) to 400 ppm.

Status of Implementation

OU 1

An alternate water supply, which provides potable water to six residences on Doris Avenue, as per the OU 1 ROD, was constructed in 1989 by two PRPs under an Administrative Order on Consent with EPA.

The design of the groundwater remediation system was initially undertaken and funded by EPA. The design was subsequently completed by the PRPs (the Nascolite PRP Group) under a Unilateral Administrative Order, with EPA oversight. The design of the groundwater remediation system was completed in June 1995. The PRPs began construction of the groundwater remediation system in September 1995 and completed the construction in August 1996. The system included extraction with on-site treatment and reinjection of the treated effluent. The on-site treatment included equalization, filtration, chemical precipitation and air stripping. Operation of the groundwater remediation system was performed by the PRPs. Approximately 966 million gallons of groundwater were treated at the site from 1996 through 2016. The treated groundwater was reinjected back into the aquifer. Operation of the groundwater extraction and treatment system was suspended in September 2016 to allow the Nascolite PRP Group to perform a Monitored Natural Attenuation (MNA) Evaluation. A total of eight rounds of quarterly groundwater sampling were performed by the Nascolite PRP Group between January 31, 2017 and October 5, 2018, to help determine if MNA could be an appropriate remedy.

OU 2

Under an Interagency Agreement (IA) with the U.S. Army Corps of Engineers (USACE), starting in November 1999, seven dilapidated structures were demolished (Phase I of the OU 2 remedial action). This generated approximately 1,256 tons of material which were transported off site for disposal at approved facilities. The work also included asbestos abatement. A final inspection held in May 2000 determined that the work related to the structures had been successfully completed.

In the second phase of the OU 2 remedial action, contaminated soil was excavated and sent off site for treatment and/or disposal. Construction activities began in December 2002 and were completed in September 2003. Additional quantities of contaminated soil containing lead and other site COCs were discovered during construction. A total of approximately 42,000 yd³ of contaminated soil were excavated and transported off site for treatment and/or disposal at approved facilities. The change from the OU 2 ROD's estimate of the volume of lead-contaminated soil that exceeded the remediation goal

(approximately 8,000 yd³) to the actual volume of contaminated soil that was excavated and transported off site for treatment and/or disposal (approximately 42,000 yd³ up from ESD estimate of 21,000 yd³) could be attributed to the change in the cleanup standard for lead from 500 ppm to 400 ppm; the post-ROD supplementary soil sampling performed prior to initiation of the soil cleanup; and rigorous confirmation sampling performed during the remedial action to assure the quality of the cleanup. Site restoration activities were completed in 2003.

In certain areas, excavation could not be performed without compromising the structural integrity of the Conrail railroad tracks. The limits of excavation in these areas were coordinated with Conrail as noted in the 2004 ESD. Contamination levels left do not pose an unacceptable risk under current exposure scenarios. However, the 2004 ESD noted that NJDEP requested the filing of a deed notice to alert future developers of the presence of contaminated material on a small portion of the adjacent Conrail property. It is precautionary should the future use of the property change.

Institutional Controls

A Classification Exception Area (CEA) is a reliable institutional control which minimizes the potential for exposure to contaminated groundwater until the aquifer meets cleanup goals. EPA's remedy for the site does not call for a CEA, however, NJDEP established a CEA at the site in December 2007. The CEA was updated in 2017.

Conrail has agreed in principle to proceed with a deed notice for the contaminated soil which could not be excavated without compromising the structural integrity of the railroad tracks. It is anticipated that the notice will indicate that the affected area is unsuitable for residential use. EPA will draft a deed notice for review by Conrail and NJDEP by September 2020.

Systems Operations/Operation & Maintenance

There is no operation, maintenance or monitoring associated with the soil remedy (OU 2), as contaminated soil was excavated and disposed of off-site.

For OU 1, the groundwater cleanup activities were conducted by the Nascolite PRP Group pursuant to a Consent Decree entered on April 21, 1997. The groundwater remedy included of the extraction of the contaminant plume, treatment of contaminated groundwater on site and reinjection of the treated effluent back into the aquifer. The on-site treatment of groundwater included equalization, filtration, chemical precipitation and air stripping. The groundwater was treated to meet federal and state discharge levels. The cleanup activities included monitoring of the groundwater extraction wells which are addressed in an approved O&M Manual.

Operation of the groundwater extraction and treatment system occurred from August 1996 to September 2016, when it was suspended to allow the Nascolite PRP Group to perform an MNA Evaluation. However, the plant remains operational should it need to be restarted. A total of eight rounds of quarterly groundwater sampling by the Nascolite PRP Group were conducted between January 31, 2017 and October 5, 2018 to help determine if MNA could be an appropriate remedy. The PRPs sent a report to EPA in February 2019. EPA is currently reviewing the report and has sent initial comments to the PRP. A meeting to further discuss the conclusions is planned for October 2019.

Climate Change

Potential site impacts from climate change have been assessed, and the performance of the remedy is currently not at risk due to the expected effects of climate changes in the region and near the site.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the **last** FYR as well as the recommendations from the **last** FYR and the current status of those recommendations.

Table 1: Protectiveness Determinations/Statements from the 2014 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Protective	The groundwater remedy at OU 1 is protective of human health and the environment.
2	Short-term Protective	The soil remedy at OU 2 protects human health and the environment in the short-term because the remedy has been completed and there is no known exposure pathway. In order for the remedy to be protective in the long-term, a deed notice for the contamination on the Conrail property needs to be filed.
Sitewide	Short-term Protective	The remedies at the site protect human health and the environment because the remedies have been completed and there is no known exposure pathway. In order for the remedy to be protective in the long-term, a deed notice for the contamination on the Conrail property needs to be filed.

Table 2: Status of Recommendation from the 2014 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
OU 2	An IC has not yet been implemented	Establish a deed notice with Conrail and NJDEP	Under Preparation	EPA will draft a deed notice	9/30/20 (estimated)

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On October 1, 2018, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at 42 Superfund sites in New York, New Jersey, Puerto Rico and the US Virgin Islands, including the Nascolite Corporation site. The announcement can be found at the following web address: <https://www.epa.gov/aboutepa/fiscal-year-2019-five-year-reviews>.

In addition to this notification, EPA provided a public notice to the city of Millville with a request that the notice be posted to their web site. The purpose of the public notice was to inform the community

that EPA is conducting a FYR to ensure that the remedy implemented at the site remains protective of human health and the environment and is functioning as intended by the decision documents. In addition, the notice included the RPM and CIC email addresses and telephone numbers. The city of Millville posted the notice to their web site in February 2019. The EPA RPM has not been contacted by any members of the community regarding this FYR.

EPA has made site-related documents available to the public in the administrative record repositories maintained at the Millville Public Library and EPA Region 2 office (290 Broadway, New York, New York 10007). Furthermore, when this FYR is completed, copies will be sent to the repositories, as well as posted on the website for the site: <https://www.epa.gov/superfund/nascolite>.

Data Review

During the past 20 years, concentrations of contaminants of concern (COCs) in groundwater have generally decreased, stabilized and/or reached asymptotic levels. As of the October 2018 groundwater sampling event, benzene was the only COC to exceed NJDEP Groundwater Quality Standard (GWQS) of 1 ug/L. Both the maximum concentration and extent of benzene in groundwater have decreased significantly since 1985, when the maximum detection of benzene was 3,790 ug/L at MW-12S. In October 2018, benzene exceeded its GWQS in 7 wells, with a maximum concentrations of 59 ug/L and 42 ug/L observed in the source area wells MW-41S and MW-11D, respectively. Concentrations of ethylbenzene have decreased from a 19,500 ug/L at MW-11S in 1985 to 250 ug/L at MW-11D in October 2018, well below its GWQS of 700 ug/L.

Data collected during the 2017-2018 MNA evaluation indicate that the groundwater contaminant plume mass has decreased across the Upper Zone and Zone A and stable conditions of the plume were observed in Zone B. Benzene concentrations have continued to decrease in MW-41S from a maximum of 120 ug/L in January 2017 to 59 ug/L in October 2018 (Figure 2). Time-series plots of benzene concentrations at all groundwater monitoring wells within each monitoring zone and plume stability analysis based on the comparison of benzene plume mass at the initial, mid-point and final monitoring events across the two-year monitoring period confirm reduction of both concentration and extent of the groundwater plume.

According to historical groundwater data for the site (collected between 1985 and 2016), MMA has not been detected in collected groundwater samples since 2009, with a detected concentration of 2 ug/L.

Historically, vinyl chloride has not been considered a site COC and any detections in the groundwater were low and sporadic. It was detected consistently above its GWQS of 1 ug/L during the 2017-2018 MNA evaluation in source area wells MW-41S (beginning in January 2017) and MW-11D (beginning in October 2017) at concentrations ranging from non-detect to 43 ug/L. Vinyl chloride has been detected above its GWQS at upgradient well MW-12S in the past, and is unrelated to past activities at the site, though the source of vinyl chloride is currently unknown and will continue to be monitored.

Arsenic and iron in groundwater have been detected at concentrations exceeding the GWQS, but they are attributed to naturally occurring groundwater conditions.

The possibility of groundwater contaminants, such as methyl tertiary-butyl ether (MTBE) and benzene, originating from off-site sources unrelated to the Nascolite Corporation site has been noted in previous FYRs. This will be further evaluated. There is evidence of historic contamination in the area

surrounding the site, though the exact sources and magnitude of off-site impacts need further clarification. Despite the possible presence of upgradient/off-site sources of contamination, the data collected during the MNA evaluation indicates that during the suspension of active groundwater remediation, contaminant concentrations generally continue to exhibit decreasing trends and sentinel wells have not shown impacts.

Site Inspection

The groundwater remediation system was automated. Prior to the suspension of operation of the groundwater remediation system in 2016, the PRP Group staffed the groundwater treatment plant at the site five days per week. The PRP Group also monitored the treatment plant every evening, and twice per day on weekends and holidays, via a remote system to verify optimum operation. After the suspension of the groundwater remediation system, site visits have been conducted by the PRP Group contractor. The site visits are conducted on a monthly basis to ensure site security and inspect the overall site conditions. The site is being properly maintained. In addition, an inspection of the site was conducted on April 17, 2019. In attendance were Lawrence Granite, as well as Michael Shatynski, Nicole Bonsteel and Felix Congo (technical representatives of the PRP Group). The purpose of the inspection was to assess the protectiveness of the remedy. No issues impacting current or future protectiveness of the remedy were observed. The site fencing, which includes barbed wire, was in good condition. The Conrail railroad tracks continue to be active. The topography in the area of the site is relatively flat. The only surface drainage feature in the immediate area is a drainage ditch which runs parallel to and on the east side of the railroad tracks. Wetlands are located in the southwestern portion of the site. The site surface drainage generally follows the site topography and drains to the southwest.

V. TECHNICAL ASSESSMENT

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

The OU 1 (groundwater) remedy consisted of an on-site groundwater extraction and treatment system which commenced operation in 1996. The original groundwater extraction system consisted of a well-point system in the Upper Zone, one extraction well in the underlying Zone A and three extraction wells in the deeper Zone B. Since then, the Upper Zone extraction system was discontinued (2003), and two extraction wells in Zone B were removed from service (EW-4 in 2004 and EW-3 in 2006). In 2011, Zone A well EW-1 was replaced with EW-1R, leaving EW-1R and EW-2 as the active extraction wells. Operation of the groundwater extraction and treatment system was suspended in September 2016 to allow the Nascolite PRP Group to perform an MNA Evaluation. In general, concentration trends have been on the decline over the last five years. The plume is delineated, and sentinel wells show no detections of sites COCs.

A total of eight rounds of quarterly groundwater sampling were conducted by the Nascolite PRP Group to help determine if MNA could be an appropriate remedy. EPA is currently reviewing the data and the PRP group continues to monitor the groundwater contaminant plume to assure it is not migrating.

A CEA was implemented for the plume area in 2007 and revised in 2017, and all nearby businesses and residents along Doris Avenue are on a municipal water supply.

OU 2 addressed soils and on-site structures through a 1991 ROD and a 2004 ESD. Remedial actions were completed in 2003, and included demolition of all dilapidated structures, and excavation and off-

site treatment and/or disposal of contaminated soils. The site is also protected by a locked perimeter fence that is in good condition. OU 2 is being assessed in this FYR because a deed notice has yet to be established for contamination that remains on Conrail property due to inaccessibility during excavation. The contaminants found on the Conrail property (antimony, PCBs, BEHP, MMA) are above residential ARARs, but below non-residential standards, except for MMA, which did not have a promulgated cleanup standard (5 ppm was the cleanup level established for the site at the time of the ROD and is considered protective of residential direct contact. MMA was found at concentrations greater than 5 ppm on the Conrail property). The filing of the deed notice would aid in preventing exposure in this area; for example, by helping to prevent future residential use. The remedy continues to prevent direct contact with contaminated groundwater and soils.

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

The exposure assumptions and toxicity values that were used to estimate the potential cancer risks and non-cancer hazards in the risk assessment followed the general risk assessment practice at the time and are still valid. The reference dose and associated screening values for MMA have been updated and increased since the original risk assessments were conducted, which does not affect the remedies' protectiveness. The remedial action objectives remain valid.

The soil cleanup was driven by lead with an original cleanup goal of 500 mg/kg; this was updated to 400 mg/kg, as documented in the ESD, to align with the Integrated Exposure Uptake Biokinetic model targeting a blood lead level (BLL) of 10 ug/dL. Post-excavation sampling confirmed that soils met this criterion; however, EPA issued a memorandum regarding lead in December 2016 (OLEM Directive 9200.2-167) which indicated that a BLL of 10 ug/dL was no longer considered health-protective. Current scientific information indicates that adverse health effects are evident with blood lead levels between 2 and 8 ug/dL. A target blood lead level of 5 ug/dL reflects current scientific literature on lead toxicology and epidemiology that provides evidence that the adverse health effects of lead exposure do not have a threshold. The cleanup goal for lead for the completed remediation areas was 400 mg/kg based on the New Jersey Residential Direct Contact Soil Remediation Standards. However, the current EPA Region 2 target residential area-wide average of 200 mg/kg. Post-excavation and backfill sample results from the 2004 Remedial Action Report for OU 2 were reviewed in comparison to the new regional target. The backfill results and averages for all excavated soil areas were below 200 mg/kg of lead

The 1988 ROD selected extraction and treatment to restore groundwater to drinking water standards. Contaminants included both volatile organic and inorganic compounds such as MMA, benzene, toluene, ethylbenzene, trichloroethene and lead. The cleanup levels remain the more stringent of the federal and state drinking water standards, which are still considered protective. Concentrations of benzene and vinyl chloride continued to exceed NJGWQS during the FYR period, however, there are no potable wells within the groundwater contaminant plume area and institutional controls prevent the installation of additional wells. Monitoring well results suggest the plume has not significantly migrated since the groundwater treatment plant was suspended in 2016. There is no known current exposure to groundwater and the remedy remains protective despite exceedances of drinking water standards.

Soil and groundwater uses are not expected to change during the next FYR period. The potential for vapor intrusion was not included as part of the original risk assessment but was evaluated during the previous FYR period. Sub-slab and ambient air samples were collected in 2009 from an unoccupied

residence on Doris Avenue, located east of the groundwater treatment plant. All detected contaminants in the sub-slab sample were below EPA's residential vapor intrusion screening levels (VISLs) set at a hazard quotient of 1 and a cancer risk of 10^{-6} . Benzene and vinyl chloride were detected in side-gradient shallow groundwater monitoring wells MW-41S and MW-11S (located along the western site boundary) during the FYR period at levels above 10^{-6} residential groundwater screening levels, but below 10^{-4} VISLs. Vinyl chloride is unrelated to past activities at the site and is not considered a COC. There are currently no buildings within 100 feet of these wells; however, the potential for vapor intrusion should be reevaluated if any development of the site is planned in the future.

Due to the limited terrestrial habitat available and the extensive soil excavation conducted and backfill placement, there is no pathway of concern to terrestrial receptors. Therefore, any potential risk from surface soil contaminants to terrestrial receptors has been addressed.

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

At this time there is no information that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations				
OU(s) without Issues/Recommendations Identified in the Five-Year Review:				
OU 1				
Issues and Recommendations Identified in the Five-Year Review:				
OU(s): OU 2	Issue Category: Institutional Controls			
	Issue: An IC has not been implemented for the Conrail property			
	Recommendation: IC needs to be implemented.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	EPA/State/Conrail	EPA	9/30/2020

Although there were no issues related OU1 identified in the FYR, the MNA evaluation is not complete and will need to be addressed in the future.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)		
<i>Operable Unit:</i> OU 1	<i>Protectiveness Determination:</i> Protective	<i>Planned Addendum Completion Date:</i> N/A
<i>Protectiveness Statement:</i> The groundwater remedy at OU 1 is protective of human health and the environment.		

Protectiveness Statement(s)		
<i>Operable Unit:</i> OU 2	<i>Protectiveness Determination:</i> Short-term Protective	<i>Planned Addendum Completion Date:</i> N/A
<i>Protectiveness Statement:</i> The soil remedy at OU 2 protects human health and the environment in the short-term. In order for the remedy to be protective in the long-term, a deed notice for the contamination on the Conrail property needs to be filed.		

Sitewide Protectiveness Statement	
<i>Protectiveness Determination:</i> Short-term Protective	<i>Planned Addendum Completion Date:</i> N/A
<i>Protectiveness Statement:</i> The remedies at the site protect human health and the environment in the short-term. In order for the soil remedy to be protective in the long-term, a deed notice for the contamination on the Conrail property needs to be filed.	

VIII. NEXT REVIEW

The next FYR report for the Nascolite Corporation Superfund Site is required five years from the completion date of this review.

Figure 1:

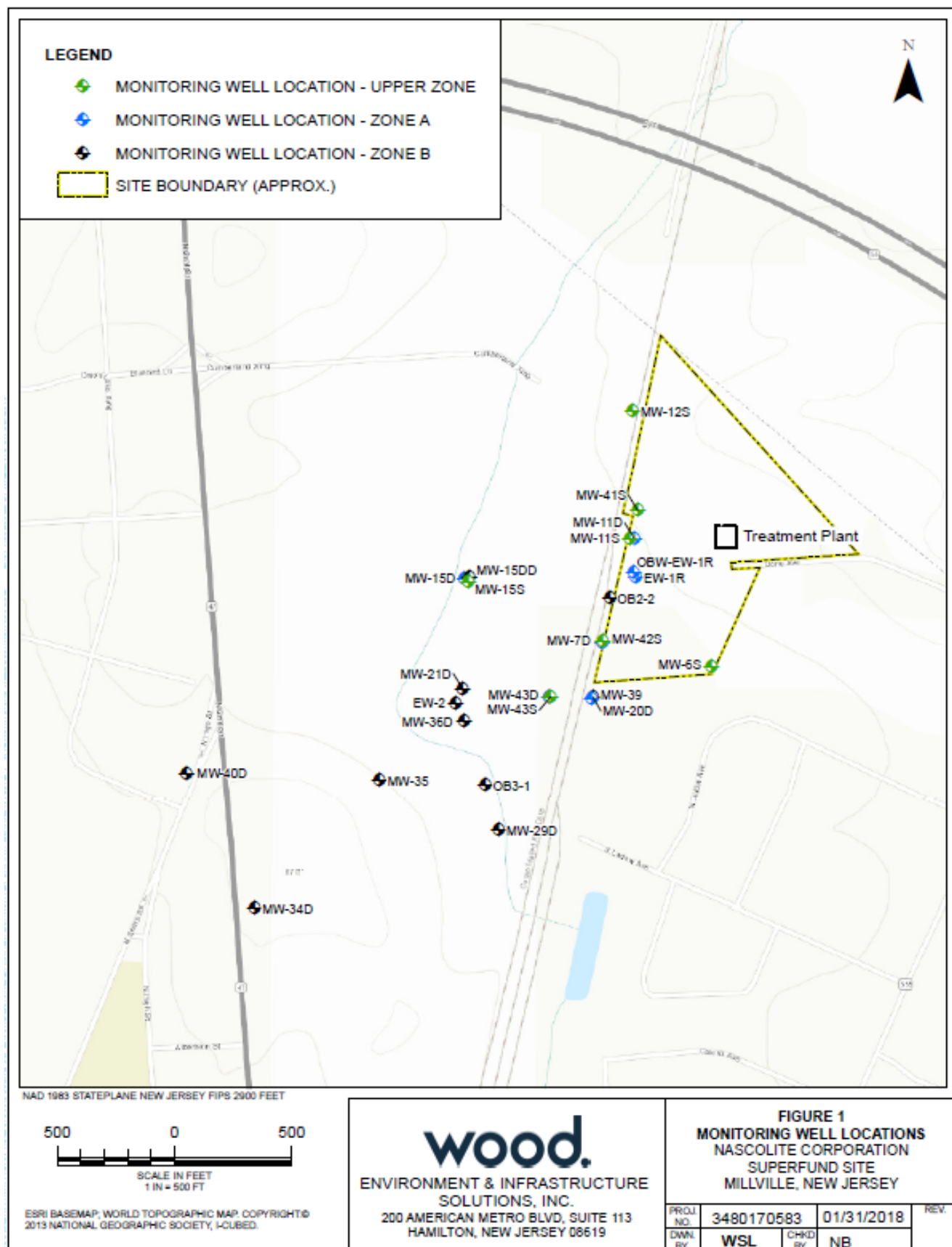


Figure 2:

