FOURTH FIVE-YEAR REVIEW REPORT FOR PULVERIZING SERVICES SITE BURLINGTON COUNTY, NEW JERSEY

Prepared by

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Region 2
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FOR

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Date

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Table of Contents

LIST OF 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
FYR	Five-Year Review
ICs	Institutional Controls
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives
ROD	Record of Decision
RPM	Remedial Project Manager
TBC	To Be Considered

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is 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 document 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 fourth FYR for the Pulverizing Site. The triggering action for this statutory review is the completion date of the previous FYR. 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 (OU). OU1 addresses the remedy for contaminated soil and OU2 addresses groundwater and sediment. OU1 is addressed in this FYR.

The Pulverizing Service Site FYR was led by Shane Nelson, EPA Remedial Project Manager. Participants included Kathryn Flynn, EPA Hydrogeologist; Charles Nace, EPA Human Health Risk Assessor; Michael Clemetson, EPA Ecological Risk Assessor; and Pat Seppi, EPA Community Involvement Coordinator. The Potentially Responsible Party (PRP) was notified of the initiation of the five-year review. The review began on April 18, 2019.

Site Background

Physical Characteristics

The Pulverizing Services site is located on New Albany Road in Moorestown, Burlington County, New Jersey (Figure 1). The 24 acre site is subdivided into three areas designated A, B, and C (Figure 2). Areas A and C are contiguous and separated from Area B by New Albany Road.

Site Geology/Hydrogeology

The site has a shallow unconfined water table aquifer approximately 10 to 20 feet thick separated from the deeper regional aquifer by a low permeability clay layer. The deeper aquifer is the potable drinking water source for Burlington County. All groundwater underlying the site is classified by the State of New Jersey as a Class II Ground Water for Potable Water Supply. The site is flat with no permanent surface water bodies. Runoff drains to a swale in Areas A and C and to a drainage ditch in Area B, where it discharges to the township's sewer system. The southern part of Area B consists of approximately 3.4 acres of wetland and wetland transition area.

Land and Resource Use

Commercial, light industrial, and residential areas surround the site. The site is bounded to the

north by Crider Avenue, across from which there is a manufacturing facility. To the east of the site there are commercial and industrial facilities, and to the west there are commercial, industrial, and residential properties. Railroad tracks on the southern border of the site separate the site from several residences.

History of Contamination

The site is a former pesticide formulating facility that operated from 1935 to 1979. Pesticide formulating operations involved the grinding, micronizing, and blending of imported dry pesticides. According to historical reports, operations were initially limited to formulation of inorganic pesticides such as lead arsenate, calcium arsenate, sulfur, and tetrasodium pyrophosphate. In later years, synthetic organic pesticides such as 4,4'-DDT, aldrin, malathion, dieldrin, lindane, rotenone, and n-methyl carbamate were reportedly formulated. Active operations at the site occurred in Area A. During the 1950s and early 1960s, waste material was reportedly disposed of in several trenches north of the main production buildings.

The New Jersey Department of Environmental Protection (NJDEP) performed a site inspection in 1985 responding to allegations of improper waste disposal. The inspection revealed that waste material remained on site, in and around the buildings, and also appeared to be buried in trenches at the north end of the site. In April 1986, NJDEP determined that the trench locations were contaminated with pesticides.

Initial Response

NJDEP requested that EPA assume the lead agency role for the site and in 1987, EPA collected samples from buildings, air, soil, sediment, and surface water. The investigation confirmed the findings of the previous NJDEP work and further determined that the contamination was found throughout the property. Under the terms of an Administrative Order on Consent (AOC) with EPA in May 1988, PPG Industries, Inc., a former owner/operator of the facility, installed security fencing around the property.

In 1989, another AOC was issued whereby PPG agreed to perform the necessary soil and groundwater investigations at the site. In an additional 1990 AOC, other identified responsible parties agreed to perform a removal action to clean up the material in and around the site production buildings. These potential responsible parties (PRPs) included companies that sent pesticides to the facility for formulation, previous owner/operators, and the current owner of the site.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Pulverizing Services		
EPA ID: NJD980582142		
Region: 2	**State:** NJ	**City/County:** Moorsetown/Burlington

SITE STATUS	
NPL Status: Non-NPL	
Multiple OUs? Yes	**Has the site achieved construction completion?** No

REVIEW STATUS
Lead agency: EPA
Author name (Federal or State Project Manager): Shane Nelson
Author affiliation: EPA
Review period: 4/18/2019 - 12/15/2019
Date of site inspection: 8/6/2019
Type of review: Statutory
Review number: 4
Triggering action date: 1/26/2015
Due date *(five years after triggering action date)*: 1/26/2020

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

During 1990 and 1994-1995, Phase I and Phase II Site Investigations were conducted by PPG. These investigations revealed that the major problem at the site was pesticide contamination in the surface and subsurface soils. The highest concentrations of pesticides were found around the former disposal trench. Based on these results, a baseline Human Health Risk Assessment was conducted. The Assessment concluded that ingestion and inhalation of surface soil and subsurface soils at the site would pose an unacceptable total cancer risk to future site workers. Cleanup goals for aldrin, dieldrin, and 4,4'-DDT were determined based on the 10^{-6} cancer risk. The Ecological Risk Assessment determined that there may have been potential risks to ecological receptors from exposure to 4,4'-DDT, but the potential risks would be minimal.

Response Actions

On July 23, 1999, EPA issued a Decision Document addressing all contaminated surface and subsurface soils for the site. The remedial action objectives for the site were:

- Mitigate potential routes of human health and environmental exposure to contaminated soils;
- Restore the soil at the site to levels which would allow for commercial reuse of the property;
- Treat and/or dispose of soils excavated from off-site properties, and stockpiled in Building 29;

- Remediate all on site soils above the Site Worker Cleanup Goals provided by the Risk Assessment;

- Treat soils above 1,000 ppm total chlorinated pesticides (treatment level). The estimated volume of affected soil' above 1,000 ppm is between 1,300 and 4,000 tons; and

- Comply with ARARs, or provide grounds for invoking a waiver.

The remedy included the following components:

- Excavation and transportation to an off-site disposal facility of approximately 13,100 cubic yards of contaminated soils determined to be above 0.34 parts per million (ppm) of aldrin, 0.36 ppm of dieldrin, or 17.0 ppm of 4,4'-DDT.

- Disposal of the excavated soils that are below the treatment level of 1,000 ppm chlorinated pesticides, and are not hazardous waste pursuant to the Resource Conservation and Recovery Act (RCRA), at an appropriate off-site landfill.

- Treatment, by off-site thermal desorption, of all contaminated soil above the 1,000 ppm treatment level, that is determined to be treatable by thermal desorption (any contaminated soil above the treatment level that cannot be treated by thermal desorption, and any soils that are deemed RCRA hazardous waste, will be sent to an off-site permitted incinerator for treatment).

- Backfilling of the excavated areas with clean fill from an off-site location, covering these areas with topsoil, and seeding.

It was noted that "The preferred remedy would allow for future commercial use of the site. This response measure contemplates institutional controls, such as a deed restriction, to ensure that the future land use remains commercial." The remedy did not require a cap that would restrict site use or require maintenance. A Declaration of Environmental Restrictions (deed restriction) dated October 25, 1999, was discovered during a 2018 title search for the property.

Status of Implementation

Field activities for the OU1 remedy began in April 2000. By May 2007, approximately 113,492 cubic yards of contaminated soil had been removed and transported off-site for treatment. Areas A, B, and C were excavated and contaminated soils were removed from adjacent properties. The depths of excavation varied from the two to 14 feet below ground surface. The site was backfilled to grade with clean soil and restored with vegetation. EPA approved the Remedial Action Report in 2008.

IC Summary Table

Table 1: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	Sitewide	Restrict site to non-residential use	Declaration of Environmental Restrictions, October 25, 1999

Systems Operations/Operation & Maintenance

Operation and maintenance activities were not identified in the OU1 Decision Document. The removal action contractor was responsible for post-construction maintenance at the site for one year after completion of the removal action. Since then, the fence has been inspected following Superstorm Sandy in 2012 and during this FYR.

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 change 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 2: Protectiveness Determinations/Statements from the 2015 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Short-term Protective	The OU1 remedy for soils is protective of human health and the environment in the short term. However, in order for the remedy to be protective in the long term, a deed notice needs to be established for the site.

Table 3: Status of Recommendations from the 2015 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
1	Intitutional Controls	The deed notice should be implemented when property ownership is transferred.	Completed	N/A	10/25/1999

IV. FIVE-YEAR REVIEW PROCESS

Community Notification

On October 1, 2019, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at 43 Superfund sites in New York, New Jersey and Puerto Rico, including the Pulverizing Services site. The announcement can be found at the following web address: https://www.epa.gov/aboutepa/fiscal-year-2020-five-year-reviews

The results of the Pulverizing Services Site review and the report will be made available at the Site information repository at www.epa.gov/superfund/pulverizing-services and the Moorestown Public Library at 111 West Second Street, Moorestown, New Jersey.

Data Review

No new data was available to review for this FYR.

Site Inspection

The inspection of the Site was conducted on August 6, 2019. In attendance were Shane Nelson, EPA RPM; Michael Clemetson, EPA Ecological Risk Assessor; and Rob Fisler and Kate Keen, Woodard & Curran, contractors for PPG. The purpose of the inspection was to assess the protectiveness of the remedy.

The remediated areas are vegetated with a few small trees in Areas A and C and a strip of forested area running along the south edge of the Area B property. The site fence and gates are in good condition. An abandoned building in the northwest corner of the Area B was formerly used as an office at the site. This building continues to deteriorate and may pose a physical hazard to any trespassers. Nothing was noted on the adjacent properties that might change exposure scenarios.

V. TECHNICAL ASSESSMENT

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

Question A Summary:

The selected remedy involved excavation of contaminated soil with disposal or treatment offsite, followed by backfilling with clean fill and topsoil. Contaminated soil has been removed from the site and adjacent properties off site. Post-excavation sampling confirmed that all material above the cleanup levels for aldrin, dieldrin, and 4,4'-DDT was removed. The remedy was executed as intended by the OU1 Decision Document.

Implementation of Institutional Controls and Other Measures

The Decision Document did not include an institutional control as part of the remedy but contemplated a deed notice for the property because the remediation goals did not meet residential standards. A deed notice that restricts use of the site to non-residential use was established on October 25, 1999.

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?

Question B Summary:

The 2015 five-year review found that the exposure assumptions and toxicity values were still valid. During this five-year review, the exposure assumptions and toxicity values were reevaluated, and they are still valid. In addition, the cleanup values that were used and the remedial action objectives still remain valid. In summary, the potential exposure pathways for contaminated soil for on-site and off-site areas have effectively eliminated through the removal of the contaminated media.

Although the ecological risk assessment screening and toxicity values used to support the 1999 Decision Document may not necessarily reflect the current values, the excavation and offsite disposal eliminates any potential risk from surface soil contaminants to terrestrial receptors. Therefore, the remedial action objectives associated with ecological risk used at the time of the remedy are still valid.

At the time of the OU1 Decision Document, the groundwater was not significantly impacted. In addition, it was believed that by meeting the cleanup goals for the site, that the impact to groundwater pathway would not be a concern. In 2008, NJDEP issued revised guidance on *Development of Site-Specific Impact to Ground Water Soil Remediation Standards Using the Soil-Water Partition Equation*. The cleanup levels selected in the OU1 Decision Document are greater than the default Impact to Ground Water Soil-Water Partition Equation Screening Levels for aldrin, dieldrin, and 4,4'-DDT. Some of the post-excavation confirmation samples had concentrations that would exceed the 2008 screening levels. Although not required by the OU1 Decision Document, the groundwater conditions at the site continue to be evaluated to monitor the effect of the soil remedy over time. Two sentinel wells are to be established to further evaluate groundwater conditions at the site.

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

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

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU1, OU2

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)		
Operable Unit: 1	*Protectiveness Determination:* Protective	*Planned Addendum Completion Date:* 10/29/1999
Protectiveness Statement: The OU1 remedy for soils is protective of human health and the environment.		

VIII. NEXT REVIEW

The next FYR report for the Pulverizing Services Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

Document Title, Author	Submittal Date
Decision Document, Pulverizing Services Site; EPA	July 1999
Five-Year Review Report: Pulverizing Services Site; EPA	May 2005
Groundwater/Surface Water Monitoring Plan, Pulverizing Services Site; Cummings/Riter Consultants, Inc.	August 2006
Final Remedial Action Report: Areas A and C, Operable Unit I, Removal of Contaminated Soil, Pulverizing Services Site; Cummings/Riter Consultants, Inc.	March 2008
Final Remedial Action Report: Area B, Operable Unit I, Removal of Contaminated Soil, Pulverizing Services Site; Cummings/Riter Consultants, Inc.	March 2008
Final Remedial Investigation Report, Operable Unit 2, Groundwater, Surface Water, and Sediment, Pulverizing Services Site; Cummings/Riter Consultants, Inc.	June 2013
Five-Year Review Report; EPA	January 2015
Action Memorandum: Approval for a Removal Action at Pulerizing Service Site; EPA	March 2016

APPENDIX B – SITE CHRONOLOGY

Event	Date(s)
International Pulverizing Co.'s manufacturing operations begin	1935
Plant was closed and abandoned	1979
New Jersey Department of Environmental Protection (NJDEP) inspects the site and confirms pesticide contamination in soils and surface water after sampling soils, surface water, and air	1985
NJDEP requests EPA to assume site lead	1987
EPA investigates site and confirms NJDEP's findings and uncovers several subsurface anomalies	1987
Under an Administrative Order on Consent (AOC) PPG places security fencing around property	1988
Under a 2nd AOC, PPG agrees to fully investigate the site for soil and groundwater contamination	1989
Phase I Site Investigation is performed	1989
Under a 3rd AOC, PPG and other responsible parties agree to remediate onsite buildings 5, 6, and 29	1990
Phase II Site Investigation is performed	1994
Removals from adjacent properties	1996, 1998
EPA issues OU1 Decision Document for remediation of contaminated soil	1999
Under a 4th AOC, PPG agrees to perform the 1999 Decision Document Response Action	1999
Response Action Project Plan for site-wide soil removal is approved by EPA	2000
PPG initiates soil remedy with EPA oversight	2001
First Five-Year Review is completed	2005
Work Plan for groundwater RI (Remedial Investigation) is approved by EPA	2006
RI for OU2 groundwater, surface water, and sediment begins	2006
OU1 remedy completed	2007
OUl Remedial Action Report is approved by EPA	2008
EPA approves Final RI for OU2 groundwater, surface water, and sediment	2013
OU2 groundwater monitoring begins	2014
Third Five-Year Review completed	2015

EPA issues Action Memorandum for a non-time critical removal action for groundwater	2016
Under an AOC, PPG agrees to perform the removal action for groundwater	2018

APPENDIX C – FIGURES

Figure 1 – Site Location Map

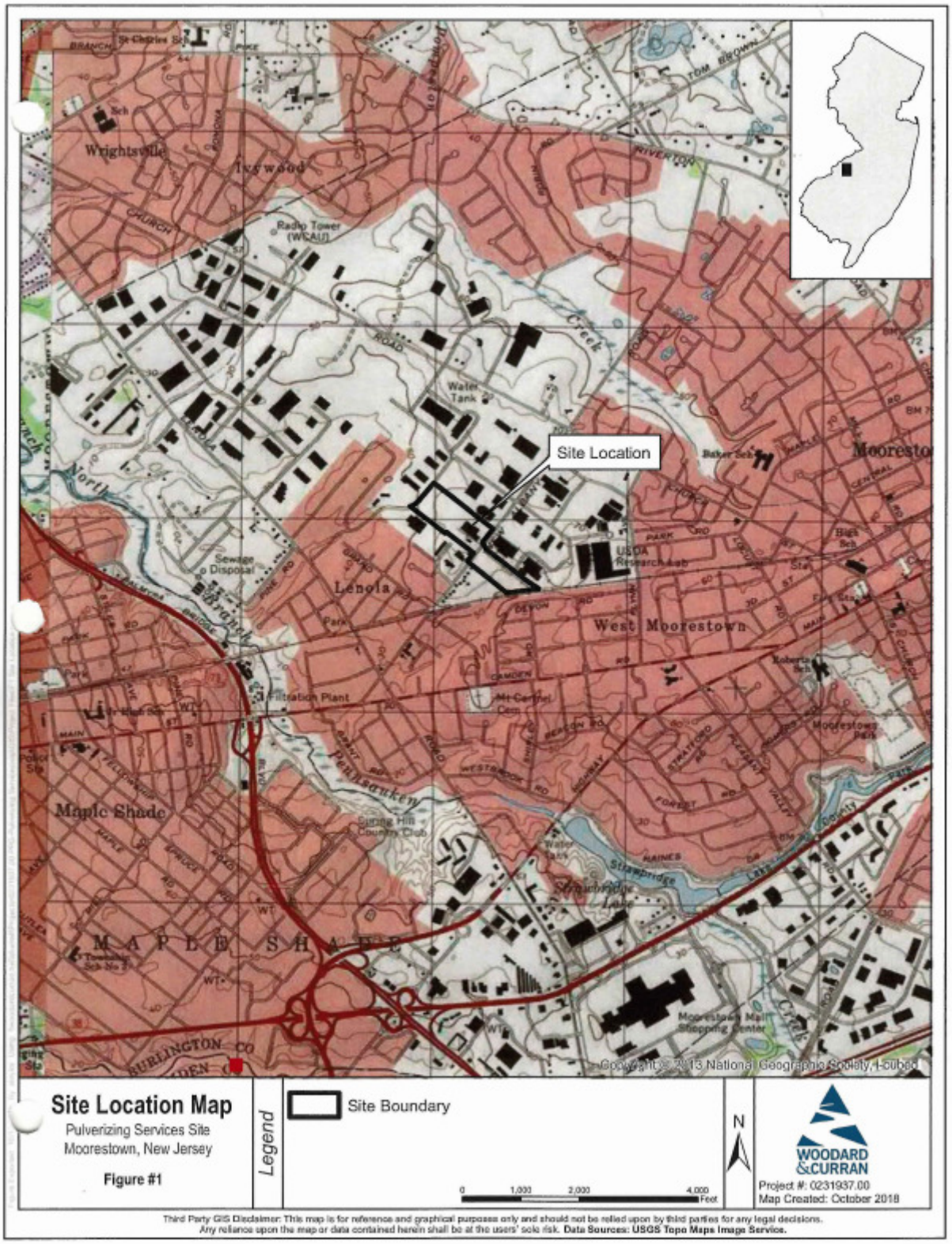

Figure 2 - Site Plan