

**THIRD FIVE-YEAR REVIEW REPORT  
PULVERIZING SERVICES SITE  
BURLINGTON COUNTY, NEW JERSEY**



**Prepared by**

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

**January 2015**

**Approved by:**

A handwritten signature in black ink, appearing to read "Walter E. Mugdan", is written over a horizontal dashed line.

**Walter E. Mugdan, Director  
Emergency and Remedial Response Division**

**Date:**

A handwritten date "JAN. 26, 2015" is written in black ink over a horizontal dashed line.

308605



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## **Executive Summary**

This is the third five-year review for the Pulverizing Services site located in the Township of Moorestown, Burlington County, New Jersey. The purpose of this five-year review is to review information to determine if the remedy is and will continue to be protective of human health and the environment. The triggering action for this statutory five-year review is the February 3, 2010, completion date of the second five-year review.

This five-year review found that the operable unit 1 (OU1) remedy is functioning as intended by the Decision Document, and is protective of human health and the environment.

## Five-Year Review Summary Form

### SITE IDENTIFICATION

<b>Site Name:</b> Pulverizing Services		
<b>EPA ID:</b> NJD980582142		
<b>Region:</b> 2	<b>State:</b> NJ	<b>City/County:</b> Moorestown/Burlington

### SITE STATUS

<b>NPL Status:</b> Non-NPL	
<b>Multiple OUs?</b> Yes	<b>Has the site achieved construction completion?</b> No

### REVIEW STATUS

<b>Lead agency:</b> EPA
<b>Author name (Federal or State Project Manager):</b> Kathryn Flynn
<b>Author affiliation:</b> EPA
<b>Review period:</b> 12/30/2009 to 12/31/2014
<b>Date of site inspection:</b> 11/5/2014
<b>Type of review:</b> Statutory
<b>Review number:</b> 3
<b>Triggering action date:</b> 2/3/2010
<b>Due date (five years after triggering action date):</b> 2/3/2014

<b>OU(s) without Issues/Recommendations Identified in the Five-Year Review:</b>
<i>OU2</i>

### Issues and Recommendations Identified in the Five-Year Review:

<b>OU(s):</b> <i>OU1</i>	<b>Issue Category:</b> Institutional Controls			
	<b>Issue:</b> The deed notice contemplated by the OU1 Decision Document has not been implemented.			
	<b>Recommendation:</b> The deed notice should be implemented when property ownership is transferred.			
<b>Affect Current Protectiveness</b>	<b>Affect Future Protectiveness</b>	<b>Party Responsible</b>	<b>Oversight Party</b>	<b>Milestone Date</b>
No	Yes	Other	EPA	12/31/2015

## Protectiveness Statement

*Operable Unit:*  
OU1

*Protectiveness Determination:*  
Short-term Protective

*Protectiveness Statement:*

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.

## **Introduction**

The purpose of a five-year review 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 and is functioning as intended by the decision documents. The methods, findings, and conclusions of reviews are documented in the five-year review. In addition, five-year review reports identify issues found during the review, if any, and document recommendations to address them.

This is the third five-year review for the Pulverizing Services site (site), located in Moorestown, Burlington, New Jersey. This five-year review was conducted by the United States Environmental Protection Agency (EPA) Remedial Project Manager (RPM) Kathryn Flynn. The review was conducted pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 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). This report will become part of the site file.

The triggering action for this statutory review is the February 3, 2010 second five-year review. A five-year review is required at this site due to the fact that hazardous substances, pollutants or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

There are two operable units at the site. OU1 consists of soils and OU2 consists of groundwater, surface water, and sediment. OU1 is addressed in this five-year review.

This review is condensed because there is no new data to evaluate since the 2010 five-year review.

## **Site Chronology**

See Table 1 for site chronology.

## **Background**

### *Physical Characteristics*

The Pulverizing Services site is located on New Albany Road in Moorestown, Burlington County, New Jersey. The 24 acre site is subdivided into three areas designated A, B, and C. 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. On the south site, there are railroad tracks which divide the site from several residences.

Pulverizing Services, Inc. no longer exists as a corporation, but its former president is still the owner of the site property. EPA anticipates that the site will be developed by the Township of Moorestown and negotiations regarding site reuse will begin in 2015.

### *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.

### *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.

### **Remedial Actions**

#### *Remedy Selection*

On July 23, 1999, EPA issued a Decision Document addressing all contaminated surface and subsurface soils for the site. 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.

#### *Remedy 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.



## *Operation and 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 during the five-year reviews and following Superstorm Sandy in 2012.

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.

### **Progress Since Last Five-Year Review**

The second five-year review for the site was completed in February 2010. It determined that: “The remedy at OUI currently protects human health and the environment in the short term through the removal of pesticide-contaminated soils from the site, thereby eliminating the possibility of exposure to these soils. However, in order for the remedy to be protective in the long term, a deed notice needs to be established for the site.” The deed notice for the site was not established during the third five-year review period.

Groundwater, surface water, and sediment were sampled in 2010 and 2011 for the OU2 Remedial Investigation Report, which EPA approved in 2013. Groundwater monitoring at the site continues according to the 2014 Groundwater Monitoring Plan.

### **Five-Year Review Process**

The five-year review team included Kathryn Flynn (EPA-RPM), Charles Nace (EPA-Human Health Risk Assessor), and Michael Clemetson (EPA-Ecological Risk Assessor). This is a PRP-lead site. No new data was evaluated for this five-year review.

The inspection of the site was conducted on November 5, 2014. In attendance were Kathryn Flynn, EPA RPM, Michael Clemetson, EPA Risk Assessor, Jeffrey Pytlak, Cumings/Riter Consultants, and Tom Ebbert, PPG Industries. Michael Lambert of Cumings/Riter was also on site to conduct groundwater sampling for OU2.

The purpose of the inspection was to assess the protectiveness of the remedy. The remediated areas were inspected, including security fencing, monitoring wells, drainage systems, and surrounding off-site areas. The site fence is in good condition in Areas A and B. In Area C adjacent to Crider Avenue, the fence appeared to be slightly damaged at the corner. The Area B property has an abandoned house that was formerly used as an office at the site, which may pose a physical hazard. Nothing was noted on the adjacent properties that might change exposure scenarios.

### **Technical Assessment**

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

The selected remedy involved excavation of contaminated soil with disposal or treatment off-site, 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.

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. The deed notice will be implemented when the property ownership is transferred.

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

The 2010 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 ROD may not necessarily reflect the current values, the excavation and offsite disposal eliminates any potential risk from surface soil contaminants to terrestrial receptors.

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. The groundwater conditions at the site are currently being evaluated as part of the monitoring program.

*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.

*Technical Assessment Summary*

The OU1 remedy is functioning as intended by the Decision Document.

**Issues, Recommendations and Follow-Up Actions**

<b>OU(s):</b> <i>OU1</i>	<b>Issue Category:</b> Institutional Controls
	<b>Issue:</b> The deed notice contemplated by the OU1 Decision Document has not been implemented.
	<b>Recommendation:</b> The deed notice should be implemented when property

	ownership is transferred.			
<b>Affect Current Protectiveness</b>	<b>Affect Future Protectiveness</b>	<b>Party Responsible</b>	<b>Oversight Party</b>	<b>Milestone Date</b>
No	Yes	Other	EPA	12/31/2015

In addition, the fence on the Crider Avenue side of Area C may need to be replaced if it continues to deteriorate. The former office building in Area B will need to be demolished before the site is redeveloped.

**Protectiveness Statement**

<b>Protectiveness Statement</b>	
<i>Operable Unit:</i> OU1	<i>Protectiveness Determination:</i> Short-term Protective
<i>Protectiveness Statement:</i> 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.	

**Next Review**

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

## Tables

<b>Table 1: Chronology of Site Events</b>	
<b>Event</b>	<b>Date(s)</b>
International Pulverizing Co.'s manufacturing operations began	1935
Plant was shut down and abandoned	1979
New Jersey Department of Environmental Protection (NJDEP) inspected the site and sampled the soils, surface water, and air, confirming pesticide contamination in soils and surface water	1985
NJDEP requests EPA to assume site lead	1987
EPA investigates overall site confirming NJDEP's findings and uncovered several subsurface anomalies	1987
Under an Administrative Order on Consent (AOC) PPG placed 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
An additional removal from an adjacent property is performed in December	1998
EPA issues OU1 Decision Document for contaminated soil remediation	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 performance of 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
OUI remedy completed	2007
OUI 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

<b>Table 2: Remediation Goals for Soil (all concentrations in mg/kg)</b>	
<b>Contaminant of Concern</b>	<b>Remediation Goals</b>
Aldrin	0.34
Dieldrin	0.36
4,4'-DDT	17.0

<b>Table 3: Documents, Data and Information Reviewed in Completing the Five-Year Review</b>	
<b>Document Title, Author</b>	<b>Submittal Date</b>
Decision Document, Pulverizing Services Site, Moorestown, Burlington County, NJ, U.S. Environmental Protection Agency	July 1999
Five-Year Review Report: Pulverizing Services Site, Moorestown Township, Burlington County, NJ, U.S. Environmental Protection Agency	May 2005
Groundwater/Surface Water Monitoring Plan, Pulverizing Services Site, Moorestown, NJ, Cummings/Riter Consultants, Inc.	August 2006
Final Remedial Action Report: Areas A and C, Operable Unit I, Removal of Contaminated Soil, Pulverizing Services Site, Moorestown, Cummings/Riter Consultants, Inc,	March 2008
Final Remedial Action Report: Area B, Operable Unit I, Removal of Contaminated Soil, Pulverizing Services Site, Moorestown, Cummings/Riter Consultants, Inc,	March 2008
Final Remedial Investigation Report, Operable Unit 2, Groundwater, Surface Water, and Sediment, Pulverizing Services Site, Moorestown, New Jersey, Cummings/Riter Consultants, Inc.	June 2013

## **Attachments**

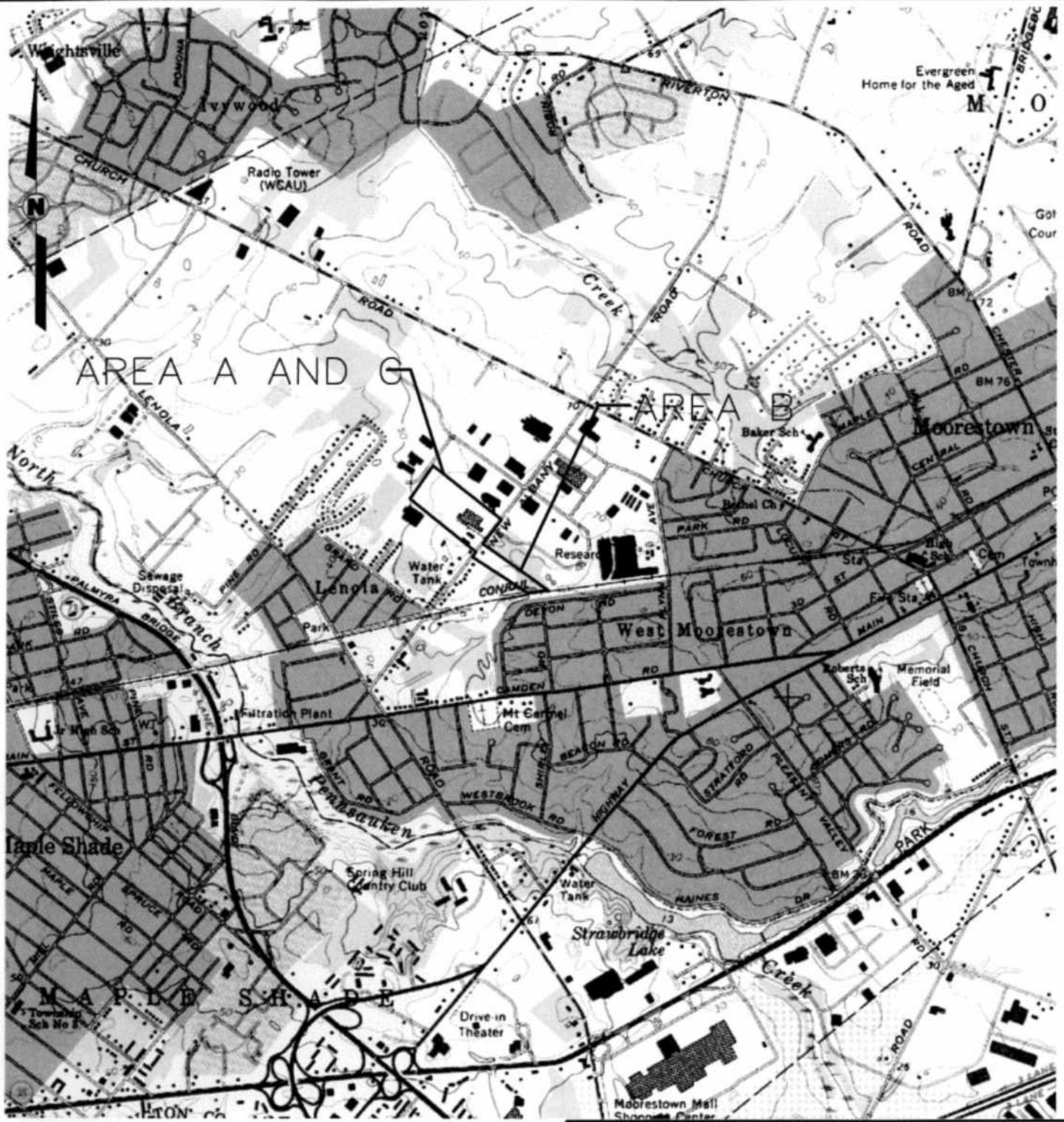
### *Attachment 1: Figures*

Figure 1. Site Location Map  
Figure 2. Site Plan

### *Attachment 2: Site Photos*

Area A  
Area B  
Area C  
Area C from Crider Avenue

DRAWING NUMBER  
02320A4



NEW JERSEY  
QUADRANGLE LOCATION

**REFERENCE:**

7.5-MIN. TOPOGRAPHIC QUADRANGLE;  
MOORESTOWN, NEW JERSEY  
DATED 1967, PHOTOREVISED 1994

FIGURE 1

**SITE LOCATION MAP**

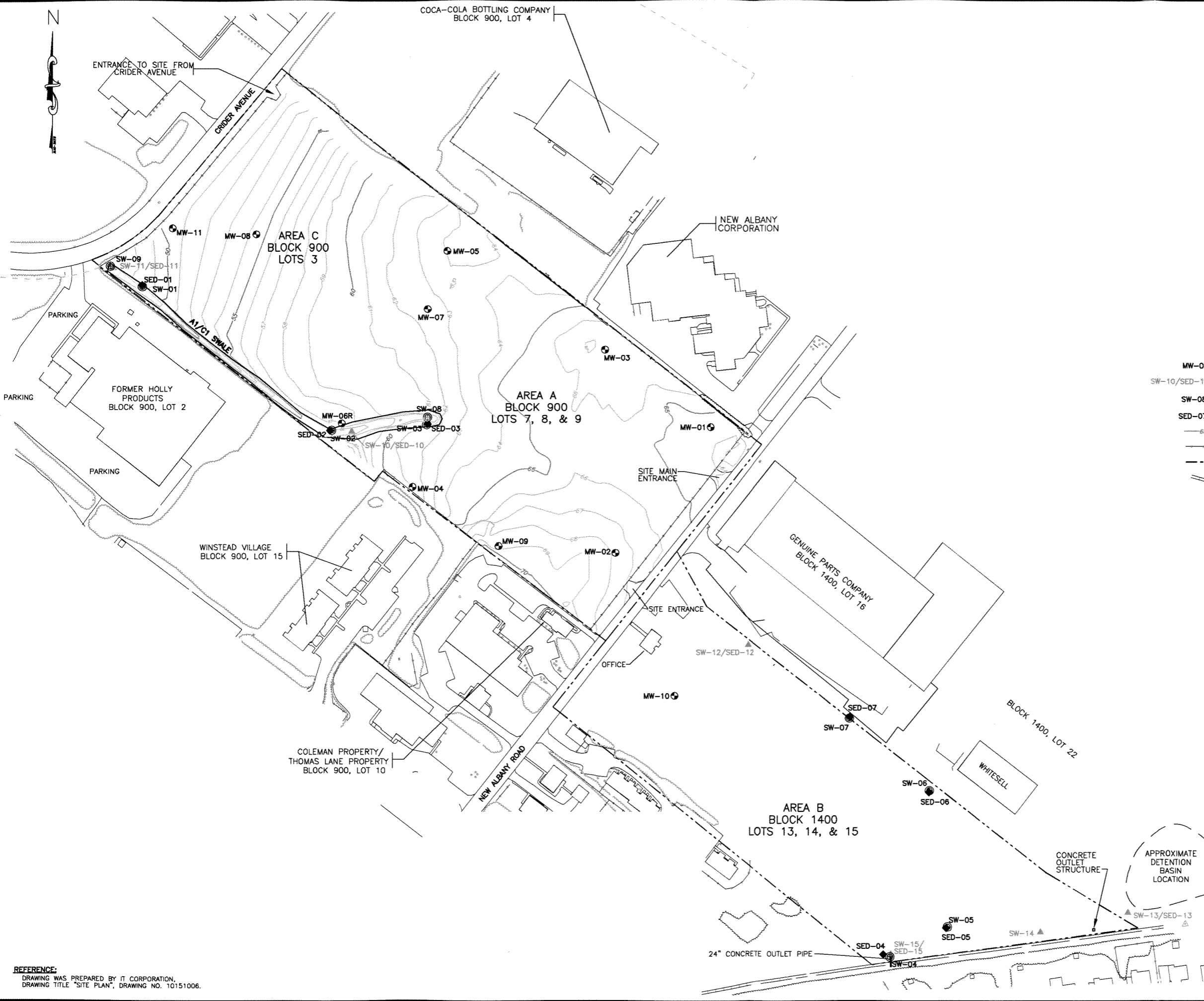
PULVERIZING SERVICES SITE  
MOORESTOWN, NEW JERSEY

PREPARED FOR  
PPG INDUSTRIES, INC.  
PITTSBURGH, PENNSYLVANIA



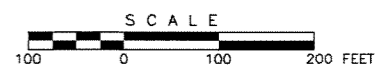
DRAWING NUMBER  
**02320A4**

			DRAWN BY: T.N. Fitzroy	DATE: 1-28-05
			CHECKED BY: J. Pytlak	DATE: 5-9-06
			APPROVED BY: K.J. Bird	DATE: 5-9-06
REVISION	DATE	DESCRIPTION		



**LEGEND:**

- MW-01 (circle with dot) MONITORING WELL LOCATION
- SW-10/SED-10 (triangle) SURFACE WATER AND SEDIMENT SAMPLE LOCATION
- SW-08 (circle with dot) APPROXIMATE SURFACE WATER SAMPLE LOCATION
- SED-07 (diamond) APPROXIMATE SEDIMENT SAMPLE LOCATION
- 65--- TOPOGRAPHICAL CONTOUR
- FENCE
- - - - - PROPERTY LINE
- ||| RAILROAD TRACK



**REFERENCE:**  
DRAWING WAS PREPARED BY IT CORPORATION,  
DRAWING TITLE "SITE PLAN", DRAWING NO. 10151006.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED

**CUMMINGS  
RITER**  
CONSULTANTS INC.  
CORPORATE HEADQUARTERS  
300 Penn Center Blvd.  
Penn Center, Suite 800  
Pittsburgh, PA 15235  
(412) 241-4500  
Fax: (412) 241-7500

**FIGURE 2**  
**SITE PLAN**  
PULVERIZING SERVICES SITE  
MOORESTOWN, NEW JERSEY  
PREPARED FOR  
**PPG INDUSTRIES, INC.**  
PITTSBURGH, PENNSYLVANIA

SIZE: E  
SCALE: 1" = 100'  
REV. DATE: 03-27-12  
DRAWING NUMBER: 02320E20

DRAWN BY: D.J. Martino	DATE: 03-27-12	
CHECKED BY: B.T. Zewe	DATE: 06-20-12	
APPROVED BY: J. Pytlak	DATE: 06-20-12	





