FIRST FIVE-YEAR REVIEW REPORT FOR CROWN VANTAGE LANDFILL SUPERFUND SITE ALEXANDRIA TOWNSHIP, NEW JERSEY

Prepared by

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TABLE OF CONTENTS

APPENDICES

LIST OF ABBREVIATIONS & ACRONYMS

AOC	Administrative Order on Consent
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COPC	Chemical of Potential Concern
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
GP	Georgia-Pacific Consumer Products
ICs	Institutional Controls
IP	International Paper Company
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
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives
RI	Remedial Investigation
ROD	Record of Decision

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 five-year review 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.

The Crown Vantage Landfill site (site) consists of one operable unit and the entire site is addressed in this FYR. This is the first FYR for the site. The triggering action for this **statutory** review is the February 20, 2013 on-site construction start date of the site's sole remedial action. 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).

This FYR was led by Alison Hess, the EPA Remedial Project Manager for the site. Participants included Robert Alvey, the EPA hydrogeologist; Nick Mazziotta, the EPA human health risk assessor; Mindy Pensak, the EPA ecological risk assessor; and Pat Seppi, the EPA community involvement coordinator. The Township of Alexandria and the potentially responsible parties (PRPs) were notified of the initiation of the FYR. The FYR began on June 19, 2017.

Site Background

The Crown Vantage Landfill site is an inactive former landfill located at 500 Milford-Frenchtown Road in Alexandria Township, Hunterdon County, New Jersey (see Appendix B, Figure 1). The site is approximately 10 acres in size, with approximately 1,500 feet of frontage on the eastern bank of the Delaware River, and is covered by a mix of young and mature hardwood trees, shrubs and grasses. To the west of the site, across the Delaware River, lies Bucks County, Pennsylvania. The Delaware and Raritan Canal foot path and a farm field bound the Site to the east. The landfill property is bounded to the south by the Delaware Raritan Canal State Park and to the north by the former Curtis Papers mill property.

The landfill reportedly was utilized by the nearby former Curtis Specialty Papers mill, as well as by other nearby Riegel Paper Company facilities, for the disposal of waste beginning in the late 1930s through the early 1970s. The landfill may also have accepted flood-damaged items from the local community following record flooding of the Delaware River in 1955. Types of wastes disposed of at the landfill include fly ash, cinders, and bottom ash; paper mill and coating-related wastes, including foil-backed paper, off-specification paper, 55-gallon drums containing press room wastes, and paper fiber sludge from wastewater treatment plant operations; steel and fiber barrels and pallets; and construction and demolition debris.

The site is currently unoccupied and access to the landfill area is restricted by locked chain-link fencing. The current and reasonably anticipated future land use is undeveloped habitat.

The Crown Vantage Landfill site was proposed for inclusion on the federal Superfund National Priorities List (NPL) in September 2004 and was formally added to the NPL in April 2005.

Site Geology and Hydrology

The topography of the landfill slopes gently downward from east to west toward the Delaware River. Immediately adjacent to the river, the elevation drops approximately 25 feet and the surface is covered with a riprap armor system and a vegetated, terraced Geoweb wall that comprise a slope stabilization wall constructed in 2007. The site is located within the 100-year floodplain of the Delaware River. There are no on-site water bodies or wetlands.

The geology in the immediate vicinity of the site consists of a thin layer of glacial drift and river alluvium overlying red to reddish brown Brunswick Shales. The drift and alluvium at the site generally consist of brown silty sand/sandy silt underlain by a red-brown sandy gravel layer. The drift and alluvium layer ranges in thickness from approximately 19 to 27 feet, although it is thinner immediately adjacent to the river. Based on local outcrops of the underlying red siltstone, shale and mudrocks, the bedrock generally dips to the north/northwest at five to 12 degrees and has nearly vertical fractures.

While the surficial alluvium is permeable, the alluvial deposits are small in extent and scattered, and therefore are not a major source of domestic water supply. Groundwater that is found within the joints, fractures and bedding planes of the Brunswick Shales is more commonly used as a source of drinking water. Groundwater flow directions in the overburden are generally from the river valley sides toward the Delaware River (i.e., topographic highs to topographic lows). The upper bedrock aquifer also discharges into the river. The groundwater quality was characterized during historical investigations conducted in 1991, 1994 and 2003 and through pore water sampling conducted in 2009, with no impacts to groundwater quality detected that were attributable to the landfill. The depth to groundwater is approximately 15 to 25 feet.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Crown Vantage Landfill		
EPA ID: NJN000204492		
Region: 2	**State:** NJ	**City/County:** Alexandria Township, Hunterdon County
SITE STATUS		
NPL Status: Deleted		
Multiple OUs? No	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA ***[If "Other Federal Agency", enter Agency name]*:**		
Author name (Federal or State Project Manager): Alison Hess		
Author affiliation: EPA		
Review period: 6/19/2017 - 11/28/2017		
Date of site inspection: 10/23/2017		
Type of review: Statutory		
Review number: 1		
Triggering action date: 2/20/2013		
Due date *(five years after triggering action date)*: 2/20/2018		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

A site-specific risk assessment, consisting of a human health and ecological component, was conducted during the RI in 2008 and 2009. The human health risk assessment concluded that no adverse noncancer effects are anticipated and that the cumulative cancer risks associated with each exposure pathway evaluated are all within the EPA acceptable risk range (10^{-4} to 10^{-6}). The ecological risk assessment concluded that lead posed a potential risk to ecological receptors; however, only 3 of 35 surface soil samples exceeded the preliminary remediation goal of 214 milligrams per kilogram of lead (compared to a background level of 104 milligrams per kilogram of lead). The estimated areal extent of lead in surface soil above the preliminary remediation goal was estimated to be less than 0.25 acre. Therefore, no need for remediation based on potential risks to ecological receptors was identified.

Response Actions

Surficial drum removals were conducted in 1991/1992 by James River Corporation, in 2002 by NJDEP, and in 2004 by EPA. In May 2005, Fort James Operating Company, a subsidiary of Georgia-Pacific Consumer Products (GP), entered into an Administrative Order on Consent (AOC) with EPA for a Removal Action. Under the 2005 AOC, additional surficial drums were removed, additional fencing was provided, and an engineered slope stabilization wall was constructed to stabilize the landfill's western face. In total, over 700 surficial drums, drum remnants and drum carcasses were removed from the surface of the site between 1991 and 2007.

The RI was performed by GP under an AOC signed in September 2007 and by International Paper Company (IP) under a Unilateral Administrative Order issued in December 2007. After buried drums and drum remnants and carcasses were identified during the initial test pitting operations of the RI in 2008/2009, EPA authorized the expansion of the test pitting program into a larger drum removal effort. In each of the three focus areas, the original test pits where additional drums and carcasses were observed were expanded to remove remaining drums. Through the combined test pitting and expanded drum removal operations, over 1,750 drums, drum carcasses and drum remnants were removed. No drums were observed at depths of greater than approximately 10 feet. Drum-related wastes were characterized and shipped off-site to permitted waste management facilities, with the majority of the wastes undergoing incineration. Non-drum-related solid wastes were returned to the test pit areas and the areas were backfilled with clean fill, covered with six inches of topsoil, seeded, and mulched.

The Record of Decision (ROD) for the entire site was signed in September 2011. Because the baseline human health risk assessment and ecological risk assessments for the site did not identify the presence of unacceptable human health or ecological risks requiring remediation under current and reasonably anticipated future site use, the remedial action objectives were limited to the following:

- Prevent exposures to landfill materials.

The major components of the selected remedy include the following:

- Establishment of a deed restriction to ensure that future site uses do not result in the disturbance of the surface of the site, thereby preventing future residential or commercial/industrial development of the site;
- Continued maintenance of security measures at the site (e.g., signage and fencing);
- Continued maintenance of the slope stabilization wall;

- Sealing of remaining shallow monitoring wells;
- Semi-annual monitoring of the site, including the slope stabilization wall; and
- Five-year reviews.

The ROD and the Administrative Record that supports the ROD for the site are available for review online at www.epa.gov/superfund/crown-vantage and at the Administrative Record File Room, EPA Region 2. Site documents are also available at the local information repository maintained at the Milford Public Library in Milford, New Jersey.

Status of Implementation

Remedial Design and Remedial Construction Activities

A Consent Decree for IP's and GP's performance of the Remedial Design and Remedial Action was entered by the United States District Court for the District of New Jersey on April 11, 2013. The remedy was designed and constructed in a single phase. The Remedial Action Work Plan was approved by EPA in June 2013 and subsequently implemented. Under the work plan, existing monitoring wells were grouted and formally abandoned. While not required by the ROD, a portion of the perimeter fencing in the southern part of the site was relocated where riverbank erosion was endangering the existing fence line.

On September 10, 2013, EPA approved the August 2013 Remedial Action Completion Report and issued a Preliminary Site Close-out Report for the site. A Certificate of Completion of the Remedial Action was issued by EPA on June 11, 2014 and the Final Closeout Report was issued on December 29, 2014.

The site was deleted from the NPL on July 29, 2015.

Institutional Controls

The September 2011 ROD included the establishment of a deed restriction to ensure that future site uses do not result in the disturbance of the surface of the site, thereby preventing future residential or commercial/industrial development of the site. However, as part of the bankruptcy proceedings associated with the previous site owner, Crown Paper Co., the bankruptcy court authorized the abandonment of the site property in 2001. Crown Paper Co. is now a defunct entity without identifiable representatives, directors or officers. Therefore, with the support of the EPA and Alexandria Township, IP and GP sought court appointment of a receiver for Crown Paper Co. who would have the power to, among other things, execute a deed notice for the property. On March 25, 2011, the court issued an Interim Order providing, among other things, for the appointment of a receiver to execute the deed notice for the site following issuance of the ROD.

IP and GP prepared the deed notice, which EPA approved on December 3, 2013. In January 2014, IP and GP filed an application with the court for the appointment of a receiver to execute and authorize the recording of the deed notice. The order appointing the receiver was signed by the judge on February 14, 2014. The court-appointed receiver then duly executed the deed notice and authorized its recordation.

The deed notice was recorded by the Hunterdon County Clerk on February 25, 2014.

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)
Remaining low-threat buried landfill materials	Yes	Yes	Block 17.01, Lot 1, Alexandria Township	Prevent future residential or industrial site use and future disturbance of the surface of the site.	Deed Notice recorded February 25, 2014

Systems Operations/Operation & Maintenance

Operation, maintenance and monitoring (O&M) activities at the site are conducted in accordance with the May 2013 Remedial Action Work Plan. O&M activities include semi-annual monitoring of the site, including the slope stabilization wall; continued maintenance of security measures at the site (e.g., signage and fencing); and continued maintenance of the slope stabilization wall through the elimination of woody plants and significant debris (e.g., large trees) deposited on the stabilization wall during flooding events that could compromise the integrity of the wall.

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. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On October 2, 2017, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at 31 Superfund sites in New York and New Jersey, including the Crown Vantage Landfill site. The announcement can be found at the following web address: https://wcms.epa.gov/sites/production/files/2017-10/documents/five_year_reviews_fy2018_final.pdf.

In addition to this notification, a public notice was made available via email to the Township of Alexandria on November 3, 2017 with a request that the notice be posted to the town's website and in appropriate municipal offices. The purpose of the public notice was to inform the community about the FYR and to list where the final report will be posted. The notice also included the RPM and the CIC address and telephone numbers for questions or comments related to the five-year review process or the site.

Members of the Community Advisory Group (CAG) were notified at the May 22, 2017 meeting that the FYR was scheduled to be completed in 2018, and updated at the October 23, 2017 CAG meeting that the FYR had commenced. This FYR report, containing the results of the review, will be made available to the public online at www.epa.gov/superfund/crown-vantage and at the information repositories maintained at the Milford Public Library, Milford, New Jersey and at the Administrative Record File Room, EPA Region 2.

Data Review

For the FYR, the 2013 Remedial Action Report, the 2015 and 2017 Biennial Certifications for Institutioal Controls, and the Biannual Maintenance and Monitoring Progress Reports for November 2013, May and November 2014, May and November 2015, May and November 2016, and May 2017 were reviewed (see Appendix A: Reference List). The ongoing maintenance and monitoring requirements do not include any data collection. Therefore, there are no data to review as part of this FYR.

Site Inspection

The inspection of the site was conducted on 10/23/2017. In attendance were Alison Hess, the EPA remedial project manager, and Michael Thibodeau, Principal of Land N Sea Environmental Services on behalf of the PRPs. The NJDEP representative was unavailable to attend. The purpose of the inspection was to assess the protectiveness of the remedy.

The site inspection consisted of an inspection of the security fencing, signage and gates and the stabilization wall. All were found to be in excellent condition. No issues were found during the site inspection.

V. TECHNICAL ASSESSMENT

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

The selected remedy is functioning as intended by the decision documents. The site was used as a landfill and site investigations and sample analyses determined that there are no groundwater, surface water or sediment issues associated with the site. The site wastes, including drum carcasses, drum remnants and drum related wastes were removed from the site through early removal actions. Non-drum-related solid wastes were returned to excavated areas and the areas were backfilled with clean fill, covered with six inches of topsoil, seeded, and mulched to prevent exposure to any remaining low threat waste or soils. The monitoring well system was fully decommissioned. A slope stabilization wall was constructed to prevent erosion near the adjacent Delaware River, and the site was enclosed with security fencing and signage.

A regular maintenance program is in effect. The most recent site inspection was conducted in October 2017 and consisted of an inspection of the security fencing, signage and gates and the stabilization wall. All were found to be in excellent condition. No issues were found during the site inspection.

The September 2011 ROD included the establishment of a deed restriction to ensure that future site uses do not result in the disturbance of the surface of the site, thereby preventing future residential or commercial/industrial development of the site. The deed notice was recorded February 25, 2014.

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 land use assumptions, exposure assumptions, and pathways considered in the 2011 ROD followed the risk assessment guidance for Superfund used by the Agency and remain valid. Although specific exposure parameters may have changed since the risk assessmentwas completed, the process that was used remains valid. In addition, some of the toxicity values that were used in the 2011 ROD have changed; however, the changes would not impact the remedial decision that was made for the site.

Human Health Risk

The 2010 human health risk assessment evaluated exposure to surface soils, fish tissue, wildlife tissue, and river sediments to the hiker, angler, hunter and swimmer. The chemicals of potential concern (COPCs) retained for analysis included polycyclic aromatic hydrocarbons, polychlorinated biphenyls, 4,4'-DDT, and various metals in soils. Surface water COPCs were not identified as all surface water detections were below applicable screening levels or regional background levels. Due to 1) the site's location within a floodplain; 2) the fact that it is a former landfill and future residential use or industrial use of the site are not considered as likely or probable; 3) the lack of any site-related material impacts on groundwater quality; and 4) the location of nearby public and private drinking water wells either upgradient or side-gradient of the site, the future use of groundwater as a potable source was not considered a potential point of exposure. Thus, no groundwater COPCs were selected for quantitative evaluation. The human health risk assessment concluded that all cancer risk and noncancer hazard estimates were within EPA benchmarks for onsite soils, fish tissue, wildlife tissue and sediments; therefore, no chemicals of concern were identified for the site. The assumptions and conclusions are still valid.

There were no buildings on the site during the removal actions and RI/FS, and none have been constructed since the 2011 ROD. Thus, the exposure assumptions regarding vapor intrusion at the time of remedy selection are still valid.

Since the human health risk assessment did not identify the presence of unacceptable risk requiring remediation under current and anticipated future site use, the remedial action objectives were limited to preventing exposures to landfill materials, which remains valid.

Ecological Risk

The site is vegetated and provides habitat for a variety of terrestrial wildlife including herbivorous species such as mourning doves, omnivorous species such as the white-footed mouse, and insectivorous species such as shrews and American woodcock. For the ecological risk assessment, the contaminants of potential ecological concern identified were polycyclic aromatic hydrocarbons, PCB Aroclor 1260, and lead. A field tissue residue study was conducted in which soil samples were collected concurrently with invertebrate tissue samples (consisting mainly of earthworms) to develop site-specific invertebrate:soil bioaccumulation factors. The analytical results showed little correlation between the concentrations of polycyclic aromatic hydrocarbons, PCB Aroclor 1260, and lead in soil and in co-located terrestrial invertebrates. The site-specific bioaccumulation factors were used to model contaminant uptake from terrestrial invertebrates into indicator species of terrestrial birds and mammals (mourning dove, white-footed mouse, American robin, short-tailed shrew, and American woodcock). Using a quantitative hazard quotient approach, only potential exposure to lead by the American robin was required to be evaluated further. The calculated preliminary remediation goal of 214.2 milligrams per kilogram of lead was exceeded in 3 of 35 surface soil samples in an area estimated to be less than 0.25 acre, compared to a use area for the American robin of the entire 10 acre Site. Given the few exceedences of lead and the small areal extent involved (less than 2.5%), EPA determined in the ROD that the site is adequately protective of all ecological receptors and that no remediation of lead in surface soil was warranted. The assumptions and conclusions at the time of remedy selection are still valid.

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 protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
None.

Other Findings

- *None*

VII. PROTECTIVENESS STATEMENT

Sitewide Protectiveness Statement	
Protectiveness Determination: Protective	*:* 11/28/2017
Protectiveness Statement: The remedy at the Crown Vantage Landfill site is protective of human health and the environment.	

VIII. NEXT REVIEW

The next five-year review report for the Crown Vantage Landfill Superfund Site is required five years from the completion date of this review.

APPENDIX A
REFERENCE LIST

Human Health Risk Assessment, January 2010

Ecological Risk Assessment, April 2010

Record of Decision, September 2011

Remedial Action Work Plan (includes O&M Plan), May 2013

Remedial Action Completion Report, August 2013

Preliminary Close-Out Report, September 2013

Final Close-Out Report, December 2014

Deletion of Crown Vantage Landfill from the National Priorties List, Federal Register, July 29, 2015

Biennial Certification of Institutional Controls

- *September 2015*
- *September 2017*

Semi-annual Maintenance and Monitoring Progress Reports

- *November 2013*
- *May 2014*
- *November 2014*
- *May 2015*
- *November 2015*
- *May 2016*
- *November 2016*
- *May 2017*

APPENDIX B

FIGURE 1

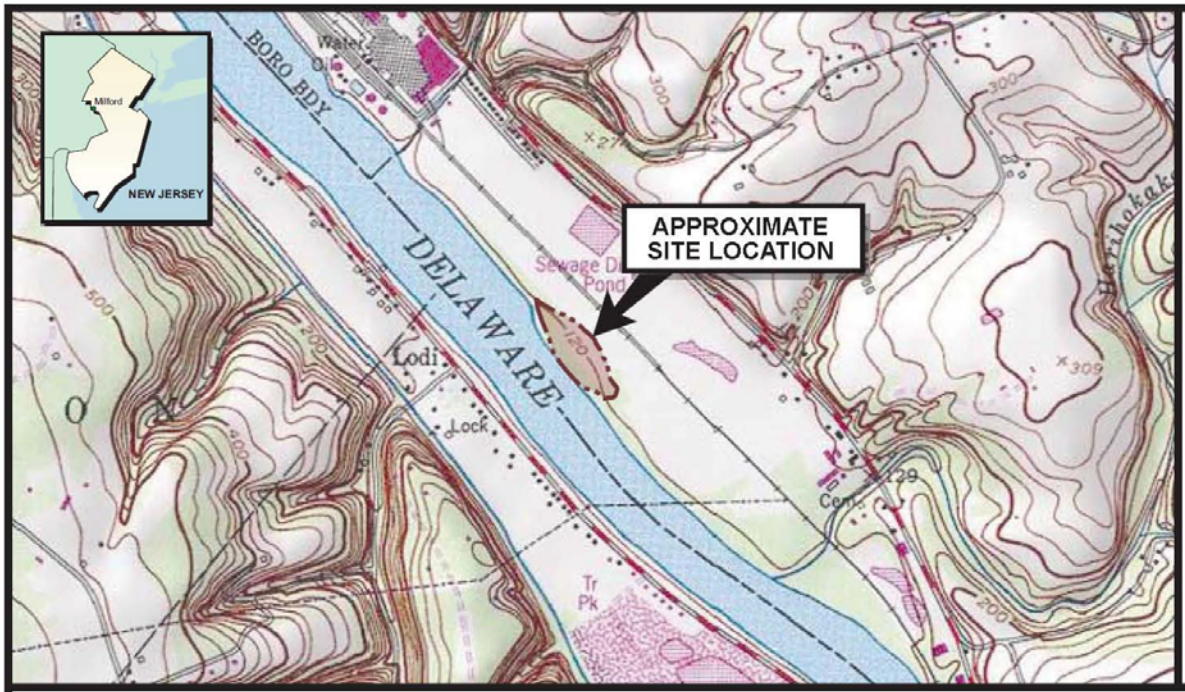

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FIGURE 1

SITE LOCATION MAP AND SITE PHOTOS

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Results you can rely on

Stabilization wall, fencing and sign looking south along Delaware River - 10/23/17

Typical forested cover west of fencing - 10/23/17