

**FIFTH FIVE-YEAR REVIEW REPORT FOR
CONKLIN DUMPS SUPERFUND SITE, TOWN OF CONKLIN,
BROOME COUNTY, NEW YORK**



Prepared by

**U.S. Environmental Protection Agency
Region 2
New York, New York
July 2018**

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

**John Prince, Acting Director
Emergency and Remedial Response Division**

July 16, 2018

Date

533983



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LIST OF ABBREVIATIONS & ACRONYMS

COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FML	Flexible Membrane Layer
FS	Feasibility Study
FYR	Five-Year Review
GWQS	New York State Class GS Ground Water Quality Standards
IC	Institutional Control
mg/l	milligrams per liter
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operation and Maintenance
OU	Operable Unit
RAO	Remedial Action Objective
RA	Remedial Action
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
UU/UE	Unlimited Use and Unrestricted Exposure
VOC	Volatile Organic Compound

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy 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 Section 121, consistent with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Section 300.430(f)(4)(ii), and considering EPA policy.

This is the fifth FYR for the Conklin Dumps site. Since, after the completion of the remedial action (RA), hazardous substances, pollutants or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE), a statutory FYR is required. The trigger for this FYR is the date of the previous FYR report, which is January 30, 2013.

The site is being addressed as a single operable unit (OU), which is the subject of this FYR.

The Conklin Dumps Superfund site FYR was led by George Jacob, the EPA Remedial Project Manager. Participants included Sharissa Singh (EPA hydrogeologist), Urszula Filipowicz (EPA human-health risk assessor), Michael Clemetson (EPA ecological risk assessor), and Larisa Romanowski (EPA Community Involvement Coordinator). The FYR began on June 19, 2017.

Appendix A summarizes the documents, data, and information reviewed in completing this FYR.

Site Background

The Conklin Dumps site is located in the Town of Conklin, Broome County, New York, approximately 10 miles southeast of Binghamton about 1 mile north of the Kirkwood exit of Route 81. The 37-acre site originally consisted of two landfilled areas referred to as the Upper and Lower Landfills. The 5.5-acre Upper Landfill is located on the western border of the site; the now excavated Lower Landfill (2.5 acres) was situated on the eastern border of the site. County Route 322, also known as Broome Parkway, runs down the middle of the site in a north-south direction. Carlin Creek is located adjacent to the northeastern portion of the Upper Landfill. Wetlands and a Delaware and Hudson railroad track border the eastern perimeter of the site. The Susquehanna River is located approximately 0.5 miles to the east of the site.

The Lower Landfill, which was operated between 1964 and 1969, contained approximately 48,000 cubic yards of municipal wastes before it was excavated and consolidated with the Upper Landfill. The Upper Landfill, which originally contained approximately 55,000 cubic yards of municipal and industrial waste, was operated from 1969 until 1975, when a closure order was issued by the New York State Department of Environmental Conservation (NYSDEC). The property is currently owned by the Town of Conklin.

In June 1986, the site was nominated for inclusion on the National Priorities List. See Figure 1 for a site plan.

Appendix B, attached, summarizes the site's topography, geology/hydrogeology, land and resource use.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Conklin Dumps Superfund Site		
EPA ID: NYD981486947		
Region: 2	State: NY	City/County: Conklin/Broome County
SITE STATUS		
NPL Status: Deleted		
Multiple OUs? No	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA <i>[If "Other Federal Agency", enter Agency name]:</i> N/A		
Author name (Federal or State Project Manager): George Jacob		
Author affiliation: EPA		
Review period: 1/30/2013 - 1/30/2018		
Date of site inspection: 9/14/2017		
Type of review: Statutory		
Review number: 5		
Triggering action date: 1/30/2013		
Due date (five years after triggering action date): 1/30/2018		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The remedial investigation (RI), which was completed in December 1988, indicated limited groundwater contamination in the immediate vicinity of the Upper Landfill. The risk assessment concluded that the risk to human health due to site-related exposure to groundwater, landfill leachate, or surface water (sediments) was at the upper bound (10^{-4}) of the acceptable exposure

levels. Although current health risks were in the acceptable range, New York State Class GA Groundwater Quality Standards (GWQS) and federal drinking water standards were exceeded. Chloroethane, 1,2-dichloroethane, and xylene were the contaminants of concern in groundwater and leachate. Sampling, performed in June 1990, confirmed the RI findings and provided additional validated data.

In 1990, the New York State Department of Health (NYSDOH) learned that some residences near the site had not connected to the public water supply. These wells were sampled; no site-related contamination was detected.

Response Actions

Initial Response

Beginning in 1983, field investigations, including the sampling of leachate seeps, groundwater, and drinking water supplies, were conducted. A two-phase hydrogeological investigation was conducted by O'Brien and Gere Engineers for the Broome County Industrial Development Agency from 1983 to 1985. This investigation included the sampling of 17 private drinking water wells located near the site. Based upon the sample results, NYSDOH recommended that public water be extended to the residences located downgradient from the site to eliminate exposure to contaminants in the groundwater. Public water was extended to this area in 1985 as part of anticipated industrial and commercial development in the area.

In June 1987, a Consent Order was signed between the Town of Conklin and NYSDEC, which covered the performance of a RI/feasibility study (FS) and remedial design (RD)/RA.

Based upon the results of the RI/FS, the following RA objectives (RAOs) were established for the site:

- Prevent ingestion of groundwater containing site-related contaminants of concern (COCs) at concentrations significantly exceeding Class GA standards;
- Prevent the migration of COCs from the landfill material that could result in groundwater concentrations above Class GA standards; and
- Restore the aquifer to concentrations that meet Class GA standards for site-related COCs.

A March 29, 1991 Record of Decision (ROD) called for:

- Cutting the existing sides of the landfills to slopes of no greater than approximately 33 percent. The top surfaces of the landfills will be regarded to slopes of no less than 4 percent to provide for proper drainage.
- Installation of leachate collection wells and a leachate collection trench or toe drain at the upper landfill and leachate collection trench at the lower landfill to a depth sufficient to eliminate leachate seeps.
- Installation of multimedia caps over the landfill material. Water infiltrating through the vegetative and protective layers of the cap will be intercepted by the impermeable flexible membrane layer and conveyed away from the landfill material. The multi-media caps will

be consistent with applicable regulations that require that when a flexible membrane liner (FML) is used in place of clay, the FML may have permeability no greater than 1×10^{-12} cm/sec. The design requirements contained in the 6 NYCRR Part 360 standards will be incorporated into the cap design.

- Installation of a gravel gas venting layer, with a filter fabric layer placed over the gravel. The FML will be placed over the filter fabric, and another layer of filter fabric will be placed on top of the FML.
- Seeding and mulching of the topsoil layer to prevent erosion and provide for rapid growth of vegetation.
- Collection of the leachate followed by either its discharge to the Binghamton-Johnson City Sewage Treatment Plant for treatment or its treatment on-site via an air stripping treatment plant and discharge to Carlin Creek. (If discharge to the sewage treatment plant is not possible, then the leachate treatment system will be constructed concurrently with the cap. The system will be located adjacent to the lower landfill. Leachate collected at the upper landfill will be transported to the lower landfill through a gravity flow pipe.)
- Installation of fencing to further protect the integrity of the caps by restricting access to the site, periodic inspection of the caps, and maintenance as necessary, will provide for long-term effectiveness and permanence of the alternative.
- Imposition of property deed restriction, if necessary. The deed restrictions will include measures to prevent the installation of drinking water wells at the site, and restrict activities which could affect the integrity of the cap.
- Initiation of a monitoring program upon completion of the closure activities. The monitoring program will provide data to evaluate the effectiveness of the remedial effort and will act as an early warning system to protect private wells in the area.

During preliminary design activities associated with the selected remedy, it was determined that the construction of a leachate collection trench and cap at the Lower Landfill would present significant engineering difficulties due to the proximity of an adjacent wetland and railroad tracks. To eliminate the leachate seeps at the Lower Landfill, it would be necessary to install a leachate collection system below the water table. A leachate collection system installed below the water table, however, would collect vast amounts of uncontaminated groundwater and could adversely impact the adjacent wetland by dewatering a portion of it, unless hydraulic barriers were installed (which in itself could adversely impact the wetland). In addition, installing a cap on the Lower Landfill could negatively impact the adjacent wetland in that it would encroach on the wetland. Due to these technical feasibility and environmental concerns, the selected remedy was modified by an Explanation of Significant Differences (ESD) in September 1992. The modified remedy consists of the excavation of the Lower Landfill, consolidation of the excavated Lower Landfill contents onto the Upper Landfill, capping of the Upper Landfill, construction of a leachate collection system, and either on- or off-site treatment of the leachate.

Status of Implementation

Lower Landfill

The RD associated with the excavation of the Lower Landfill and consolidation of the excavated wastes onto the Upper Landfill commenced in April 1991 and was completed in September 1992.

A contract was awarded to Masciarelli Construction Company to provide construction services related to the excavation of the Lower Landfill in January 1993. The composition of the wastes that were encountered during the excavation was primarily soil and decomposed organic matter intermixed with scrap metal, bottles and fabric from a local tent manufacturer. Samples were collected from the waste and analytical results showed all samples to be nonhazardous.

The waste that was excavated from the Lower Landfill (47,615 cubic yards) was deposited on the Upper Landfill and was completed in July 1993. Backfilling of the Lower Landfill was completed in September 1993.

Upper Landfill

The RD associated with the capping of the consolidated wastes on the Upper Landfill and the construction of a leachate collection, storage, and pre-treatment system commenced in April 1991 and was completed in July 1993.

From October 1993 to November 1994, the following activities were completed by Lafarge Brothers Construction Company, Inc.: the installation of a leachate recovery system consisting of three leachate recovery wells located within the landfill waste mass near the northeastern corner of the landfill; installation of a 940 linear foot collection trench along the northern and eastern sides of the landfill, and PVC piping to a precast concrete pump station; installation of a 30,000-gallon leachate storage tank; compaction and regrading of the excavated waste mass; construction of a final cover system for the Upper Landfill; and installation of an eight-foot high chain-linked fence around the Upper Landfill to restrict access.

Leachate Storage and Pre-Treatment System

In June 1995, the Binghamton-Johnson City Joint Sewer Board approved the Town of Conklin's application for discharge of the leachate from the Upper Landfill into the sanitary sewer system for treatment. The construction of a leachate pre-treatment system, and pipeline to the sewer interceptor, began in November 1995 and was completed in January 1996.

Institutional Controls

The ROD called for the imposition of a property deed restriction, if necessary, to prevent the installation of drinking water wells at the site and restrict activities which could affect the integrity of the cap. Table 1, below, summarizes the implemented ICs.

Table 1: Summary of Implemented Institutional Controls

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)
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Groundwater	Yes	Yes	Site-wide	Prevent use of contaminated groundwater for drinking or irrigation until cleanup levels have been met.	Declaration of Covenants, Restrictions and an Environmental Easement recorded by County Clerk on 3/5/2013.
Cap	Yes	Yes	Site-wide	Protect integrity of the landfill cap	Declaration of Covenants, Restrictions and an Environmental Easement recorded by County Clerk on 3/5/2013.

Systems Operation/Operation & Maintenance

The remedy provides for the collection and off-site treatment of leachate. A groundwater monitoring program provides data to evaluate the effectiveness of the remedy and to act as an early warning system to protect private wells in the area. Collected leachate is monitored before off-site disposal and treatment. Leachate sampling frequency and parameters are provided in Table 2, below. Groundwater and surface water samples are collected every fifth quarter. Please see the Data Review section below for further details.

Table 2: Leachate Sampling

Sampling Location	Parameters	Monitoring Frequency	Type of Sample
Sample Tank prior to discharge	Arsenic	Each Discharge	Grab
	Cadmium	Each Discharge	Grab
	Chromium	Each Discharge	Grab
	Copper	Each Discharge	Grab
	Cyanide	Each Discharge	Grab
	Iron	Each Discharge	Grab
	Lead	Each Discharge	Grab
	Mercury	Each Discharge	Grab
	Nickel	Each Discharge	Grab
	Silver	Each Discharge	Grab
	Zinc	Each Discharge	Grab
	Ammonia (as NH ₃)	Each Discharge	Grab
	TKN	Each Discharge	Grab
	TSS	Each Discharge	Grab
	BOD ₅	Each Discharge	Grab
	Flashpoint	Each Discharge	Grab
	Oil & Grease	Each Discharge	Grab
	PCBs, total	Each Discharge	Grab

Sampling Location	Parameters	Monitoring Frequency	Type of Sample
	TTO ²	Each Discharge	Grab
	pH	Each Discharge	Grab
	Flow	Each Discharge	Grab

The landfill is inspected annually by the Town's contractor, Shumaker Consulting and Land Surveying, P.C., to observe the condition of the perimeter fence, access roads, leachate system, landfill cover (areas of instability, subsidence, erosion, discoloration), surface water drainage features (washouts, excessive sediment or debris in ditches), gas venting system (damaged or disturbed vents), and monitoring and leachate recovery wells.

The Town maintenance crew maintains the integrity of the short-rooted vegetative cover by mowing the landfill twice a year.

Potential impacts on the site from climate change were assessed. The performance of the remedy is currently not at risk due to the expected effects of climate change in the region near the site.

III. PROGRESS SINCE THE LAST REVIEW

This section provides the protectiveness determinations and statements from the last FYR, as well as any recommendations from the last FYR and the current status of those recommendations.

Table 3, below, provides the OU1 and site-wide protectiveness determinations and statements from the 2013 FYR.

The previous FYR had follow-up actions and suggestions and recommendations. Tables 4 and 5, below, provide the status of the comments/suggestions and recommendation, respectively, from the 2013 FYR.

Table 3: Protectiveness Determinations/Statements from 2013 Five-Year Review

OU	Protectiveness Determination	Protectiveness Statement
01	Short-term Protective	The implemented remedy is functioning as intended by the decision documents and is protecting human health and the environment in the short-term. For the site to be protective in the long-term, on-property institutional controls are needed to restrict activities that could affect the integrity of the cap, prohibit the residential use of the property, and prohibit the installation of groundwater wells for drinking or irrigation until groundwater standards are achieved.
Sitewide	Short-term Protective	The implemented remedy is functioning as intended by the decision documents and is protecting human health and the environment in the short-term. For the site to be protective in the long-term, on-property institutional controls are needed to restrict activities that could affect the integrity of

		the cap, prohibit the residential use of the property, and prohibit the installation of groundwater wells for drinking or irrigation until groundwater standards are achieved.
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Table 4: Status of Comments/Suggestions from 2013 Five-Year Review

Comment	Suggestion	Corrective Action Taken
If the site is developed in the future, it is possible that drinking water wells could draw residual contamination from the site.	In the event of future development, water use should be evaluated to ensure that drinking water wells do not draw residual contamination from the site.	The February 20, 2013 Environmental Easement for the Upper and Lower Landfills stipulates as part of the Institutional Controls that no groundwater wells are to be constructed on the Upper or Lower landfill sites. This will be certified annually.
New York State requires annual certifications that institutional controls that are required by RODs are in place and that remedy-related operation and maintenance (O&M) is being performed.	On an annual basis, the site will need to be inspected to determine whether any groundwater wells have been installed at the site. The fourth quarter O&M report should include a certification that remedy-related O&M is being performed. Once the institutional controls are put into place, the fourth quarter O&M report should include a certification that the institutional controls are in place, as well.	A statement that Institutional controls are in place is required as part of every Annual Report. Further, a specific statement that no groundwater wells have been installed on the Upper and Lower landfill site is included.
Trees are impinging on the fence in several locations, including two small trees that died, fell over and are lying on top of the fence.	To ensure that the integrity of the fence is not compromised, the trees should be removed.	This is an ongoing effort, as the landfill is nearly surrounded by undeveloped and wooded parcels. Annually, the Town removes trees identified during the annual inspection.
Monitoring well MW-12 is enveloped by trees and shrubs, making it difficult to access it along the north side of the landfill security fence due to thick vegetative growth.	To ensure unobstructed access to the monitoring well, the trees and shrubs should be removed.	The trees and scrub brush around MW-12 was removed and the well is fully accessible.

Table 5: Status of Recommendation from 2013 Five-Year Review

OU	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
1	On-property institutional controls are	Implement institutional controls.	Completed	An environmental easement was recorded by the County Clerk on March 5, 2013.	3/5/2013

needed to restrict activities that could affect the integrity of the cap, prohibit the residential use of the property and prohibit the installation of groundwater wells for drinking or irrigation until groundwater standards are achieved.				
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IV. 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 Conklin Dumps Superfund 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 notice of the commencement of the FYR was posted on EPA's Region 2 website and sent to local public officials. The purpose of the public notice was to inform the community that EPA would be conducting a FYR to ensure that the remedy implemented at the site remains protective of public health and is functioning as designed. In addition, the notice included contact information, including addresses and telephone numbers, for questions related to the FYR process or the site. Once the FYR is completed, the results will be made available online (www.epa.gov/superfund/conklin-dumps) and at the site information repositories. The information repositories are located at:

EPA
290 Broadway, 18th Floor
New York, New York 10007

Conklin Town Hall
1271 Conklin Road,
Conklin, NY 13748

Data Review

Groundwater

Groundwater samples are collected from six monitoring wells (MW-1, MW-3, MW-4, MW-12, MW-37 and MW-38D) every fifth quarter for laboratory analysis under the 6 NYCRR Part 360 Baseline protocols. Monitoring well MW-1 is located upgradient; MWs MW-37, MW-3 and MW-12 are located cross-gradient and MW-4 and MW-38S are located downgradient. The COCs are xylene, chloroethane and 1,2 dichloropropane. The groundwater samples are analyzed for the full Target Compound List for volatile organic compounds (VOCs) and for the full Target Analyte List for metals, including filtered and unfiltered samples. Filtered sample collection was added to the monitoring program because severe sediment loads in unfiltered preserved groundwater samples was proven to be skewing dissolved inorganic concentrations.

Volatile Organic Compounds

During this FYR period, groundwater samples were collected for VOC analysis in December 2014 and February 2016. Analytical results indicate that no VOCs were detected above regulatory guidance values in any of the wells sampled.

Inorganics

During this FYR period, groundwater samples were collected for inorganic analysis in September 2014, March 2015 and February 2016. Inorganic constituents were collected and analyzed to evaluate the efficacy of the leachate collection system and to determine if the landfill is adversely impacting groundwater quality at the site.

The sample results from upgradient monitoring well MW-1 indicated the presence of several inorganics, specifically, sodium, manganese and iron above GWQS. Sodium was detected at concentrations slightly above the GWQS of 20 milligrams per liter (mg/l) in both the unfiltered and filtered samples during this FYR period. Manganese was also detected above the GWQS of 0.3 mg/l at a concentration of 1.4 mg/l (unfiltered) and 0.36 mg/l (filtered) in 2016. Iron was detected above the GWQS of 0.3 mg/l in the unfiltered samples in 2013, 2014 and 2016.

Downgradient monitoring wells are identified as MW-38D and MW-4. In monitoring well MW-38D, sodium was detected above the GWQS in all the filtered and unfiltered samples. Concentrations of sodium ranged from 33.1 mg/l in February 2016 to 36.9 mg/l in June 2014. Manganese was detected slightly above the standard in the filtered samples in September 2013, September 2014 and February 2016. Multiple inorganics including arsenic, barium, chromium, iron, magnesium, nickel, lead and selenium were detected above their regulatory standards in the unfiltered samples in monitoring well MW-38D in the December 2014 and February 2016 sampling events. In monitoring well MW-4, no inorganics were detected above their regulatory standards in any of the filtered samples. In unfiltered samples, only iron and manganese were detected above their regulatory standards with iron ranging from 1.1 mg/l (February 2016) to 35.2 mg/l (March 2015) and manganese ranging from 0.448 mg/l (December 2014) to 2.55 mg/l (March 2015).

In summary, analytical data collected within the past five years do not show any exceedances of NYS GWQS for VOCs (which are COCs for the site). Additionally, although several metals continue to be detected in unfiltered groundwater samples above their respective standards, only manganese exceeded in the filtered samples. Further, manganese was detected in the upgradient monitoring well (MW-1) above standards during the most recent (February 2016) sampling event in both filtered and unfiltered samples. Based on this analysis, it was determined that the landfill is not adversely impacted groundwater at the site.

Surface Water

A surface water sample is collected from Carlin Creek every fifth quarter. No VOCs were detected above regulatory standards, in surface water samples collected in December 2014, March 2015 and February 2016. Sodium was detected from 25 mg/l (filtered 2016) to 39.1 mg/l (filtered 2015). For ecological purposes, an ecological based screening value is available for sodium in surface water (680 mg/l) from the Oak Ridge National Laboratory (*Suter, G.W. II, and Tsao, C.L. 1996. Toxicological benchmarks for screening potential contaminants of concern for effects on aquatic biota: 1996 Revision. ES/ER/TM-96/R2. <https://rais.ornl.gov/documents/tm96r2.pdf>*). The sodium ecological screening value was not exceeded in any of the surface water samples collected. Therefore, sodium is likely not adversely impacting ecological receptors.

During this FYR period iron was detected above its regulatory standard of 0.3 mg/l in the unfiltered sample in 2014 at a concentration of 1.88 mg/l. No other inorganic constituents were detected above their regulatory standards during this FYR period. The Oak Ridge National Laboratory ecological screening value for iron is 1 mg/l. The ecological screening value for iron was exceeded once, in March 2014, and has not occurred again in five successive sampling events. Since the iron exceedance appears to be an isolated occurrence, adverse impacts to ecological receptors are not likely. However, the monitoring should be continued to evaluate this occurrence.

Leachate Sample Results

To date, no leachate sample results were provided for review. Approximately 22,000 gallons of leachate have been collected in the AST prior to discharge into the sewer system. Discharge of the leachate is regulated through an IWPP Permit with the Binghamton-Johnson City Joint Sewer Board.

Site Inspection

A site inspection related to this FYR was conducted on September 14, 2017 by George Jacob of EPA. Also present for the inspection were Payson Long from NYSDEC, Bill Farley, Colin Casey, Dell Boyle and Nicholas Piatt from the Town of Conklin and W. Curt Nichols from Shumaker Consulting Engineering. During the inspection, it was observed that the cap, vegetation cover, gas vents and perimeter fencing were in good condition. No signs of vandalism were observed.

V. TECHNICAL ASSESSMENT

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

The ROD, as modified by the ESD, called for the excavation of the Lower Landfill, consolidation of the excavated Lower Landfill contents onto the Upper Landfill, capping of the Upper Landfill, construction of a leachate collection system, off-site treatment of the leachate and institutional controls.

The Upper Landfill has been capped and leachate is being collected and treated off-site, removing direct contact (*i.e.*, ingestion or dermal contact with contaminated soil and leachate) exposures to the public as well as ecological receptors. A fence is in place to prevent trespassing. Exposure to the wastes formerly in the Lower Landfill is eliminated by consolidation of the excavated contents onto the Upper Landfill under the cap.

The COCs for the site at the time of the ROD were chloroethane, 1,2-dichloropropane and xylenes. Currently the COCs are not being detected in groundwater, leachate or surface water above the GWQS. Inorganic constituents were detected exceeding the regulatory standards in the filtered groundwater samples from on-site monitoring wells. These inorganics (iron, manganese and sodium) were also detected in the upgradient monitoring well and may be reflective of background concentrations at the site. Additional inorganics were detected in site monitoring wells including but not limited to lead, arsenic, chromium and thallium, however, these detections were in the unfiltered groundwater samples and appear to be attributed to sediment and/or particulates in the groundwater sample. After filtering the samples, none of these additional inorganic constituents were detected above regulatory standards during this FYR period.

The monitoring program involving periodic surface water sampling is being conducted to ensure that the remedy will continue to be protective of ecological receptors. The surface water sampling data from Carlin Creek indicates that iron and sodium exceeded regulatory standards but were determined not to adversely impact ecological receptors. Surface water sampling should continue to ensure landfill does not adversely impact surface water or ecological receptors.

The ROD called for on-property institutional controls that restrict activities that could affect the integrity of the cap, prohibit the residential use of the property, prohibit the installation of groundwater wells for drinking or irrigation until groundwater standards are achieved. An environmental easement was recorded by the County Clerk on March 5, 2013.

QUESTION B: *Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?*

There have been no physical changes to the site that would adversely affect the protectiveness of the remedy. Land use assumptions, exposure assumptions and pathways, and clean up levels considered in the decision document followed the Risk Assessment Guidance for Superfund used by the Agency at the time and remain valid. Although specific parameters may have changed since the time the risk assessment was completed, the process used remains valid.

Exposure pathways quantitatively evaluated in the risk assessment included ingestion of groundwater, along with dermal contact and inhalation of volatiles while bathing or showering. The risk assessment concluded that the estimated cancer risk to human health was at the upper bound (*i.e.*, 10^{-4}) of EPA's threshold criteria for carcinogens. However, it was determined a response action was warranted for the site because constituents in groundwater and leachate exceeded GWQS standards, which were identified as Applicable or Relevant and Appropriate Requirements for the site.

The RAOs, listed in the "Remedy Selection" section, were established at the time of the ROD and continue to remain valid. NYS GWQS for class GA for groundwater were used as the cleanup goals for the site; these cleanup levels remain valid and protective of human health.

Although the ecological risk assessment screening values used to support the 1991 ROD may not necessarily reflect the current values, the remedy is protective of ecological resources as the exposure to ecological receptors has been controlled by the final cap and the leachate collection system. While the iron and sodium concentrations detected in surface water do not appear to be impacting ecological receptors, the surface water monitoring should be continued since regulatory standards were exceeded.

The potential for vapor intrusion from subsurface sources into indoor air was not considered during the time the original risk assessment was completed. However, as part of the prior FYRs conducted for the site, this pathway was evaluated and found to be incomplete. The conclusion of the past evaluation remains valid because there are currently no on-site buildings (other than the leachate collection system), nor are there any buildings directly downgradient of the site. Further, groundwater data collected during this FYR period shows that VOCs are not present above standards. Based on these considerations, the vapor intrusion pathway is not considered an issue at this site.

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

No information has come to light that would call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Table 6, below, presents the recommendations and follow-up actions for this FYR.

Table 6: Issues/Recommendations

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
<i>OU 01 has no issues/recommendations</i>

Other Findings

The following suggestions are made:

- A deeper well near MW 38-D would help determine if higher than usual sodium concentrations detected in that well are site-related;
- The surface water sampling data from Carlin Creek indicates that iron and sodium are at times elevated. Therefore, the surface water sampling should continue.
- The leachate sample analysis report as well as leachate disposal schedules should be included in the future annual reports.

VII. PROTECTIVENESS STATEMENT

Table 5: Protectiveness Statements

Protectiveness Statement(s)	
<i>Operable Unit:</i> OU 1	<i>Protectiveness Determination:</i> Protective
<i>Protectiveness Statement:</i> EPA has determined that the OU1 remedy is protective of human health and the environment.	
Sitewide Protectiveness Statement	
<i>Protectiveness Determination:</i> Protective	
<i>Protectiveness Statement:</i> EPA has determined that the site-wide remedy is protective of human health and the environment.	

VIII. NEXT REVIEW

The next FYR report for the Conklin Dumps Superfund site is required five years from the completion date of this review.

FIGURE

CURVE TABLE

NO.	LENGTH	RADIUS		CHORD LENGTH
1	745.63'	4252.00'	N 01°09'33" E	744.67'

FIGURE

2A

Drawn By: WCN
Checked By: WCN
Project Mgr: WCN
Date: 9/31/15
Project No: 9357.03

LANDFILL
SITE MAP

DRAWING TITLE

SITE: CONKLIN UPPER LANDFILL
SITE NUMBER 704013

BROOME COUNTY
TOWN OF CONKLIN



TRUE NORTH AT THE 74°30'

MERIDIAN OF WEST LONGITUDE

LEGEND:

- SUBJECT PROPERTY AND DECLARATION OF COVENANTS, RESTRICTIONS, AND ENVIRONMENTAL EASEMENT BOUNDARY LINES
- △ CALCULATED POINT
- PL PROPERTY LINES
- REBAR & CAP KEYSTONE PIN FOUND (TYPE AND SIZE AS SHOWN)
- 1 1/2" PIPE PIPE FOUND (TYPE AND SIZE AS SHOWN)
- HB HIGHWAY BOUNDARY
- PE PERMANENT EASEMENT
- LIMIT OF WETLANDS
- EDGE OF PAVEMENT
- WOODS LINE
- BRUSH LINE
- FENCE (SIZE AND TYPE NOTED)
- UTILITY POLE & POLE NUMBER
- UTILITY POLE WITH LIGHT & POLE NUMBER
- ELECTRIC METER
- GAS VENT
- MANHOLE
- SANITARY MANHOLE
- TELEPHONE MANHOLE
- HYDRANT
- OVERHEAD TELEPHONE LINE
- OVERHEAD ELECTRIC LINE
- SANITARY SEWER LINE
- WATER LINE
- STORM WATER LINE
- GUIDE RAIL



SCALE

ONE FOOT EQUALS 0.3048006096 METERS.
ONE SQUARE FOOT EQUALS 0.0929034116 SQUARE METERS.

TM# 194.04-1-39
MAPLE LANE HOLDINGS, LLC
LIBER 2202 PAGE 345

TM# 194.04-1-39
MAPLE LANE HOLDINGS, LLC
LIBER 2202 PAGE 345

FENCE CORNER
6.8' NORTH OF
PROPERTY LINE

TM# 194.11-1-30.1
BROOME COUNTY INDUSTRIAL
DEVELOPMENT AGENCY
LIBER 1455 PAGE 301

FENCE CORNER
17.5' NORTH OF
PROPERTY LINE

FENCE CORNER
8.6' SOUTH OF
PROPERTY LINE

BLDG. CORNER
40.93' SOUTH OF
PROPERTY LINE

LEACHATE DISCHARGE
CONTROL BUILDING

P.O.B. of Declaration of Covenants, Restrictions, and Environmental Easement Area

RIP RAP STABILIZED
SURFACE RUNOFF SWALE

SURFACE DRAINAGE SWALE

LEACHATE COLLECTION
WELLS AND PIPES

UPPER LANDFILL
TM# 194.04-1-2
TOWN OF CONKLIN
LIBER 1028 PAGE 572
(EXCEPTION PARCEL 2 DESCRIBED
IN LIBER 1603 PAGE 341)
TOTAL AREA= 12.063 ACRES
525466 SQ. FT.

PERIMETER LEACHATE
COLLECTION PIPES AND
MANHOLES

SURFACE
DRAINAGE SWALE

NO RECORD DOCUMENT FOUND
FOR UTILITY LINES FROM THE
TOWN OF CONKLIN

POINT OF VEHICULAR AND PEDESTRIAN
ACCESS NO RECORD DOCUMENT FOUND
PERTAINING TO RIGHTS FOR THE USE
OF SAID ACCESS



SCALE

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APPENDIX A – REFERENCE LIST

Documents, Data, and Information Reviewed in Completing Five-Year Review	
<i>Consent Order, NYSDEC</i>	1987
<i>Remedial Investigation/Feasibility Study, O'Brien & Gere</i>	1991
<i>Record of Decision, EPA</i>	1991
<i>Explanation of Significant Differences, EPA</i>	1992
<i>Remedial Action Report (Lower Landfill), Dunn Engineering</i>	1993
<i>Remedial Action Report (Upper & Lower Landfill), Rust Environment & Infrastructure</i>	1996
<i>Superfund Site Close-Out Report, EPA</i>	1996
<i>First Five-Year Review Report, EPA</i>	1998
<i>Second Five-Year Review Report, EPA</i>	2003
<i>Third Five-Year Report Review t, EPA</i>	2008
<i>Fourth Five-Year- Review Report, EPA</i>	2013
<i>Site Management Plan, Shoemaker Engineering</i>	2014
<i>Annual Environmental Monitoring Reports, Shoemaker Engineering</i>	2013-2017
EPA guidance for conducting FYRs and other guidance and regulations to determine if any new Applicable or Relevant and Appropriate Requirements relating to the protectiveness of the remedy have been developed since EPA issued the Record of Decision.	

**APPENDIX B – TOPOGRAPHY, SITE GEOLOGY/HYDROGEOLOGY, AND LAND AND
RESOURCE USE**

Topography

The Conklin Dumps site is located in the Town of Conklin, Broome County, New York, approximately 10 miles southeast of Binghamton about 1 mile north of the Kirkwood exit of Route 81. The 37-acre site originally consisted of two landfilled areas referred to as the Upper and Lower Landfills. The 5.5-acre Upper Landfill is located on the western border of the site; the now excavated Lower Landfill (2.5 acres) was situated on the eastern border of the site. County Route 322, also known as Broome Parkway, runs down the middle of the site in a north-south direction. Carlin Creek is located adjacent to the northeastern portion of the Upper Landfill. Wetlands and a Delaware and Hudson railroad track border the eastern perimeter of the site. The Susquehanna River is located approximately 0.5 miles to the east of the site. The entire site is fenced and the entry area is gated.

Site Geology/Hydrogeology

Shale/siltstone bedrock underlies the entire site, with depth to bedrock varying from 80 feet to 130 feet from west to east. Glacial till underlies the Upper Landfill. The area immediately to the east of the landfill is underlain by a lens of low permeability silt and fine sand. The silt layer varies in depth from 10 to 30 feet. Sand and gravel glacial outwash underlies the area where the former Lower Landfill was located. The sand and gravel layer is approximately 20 feet thick and is underlain by glacial till.

Groundwater is encountered at approximately 24 feet below the ground surface in the vicinity of the Upper Landfill and 1 foot below the ground surface to the east. The horizontal groundwater flow direction is from west to east toward the Susquehanna River.

Land and Resource Use

The site is situated in a sparsely populated area within the eastern perimeter of the Broome County Corporate Park. The Broome County Corporate Park is adjacent to the site on the eastern side. The predominant land use in the surrounding area is agricultural. The population within one mile of the site is about 700. The closest residents live along Route 7, about a quarter mile from the site. A Town of Conklin public water supply well is located 2,000 feet northeast of the site.