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Technical Memorandum

Prepared for: **The Clean Air Coalition of Western New York**
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Review of Remedial Investigation and Alternatives Analysis Reports for the Former Tonawanda Coke Facility Production Areas - Riverview Innovation & Technology Campus Brownfield Cleanup Program Site No. C915353 Tonawanda, New York

New York State Professional Geological Services PLLC (nygeology) was retained by the Clean Air Coalition of Western New York (Clean Air) to review the Remedial Investigation Report (RIR) and Alternatives Analysis Report (AAR) for the Former Tonawanda Coke Facility Production Areas - Riverview Innovation & Technology Campus Brownfield Cleanup Program (BCP) Site No. C915353 Tonawanda, New York prepared by Inventum Engineering, P.C. (Inventum). This review focuses on the collection and interpretation of data including long-tem site management concerns; this review does not directly address engineering matters associated with the development or choice of alternatives. Our review and proposed recommendations to the RIR and AAR follows.

Preface

In 2020 nygeology performed a Phase I Environmental Site Assessment (ESA) of Tonawanda Coke and Related Parcels documenting the complex history of the Tonawanda Coke operations.

As sites with environmental contamination are discovered, they can enter various regulatory enforcement programs in the State of New York such as Spills, Superfund or Brownfield Cleanup (BCP) programs. Such programs focus on site remediation but mainly rely on present conditions and do not consider the range of former activities conducted at a site that could have impacted the environment. In search of an "Innocent Landowner Defense" under the federal Superfund Amendments Reauthorization Act, a group of report users and environmental professionals developed ASTM E1527 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process that defined All Appropriate Inquiry. By following the standard, bona fide purchasers could qualify for the "Innocent Landowner Defense" under the Comprehensive Environmental Response Compensation and Liability Act. One element of this standard requires the examination of off-site sources of contamination that could impact the "Subject Property"; this was essential, since, under CERCLA, a site could be considered contiguous by definition of a groundwater plume regardless of the various properties it encroached upon.

Comment 1 - Conceptual Site Model Dilemma

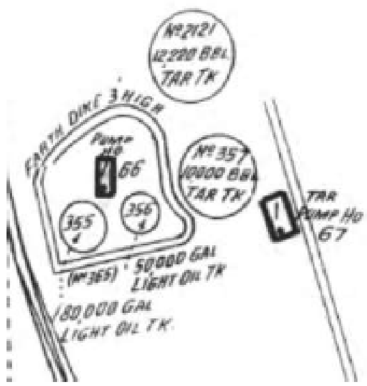
The Conceptual Site Model for the BCP facility is woefully inadequate as it does not address off-site impacts from upgradient sites such as Superfund Site 110 or to downgradient sites such as the Huntley Ash Fill and Site 109. Breaking this facility, related adjacent facilities such as Allied to the southwest, and historically compromised parcels such as the former wastewater discharge to the Niagara River into separate parcels does not allow for a comprehensive understanding of the mechanics of the environmental system.

Recommendation: In the future, NYSDEC should mandate more comprehensive site review strategies that allow for properly developed conceptual site models on which more comprehensive investigations can be based. Further, as evidenced by the volume of comments to the BCP Work Plan and the lack of understanding of actual byproduct locations and management locations not present in it, NYSDEC should require every BCP Application to contain an ASTM-compliant Phase I prior to the approval of the application, or, at a minimum as a prerequisite to be submitted with the work plan. In addition, some have suggested at least some sort of accompanying Environmental Impact Statement for larger projects such as those contemplated at this site.

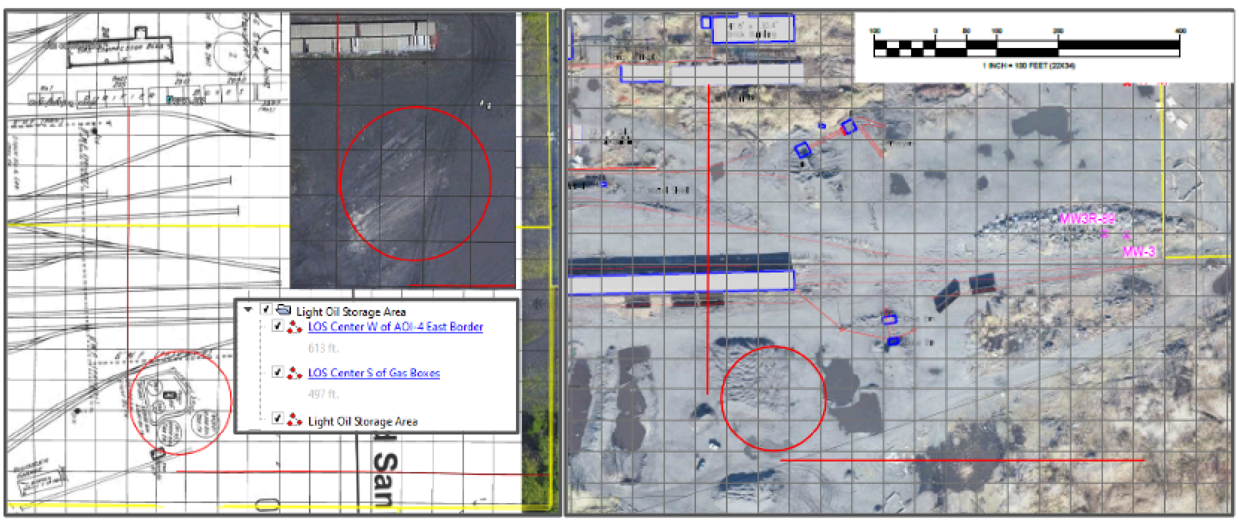
Comment 2 - Soil Investigation Data Gaps

The 2020 nygeology ESA contained a map identifying and documenting the locations of specific historical site operations and formatted the file to match the Inventum site grid. Along with the ESA, Clean Air submitted a digital version of that map in its Remedial Investigation Work Plan Comments. While some areas, such as gas purifier boxes, have been addressed directly, it is not possible to determine whether other Recognized Environmental Conditions (RECs) such as the Former Light Oil Storage Area, were adequately investigated. For example:

The Sanborn map in the nygeology ESA clearly showed the Light Oil Storage area. Although this area was vacant at the time of the investigation, the earthen diked area contained a 180,000 gallon Light Oil Tank as well as a 50,000 gallon Light Oil Tank and a pump house as shown below.



Outside the diked area were 12,200 barrel and 10.000 barrel tar tanks as well as a tar pump house. Figure 2-1 in the RIR shows the center of the area in the vicinity of Block AL-18.



Note that a former chemist at the plant identified the constituents of the Light Oil as follows:

Light Oil Constituents	Amount Present in Light Oil
Benzene	56%
Toluene	16%
Xylene	5%
Miscellaneous Paraffins, Olefins, and Aromatics	Trace

Light Oil, managed in this location for years, presumably for product shipment off-site by rail, would have been composed of approximately 77% benzene, toluene and xylene.

Figure 2-17 in the RIR, shown above, shows no soil sampling in this location. Because figures in the RIR do not clearly label each byproduct management area contained in the digital file submitted with the 2020 Work Plan comments, it is difficult to tell whether samples were collected in each location identified as an REC in the ESA.

Recommendation:

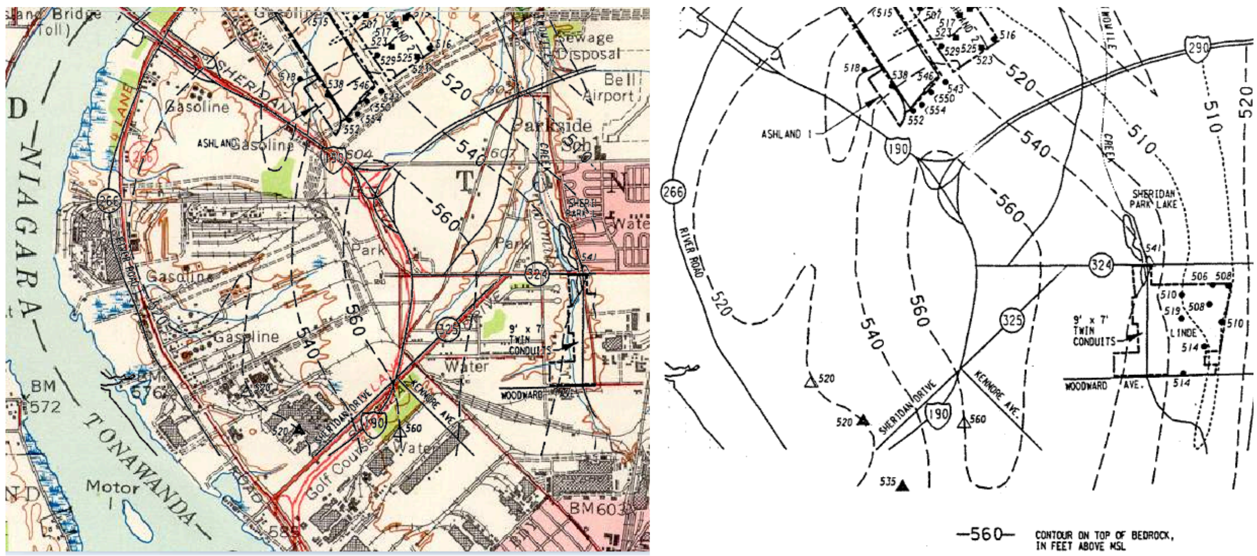
Require a byproduct overlay map and ensure that each REC was properly investigated. While such an exercise may not affect the choice of remedy in the AAR, it would ensure that remedial design engineers do not miss contamination. After the public comment period closes, Clean Air would like to reserve the right to take time to compare the work performed to each REC identified in the ESA and present the results to NYSDEC, and the site engineer at a meeting to ensure completeness of the RIR.

Comment 3 - Groundwater Investigation Data Gaps

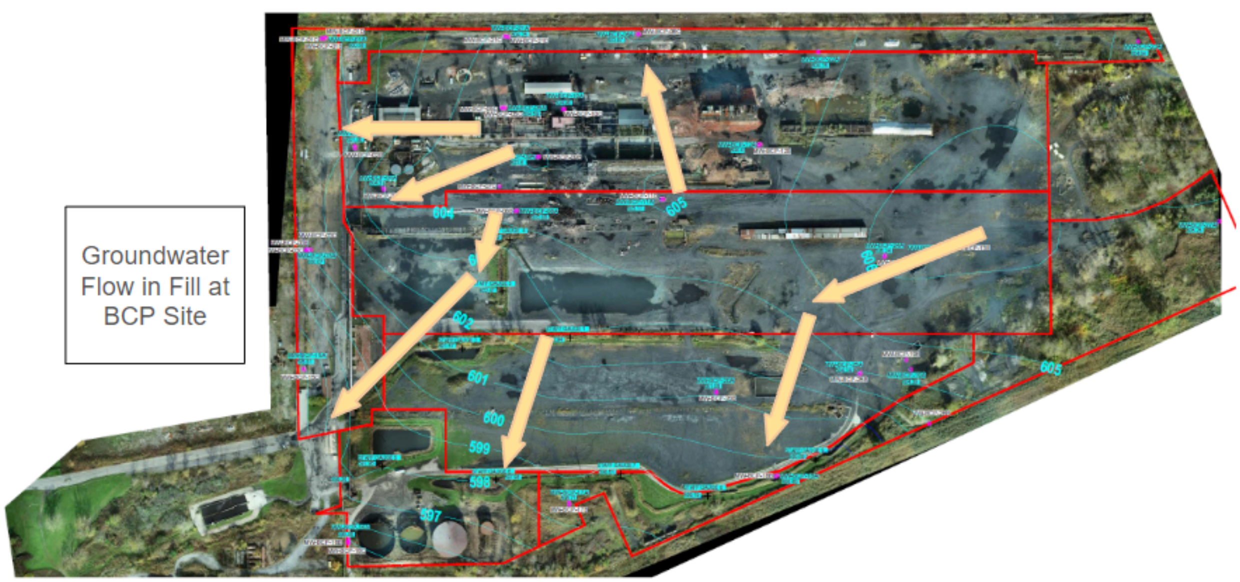
As discussed below, the lack of monitoring wells screened at the right locations and depths to monitor the future migration of contaminants flowing onto the BCP Site from Site 110 and from the BCP Site to the Huntley Ash Landfill, Site 109 and other downgradient sites in the future suggests that groundwater contaminant transport has not been completely considered. The RIR presented a series of "contour" maps, more correctly known as potentiometric surface maps, which present groundwater flows across the site. While we rely on the information presented in the RIR, comments in this document are in no way meant to be interpreted as to comment on the adequacy or quality of that work. Concerns with the understanding of groundwater flow at the BCP Site gradients are discussed below.

Site 110 - RIR flow maps, presented below, show that shallow groundwater in the fill flows west from Site 110 toward the BCP Site suggesting the possibility for a future upgradient source, particularly if Site 110 receives hazardous waste as part of the remedy for Site 109.

Regional Groundwater Flow - The 1993 USDOE Remedial Investigation Report for a Tonawanda Site discussed in the nygeology ESA shows a Camillus Formation upper bedrock aquifer at the Tonawanda Coke sites. Of particular interest, nygeology noted that the "two heads of bedrock valleys seen in the 520-ft elevation contour, one approaching the BCP Property from the south, the other from the north. These features would be expected to favor southward flow in the aquifer beneath the southern part of the Property which is the flow regime reflected in the Inventum RIR. An illustration from the nygeology RI Work Plan Public Comments is presented below for completeness:



Groundwater Flow in Fill - The RIR figure illustrated below shows groundwater flow in fill at the BCP site; it shows groundwater mounding in the fill with flow components to the north, west and south. While some contamination in the production area would be expected to flow south, other flow components could direct contamination north across the property boundary toward the Huntley Ash Fill Site or southwest toward Site 109.

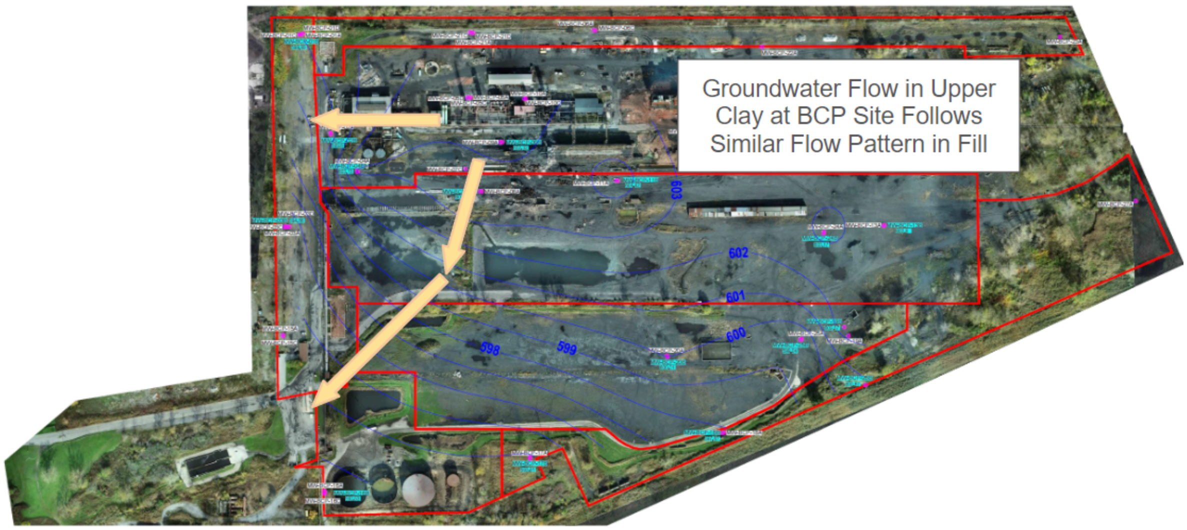


Groundwater Flow in Clay - Generally, the groundwater flow in the fill generally follows the top of the clay layer to the southwest, and groundwater flow in the Upper and Lower Clay Units follow the same pattern. Following the groundwater flow path from the major contaminant source locations in the production areas at the BCP Site and noting the relatively high level of the contamination of the fill in these areas, the presence of contaminants in the clay water-bearing zone was examined to uncover whether the clay zone had been contaminated. In particular, some of the exceedances of class GA groundwater standards in the upper clay included:

- AOI-1 Phenol, Chromium, and Arsenic
- AOI-2 Chromium, and Arsenic
- AOI-4 Volatile and Semivolatile Organic Compounds, Chromium, Arsenic and Mercury
- AOI-5 Volatile and Semivolatile Organic Compounds, Chromium, Arsenic and Ammonia
- AOI-7 Volatile and Semivolatile Organic Compounds

Volatile Organic Compounds included Benzene, a known carcinogen, as well as other aromatics typical of coking byproduct management operations. Semivolatile Organic Compounds included Polyaromatic Hydrocarbons also typically associated with such operations.

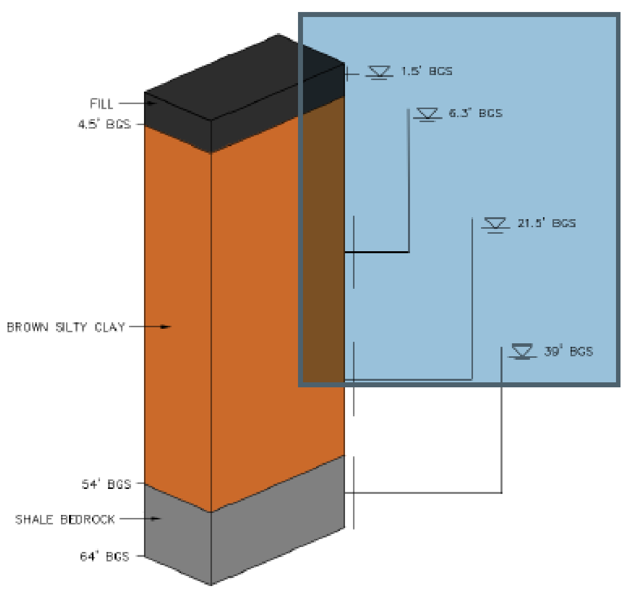
In the RIR, the permeabilities for clay samples in the upper clay unit were measured to be in the range of 10-8 centimeters per second (cm/s), which were somewhat consistent with the results of 10-6 cm/s to 10-8 cm/s reported in the Supplementary Site Investigation (SSI.) Report dated July 1990 prepared by Conestoga-Rovers & Associates (CRA, 1990), although the lower end of the permeability of 10-6 by CRA indicates the possibility for a geometric increase in contaminant travel time. The RIR indicated that several core samples retrieved from the upper clay exhibited vertical "desiccation" cracks; it is not uncommon for such cracks to form conduits for vertical migration. So, while the low permeability of the clay would be expected to act as an aquiclude to prevent downward migration of contaminants, the presence of these compounds indicates that this layer is leaky. This is especially true because of the the low likelihood of finding vertical cracks with comparatively few vertical drill locations.



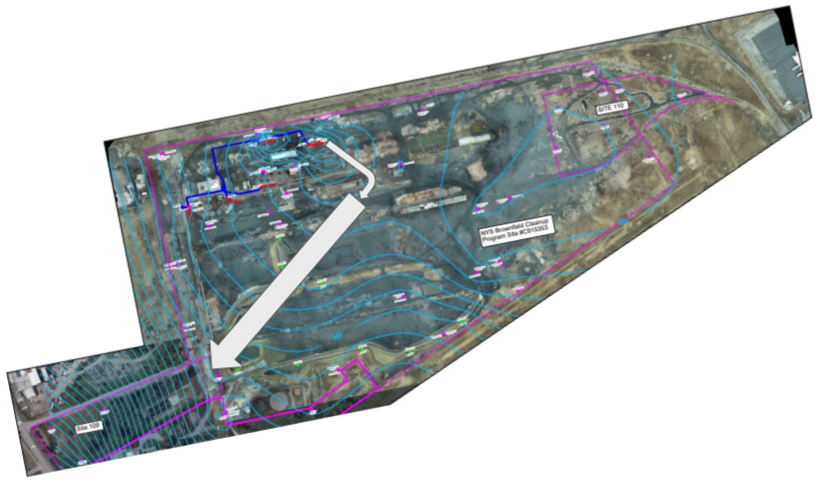
In any event, horizontal flow gradients were measured to determine components of groundwater flow using the above flow maps with the following results:

- 0.0025 Horizontal Gradient in Fill
- 0.011 Horizontal Gradient in Upper Clay
- 0.011 Horizontal Gradient in Lower Clay
- 0.00025 Horizontal Gradient in Bedrock

The lower horizontal gradients present in the fill and the bedrock and the horizontal gradients one to two orders of magnitude higher in the combined clay unit suggest that the examination of vertical heads between the fill and the clay and the clay and the bedrock need to be considered. Data showing vertical heads in hydrogeological units at the Tonawanda Coke BCP Site were provided in the following figure in the RIR:



The vertical gradient across the clay was calculated from the above figure to be 0.758 in the downward direction, orders of magnitude greater than any horizontal gradients measured at the site. Using the thickness reported above, this could result in a flow of 0.79 feet per year in a downward direction. The lack of contamination in a downgradient direction at this time could be the direct result the low permeability of the clay, however, given the approximate dates of likely releases during facility operations, and, given the current contaminant distribution in the clay unit, contaminants could be expected to enter the bedrock flow regime. Therefore contaminant transport could look like this downward through the clay unit at some point in the future:



To try to evaluate potential leakage from the fill through the clay, groundwater results from the wells screened in the clay units in Areas of Interest (AOIs) were examined for detections of Cyanide, Phenols, Volatile Organic Compounds and Semivolatile Organic Compounds as anthropogenic indicators of leakage. Exceedances of metals were not used to avoid confusion as they could be naturally occurring. Results of the analysis are summarized below from the figures in Volume 2 of the RIR.

AOI	Well	Screen	Clay Unit	Compounds	RIR Figure
2 West	06c	30-40	lower	Phenol	4-8
2 West	05c	29-39	lower	Cyanide	4-13
2 East	12b	12-25	upper	Cyanide	4-18
4 East	13b	20-30	upper	VOC, SVOC*	4-32
5 East	19b	10-20	upper	VOC, SVOC*	4-38
5 East	25b	14-24	upper	Cyanide	4-38
7 West	17b	10-20	upper	Acetone**	4-50

Notes: *UPPERCASE shows multiple detections; **Common lab contaminant - not plotted.

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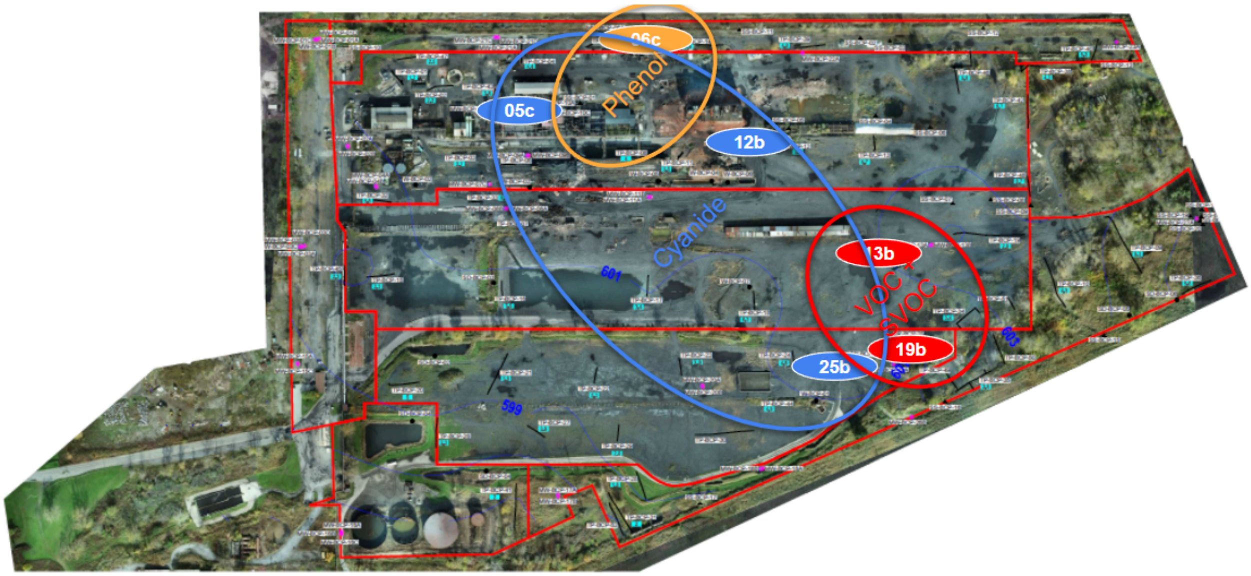


Results clearly show some migration of contaminants into the clay units.

In AOI 2 West, some contaminants have migrated to wells screened around 30 to 40 feet deep. Taking an average contaminant depth of 35 feet with an average fill thickness of about 5 feet means that some contaminants could have migrated 30 feet down from the fill into the clay.

Another possible explanation for the contaminant depth in the clay units in AIO 2 West is the concern raised in Comment 11 of the RI Work Plan in 2020: The Effect of Foundations on Groundwater Flow Pathways. The comment was based on the well-known fact that pilings are sometimes known to transmit contaminants down through aquitards. Reports done on behalf of EPA on “Deep Foundations on Brownfields Sites” have addressed the issue of piles penetrating contaminated soils and underlying aquitards, thereby providing migration pathways for contaminants. Among the pile types tested, steel H-piles and untreated wood piles “showed rapid and significant adverse changes in contaminant transfer.” (USEPA, 2002.) Similarly, New-York-based expert Ruwan Rajapakse notes in his book, Pile Design and Construction Rules of Thumb (Rajapakse, 2016), notes that “When piles are driven through contaminated soil into clean water aquifers, water migration pathways could be created. Water would migrate from contaminated soil layers above to lower aquifers.... When a pile is driven or bored, a slight gap is created.... H-piles are more susceptible for creating water migration pathways than circular piles.”

The photo submitted in the comment and included here for completeness shows the construction of a coke battery using steel piles. In the Terwilliger v Beazer (Court of Appeals of New York, June 11, 2019) Opinion, an expert witness for Honeywell asserted that at its Bethlehem Steel Lackawanna plant battery "workers drove 1,100 to 1,200 piles into the ground" to support the weight of its 76-oven coking battery. This would suggest that similar construction for the two batteries at Tonawanda Coke should have something on the order of

2,000 individual piles driven down to bedrock. A former Town of Tonawanda engineer confirmed that this would likely have been the case at Tonawanda Coke. Given the age of construction, it is likely that such steel H-piles were driven through the corrosive Odessa Silty Loam soil reported in the EDR GeoCheck included in the ESA into the Camillus Shale bedrock at the BCP Site.

A U.S. Army Corps of Engineers (USACE) report prepared for the Town of Amherst (attached) described the Odessa unit with properties associated with low strength, bearing capacity, and settlement characteristics. The RIR provides no discussion regarding the likelihood that the Tonawanda Coke battery was supported by piles, any statement as to the discovery (or lack thereof) or condition of such piles nor any statement regarding piles as a preferential pathway for vertical migration based on the RIR analysis of vertical gradients as indicated above.

In any event, if the migration of contaminants through the fill in AOI 2 West is due to clay fractures, detections would suggest that the permeability of 10-8 cm/s reported in the RIR was reflective of missing the fractures. This is likely to happen anytime there are till fractures since the chance of hitting a vertical fracture with a vertical borehole is very low.

In addition, the presence of high levels of VOCs and SVOCs shown in the above figure may also have two explanations. One regards the lack of investigation at the Light Oil Storage Area; although that area should technically be downgradient of the affected wells, it is possible that the contamination could be due to releases during rail offloading events. Another explanation is that this area is downgradient of Site 110.

Calculation of Vertical Migration of Contaminants in the Clay - Based on the geotechnical analysis conducted in the RIR, hydraulic conductivity was reported to be 3.3 x 10-8 cm/second. A previous report for this area suggested that this number could vary from 10-8 cm/s to as fast as 10-6 cm/s. Darcy's Law [q = -K*dh/dl] is used to calculate vertical flow from the general depths of the clay and hydraulic units across them as shown in the RIR.

Given the bottom of the fill at 4.5 ft, below ground surface (bgs) and the bottom of the lower clay (top of bedrock) at 54 ft. bgs, dl (length) = 49.5 ft. and given the hydraulic head in the fill at 1.5 ft. bgs and the hydraulic head in bedrock at 39 ft. bgs, dh (the difference in head) = -37.5 ft., indicating a downward gradient. Converting reported permeabilities from cm/sec to ft/yr:

3.3e-8 cm/s = 0.034 ft/y (from the RIR)
3.3e-6 cm/s = 3.4 ft/y (highest permeability for the unit from previous reports)

Applying Darcy's Law, the vertical rate of migration can be calculated:

dh (ft.)	dl (ft.)	dh/dl	-K (ft/y)	q (ft/y)	depth at 100 years
37.5	49.5	-0.758	0.034	-0.0258	-3

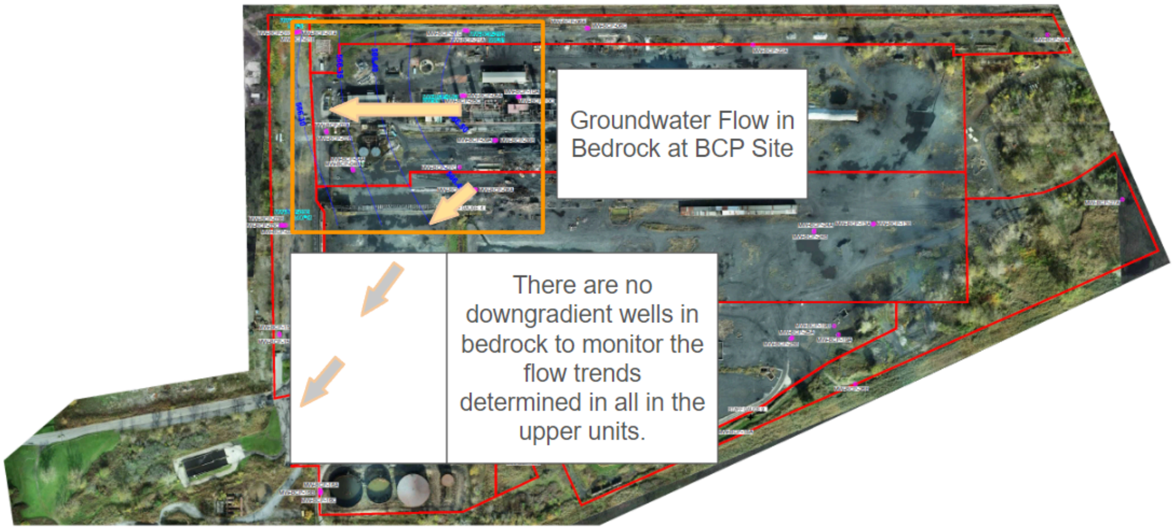
However, site chemistry shows that this is not correct as contamination has reached a depth of 35 feet, not 3 feet as calculated using the permeability measured in the RIR. Since contaminants in the production area are known to have reached depths of 35 feet in groundwater, this suggests, vertical leakage at pilings notwithstanding, that the only other variable that can be changed is the hydraulic conductivity, which can now be back-calculated from contaminant depth.

dh (ft.)	dl (ft.)	dh/dl	-K (ft/y)	q (ft/y)	depth at 100 years
37.5	49.5	-0.758	0.46	-0.3485	-35

This calculation assumes that contamination was released continuously for the past 100 years. At 0.345 ft./year, vertical downward migration through till fractures can be estimated. Since the top of bedrock is assumed in the RIR to be around 54 ft. bgs and contamination is currently present at 35 ft. bgs in the production area, it will migrate downward across 19 feet at a rate of 0.349 ft/yr, meaning bedrock will be at risk of receiving these contaminants in 54 years. However, it should be noted that since contaminants could have been released at any time over the last 100 years, this 54-year estimate could be quite low.

Future contamination of the bedrock aquifer is possible. Since the continuous source input has stopped, attenuation from source input, coupled with dispersion, could mean that a bedrock aquifer may not become contaminated above Class GA Groundwater Standards. However, there is no guarantee that this will be the case. The inherent uncertainties of hydraulic conductivity measurements reported in the RIR suggest the long-term concern for groundwater migration into the future.

Groundwater Flow in Bedrock - As shown below, a total of four bedrock wells were drilled and used to construct the groundwater flow map in bedrock. Given the locations and lack of sufficient bedrock wells precludes the measurement for flow in the south and southwest direction as suggested by previous studies.



<u>Recommendations:</u> Work should be considered to determine the source of contamination in the clay zone near the production area and whether that monitoring network is adequate. In addition, work should also be done to determine the level of contamination in the Light Oil Storage area and whether it is related to Site 110. In any event, downgradient monitoring of a potential transgressing contaminant plume from the BCP Site to Site 109 will be necessary.

Given the above analysis that bedrock contamination could be expected in the future, additional nested wells should be considered to the southwest upgradient of Site 109 into clay and bedrock units to monitor for the potential downgradient off-site transgression of groundwater contamination from the BCP site to Site 109.

Further, addressing the downward migration of contamination in the clay should be front and center when considering long-term groundwater monitoring, particularly considering the long-term potential for off site migration. Specific recommendations will be presented later in this document.

Comment 4 - Groundwater Control and Monitoring Concerns

Removal and treatment of groundwater will not reduce the toxicity of the contaminants, but it will reduce mobility and volume. However, a groundwater control strategy does not ensure long-term groundwater remediation. Specific long-term groundwater management concerns are presented below.

Natural Attenuation - Section 6.5.2.2 speaks to natural attenuation of contaminants in groundwater.. Natural attenuation occurs in very specific geochemical circumstances and no evidence is presented for the occurrence of natural attenuation of contaminants in groundwater at the BCP site. While contaminants in a groundwater plume may reach terminal or asymptotic concentrations below Class GA groundwater standards the dispersion and dilution, such a mechanism may not meet the definition of natural attenuation.

Pond - A pond has been proposed for surface water runoff collection during rainfall events. While the footprint of the pond has been presented, it does not seem that the depth of the pond has been considered. Since some contaminants have entered clay groundwater units, measures should be taken to protect the pond from future groundwater contamination. In addition to any permits necessary for operation of the pond, monitoring of the pond should be included in the long-term groundwater monitoring program for the specific purpose of understanding if and when the pond could become contaminated by groundwater in the future.

Hazardous Waste Cells - The remedy chosen in the AAR anticipates three cells that will likely be designed to meet RCRA Hazardous Waste Treatment Storage and Disposal Facility requirements. These cells must be monitored for leachate generation, and that monitoring should be included in the long-term groundwater management program.

Long-term Groundwater Management - Part of the proposed remedy will involve the collection and treatment of groundwater. We understand that the IRMs and associated pilot testing for groundwater collection and treatment systems are working at this time. However, it is unclear how such a system was costed out for the AAR; specifically, it appears that only certain existing trenches will be pumped. It is likely that a pre-design study may need to be conducted to determine the optimal configuration for the number and locations of the collection wells or trenches. A piezometer network can help to establish the adequacy of the groundwater control system separate from monitoring wells that can also be used for chemical analysis. The piezometer network would specifically be used to document the hydraulic control of groundwater.

Extended Groundwater Flow Regime - as discussed elsewhere in this memo, the BCP Site lies in proximity to a variety of nearby sites that are environmentally compromised. From the potential off-site upgradient source at Site 110, to the downgradient Huntley Ash Fill to the north and Site 109 and Allied to the southwest, , the entire area should be considered as a single groundwater flow regime. In the long-term monitoring program, consideration should be given to coordinating synoptic water level measurements from as many adjacent sites as possible.

Long-term Groundwater Monitoring Program - The types and amounts of contaminants left on site coupled with the design of the Hazardous Waste cells suggests that long-term monitoring should take the form of a RCRA-style detection monitoring program. Such a program could follow the procedures detailed in the Resource Conservation Recovery Act (RCRA) Ground Water Monitoring Technical Enforcement Guidance Document (TEGD.) The TEGD describes the essential components of a groundwater monitoring system that meets the goals of RCRA. Such a program would allow a statistical analysis of background data and the statistical analysis of detection monitoring data after the first year, as well as a comparison of background data with upgradient and downgradient data. Use of this sort of program allows the systematic measurement of the performance of the groundwater management program and helps determine when pumping stems and monitoring wells can be taken off line or if wells need to be added.

Recommendations: The following recommendations are offered:

1. Remove the reference to natural attenuation, or, strengthen or clarify it.
2. Consider a groundwater control system pre-design investigation as well as a piezometer network to monitor system performance.
3. Consider the location and depths of additional groundwater monitoring wells:
    a. At the Light Oil Storage Area, along with any necessary studies and wells required to properly design and operate a groundwater collection system in that location;
    b. To the southwest to monitor for lateral migration of contaminants in the clay unit and the eventual possibility of contaminants reaching bedrock, especially given the nature of the adjacent downgradient remediation parcels;
    c. To the north to monitor for lateral migration of contaminants toward the Huntley Ash Fill;
    d. To the east to monitor for the potential transgression of contaminants entering the BCP site from Site 110.
4. Consider coordination of synoptic water level measurements with adjacent or even other sites in the area for a more informed look at regional groundwater flow.
5. Align the long-term groundwater monitoring approach with RCRA Hazardous Waste TSDF statistical programs.

Comment 5 - Expected Future Data Gaps

No map showing future development has been provided; a map showing the available areas where development could occur would be helpful to understand the comprehensive nature of the remedy.

Given VOC results in AOI 4 East and 5 East, such a map would lay the groundwork for a Vapor Intrusion (VI) study that should be conducted before the design and construction of any structures. We assume that any development would bear the cost of vapor intrusion mitigation, however, the tasks for investigation and potential mitigation should be considered part of a remedy under state Brownfield laws and accounted for in the cost analysis.

Approval of the BCP Application requires the applicant to commit to future development to take advantage of the Brownfield program. Without some sort of conceptual design, it is assumed that all areas outside the hazardous waste cells, which will receive an engineered cap, will receive a cover. The Site Management Plan (SMP) must consider that the future development at the BCP Site may require excavation into areas where soils may not meet Soil Cleanup Objectives (SCOs) and contain plans for that eventuality.

We understand that a radiation survey is planned for the site. The results of the radiation survey may affect the chosen alternative. It would be prudent to either wait for the survey results to be sure to account for any remedial costs in the Alternatives Analysis, or, alternately, to account for remediation of some magnitude to cover this potential situation.

The liability from and for off-site impacts should be discussed in the Alternatives Analysis. A formal plan for financial liability for contamination transgression onto or off the BCP Parcel should be discussed. Specifically the potential liabilities for the following sites should be recognized:

1. Contaminant Transgression from Site 110 onto the BCP Site;
2. Contaminant Transgression from the BCP Site to Site 109;
3. Contaminant Transgression from the BCP Site to the Huntley Ash Fill;
4. Contaminant Transgression from the BCP Site to the former Allied Site; and
5. Contaminant Transgression from the BCP Site to the former North Drain Site.

Recommendations: Recognize future potential costs associated with VI and Radiation in the AAR with a requirement to incorporate those thoughts into the SMP. Further, a decision document from NYSDEC could require the SMP to evaluate potential for off-site site sources and downgradient transgression and develop a conceptual plan to manage such issues in the event that groundwater contamination is not controlled. In addition the SMP must recognize that future development may mean the disturbance of contaminants left in place and plan for the disturbance.

Comment 6 - Long-term Concerns

Long-term site management concerns are presented below.

Community Involvement - The process for community involvement during the remedial design, implementation and long-term operations and maintenance is unclear.

Financial Assurance - Privately-held companies that own sites with environmental liability may end up declaring bankruptcy when it suits them; for example, Tonawanda Coke Corporation. Because wastes will remain at the site in-perpetuity, a Financial Assurance requirement should be added to the NYSDEC decision document. These Financial Assurance instruments are used under 6 NYCRR Part 373 to ensure cleanup even if the owner becomes insolvent.

Recommendations: NYSDEC should include in its decision document a process for how the community will be able to review and comment on design specifications, O&M inspections and reports. In addition, NYSDEC should mandate a Financial Assurance instrument before accepting the RIR and AAR in order to ensure the appropriate cleanup and long-term management of the BCP Site.

Respectfully Submitted,

Thomas J. Morahan. P.G.
PG: NY001199

References

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INVENTUM ENGINEERING, PC. DRAFT Alternatives Analysis - Riverview Innovation & Technology Campus Brownfield Cleanup Program Site No. C915353 Tonawanda, New York, May 2024

NEW YORK STATE PROFESSIONAL GEOLOGICAL SERVICES PLLC. Phase I Environmental Site Assessment: Tonawanda Coke and Related Parcels, Tonawanda, NY, August 2020

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