INVENTUM ENGINEERING, PC

May 25, 2022
Revised March 17, 2023

To: Ben McPherson, Angie Martin

From: John Black, Daniel Flanigan

CC: Matt Reardon, Brandon Mikolin

Re: Pipe Rack Pipe Leak Work Plan
Operable Unit 3 – Site 108
3800 River Road
Town of Tonawanda, New York

In the late afternoon of May 12, 2022, a tar leak was observed during a routine inspection on the south side of the main pipe rack / conveyor system on 3800 River Road (a/k/a Site 108, NYSDEC #915055). The conveyor and pipe rack were former Tonawanda Coke Corporation (TCC) structures used to carry tar, coal, and coke to and from barges and ships docked in the Niagara River. The structure also supports the primary 2,300-volt electrical supply for the BCP Site. The pipes on the structure (Figure 1) and their assumed content include:

- North Side of Pipe Rack
  - 1,500 lineal feet @ 8-inch diameter, leaking, 50-percent full
  - 1,500 lineal feet @ 4-inch diameter, not leaking, empty
- South Side of Pipe Rack
  - 1,000 lineal feet @ 8-inch diameter, leaking, 50-percent full
  - 1,000 lineal feet @ 4-inch diameter, not leaking, empty
- Transfer Building to Pump House
  - 800 lineal feet @ 8-inch diameter, no visible leaks, 50-percent full

The pipe racks are inspected weekly. On May 24, 2022, two additional leaks were identified by Brandon Mikolin of GES (Photographs 9 and 10). Since that time, minor leakage has been observed into the collection drums and the wrapping has been replaced at sections. The accumulated volume of tar in the collection drum has been less than one gallon.

Inspection

During initial and subsequent inspection of the pipe rack (See Photographs, attached) very slight to more significant tar leaks have been noted from the eastern most end (River Road end) of the southern pipe rack supported pipe. Some leaks were observed at each end of the pipe rack as well as at intermediate points. All identified leaks or signs of tar on the outside of the pipes have been either wrapped or a collection drum has been installed.

The pipes in question were previously cut and capped during the River Road Tunnel ACM abatement project. The small leak that was first identified was brought to OSC's attention and additional heavy-duty tape was added to the end of the 8-inch diameter pipe. The leak stopped. In the late afternoon, a second

pipe rack inspection revealed the leak had resumed and the flow rate increased. Rising temperatures along with direct sunlight on the pipe rack seem to be reducing the tar viscosity and possibly expanding the volume. Upon closer observation, tar could be seen seeping from the seams of the tape on the top and bottom of the pipe. The capped, polyethylene sheeting covered, and heavy duty taped area of the pipe was soft to the touch, and tar could be observed pooling between the sheeting and pipe. The leaking tar was observed pooling on top of the concrete wall of the tunnel entrance, running down the wall of the tunnel, on top of 3 heavy duty electrical conduits, and into the water of the flooded tunnel just outside the western tunnel entrance (Photographs Nos. 1 and 2). No tar was observed on the south side (grassy area) of the concrete wall.

The entire pipe rack was inspected for leaks along the approximately 1,500-feet span (Photographs Nos. 3 to 10). Areas where previous repairs had been made (2 locations) showed no signs of active leaks. All valves were inspected, and no obvious signs of leaks were observed. Additionally, all valves were observed in the closed position. At the western most end of the pipe rack (Niagara River end), the pipe has a welded cap. Upon inspection of the cap, two (2) small beads of fresh, non-dried, tar were observed (Photographs Nos. 11 and 12). No additional staining or mobile tar was observed on the ground in the area. Only one pipe extends to the western end of the pipe rack.

Polyethylene drums were attached to the pipe at the three locations along the pipe to collect the known seeps. Rain shields were installed over the drums to prevent accumulation of rainwater. The pipes are inspected on a weekly basis to identify any additional leak points and to check the volume of tar in the collection container. Additional pipe wrapping was completed at the other known leak locations.

Ongoing Care

As consistent warm weather approaches, the pipes will require frequent inspections, management of the collected tar, and repairs and replacement of the polyethylene and tape wrapping. The pipe and collection containers will be inspected weekly whenever the temperature is consistently above 70^0F. Containers that have accumulated 50-percent or more of their volume shall be emptied into the waste storage cubic yard box in the metal shed west of the pumphouse or an open top container. The drums have not accumulated more than 48 ounces (1/2 gallon) of tar. Ongoing care to prevent leaks has required additional wrapping of the pipe, repairs to the shrouds protecting the drums from accumulations of precipitation and adding areas of wrapping as additional drips were identified during inspections.

Removal

The tar pipes (Figure 1) shall be removed and disposed offsite to eliminate the risk of a release and to reduce the labor required to inspect, reseal, and manage leak materials. The removal would include:

- Mobilization,
- Identify, deenergize, and label high voltage conduit within the pipe rack,
- Construct impacted pipe storage area (Figure 1);
- Remove 2,500 lineal feet of assumed empty 4-inch diameter pipe,
- Ship 4-inch pipe as scrap if no tar content or impacts are identified,
- Remove 2,700 lineal feet of 8-inch diameter pipe with tar (assumed 50% full), drain to drum or tote, and place in storage area,

- Seal ends of each pipe section after all mobile tar has been drained,
- Stage accumulated tar, including material scraped from the concrete tunnel walls and floor in container for offsite disposal at a permitted hazardous waste disposal facility,
- Sample the tar and water in the western tunnel entrance,
- Microencapsulate and dispose of an estimated 2,700 lineal feet of pipe and residual tar contents (approximately 91-tons) at a permitted hazardous waste disposal facility,
- Apply for a discharge permit and pre-treat water for discharge to the Town of Tonawanda POTW. Treatment residuals will be disposed with the tar wastes at a permitted hazardous waste disposal facility;
- Scrape and remove flowing tar in pump house,
- Isolate and pump the water from the western tunnel entrance, and
- Decontaminate concrete at tunnel entrance by scraping all accumulated tar from the surface. All tar residuals and other removed materials will be disposed of with the tar from the pipes at a permitted hazardous waste disposal facility.

Note, it has been assumed:

1. The brush and trees along the pipe alignment will be cleared, but no grubbing or offsite disposal of cut vegetation is required;
2. The electrical conduit will be de-energized and can be protected;
3. The conveyor and structure will remain in place;
4. The equipment in the pump house will remain in place, although all tar on the floor will be scraped and removed;
5. The pump house can remain in place;
6. The conveyor transfer station structure can remain in place;
7. No soil cleanup, unless mobile tar is exposed at the ground surface or a leak occurs during the remediation, is proposed at this time;
8. The areas of the active releases will be documented by GPS coordinates and any areas of exposed solidified tar will be surrounded by caution tape to prevent inadvertent access;
9. The pipe weight is similar to Schedule 80 carbon steel pipe for disposal purposes (this may be conservative as some pipe walls have deteriorated);
10. The box of breeze and tar from the pump house leak will be co-disposed.

Work Plan

The scope of work includes:

- De-energizing the 2,300-volt power supply on the conveyor rack;
- Clearing the trees and brush along the north and south sides of the conveyor structure to allow access;
- Construction of a 20-foot by 40-foot lined containment/stockpile area (Figure 1). The lining shall be 40-mil (min) high density polyethylene sheeting. Note: the containment area will be covered nightly with polyethylene sheeting;
- Protection of the north storm sewer along the north side of the conveyor structure;
- Removal of the steam line, process for recycling;

- Sequentially remove 3-foot to 7.5-foot long (maximum) sections of tar pipe from the conveyor structures.
- All work will be conducted in strict accordance with the site Health and Safety Plan (HASP, Tonawanda Coke, Tank Demolition, August 2019), and a task specific Job Safety Analysis (JSA), including the Hot Work Permit protocols as necessary (Note: Hot work is not anticipated);
- A CAMP Station (Appendix A) will be positioned between the active work zone and the Shoreline Trail (Note: the Shoreline Trail is no closer than 200-feet to the eastern extent of the work zone and is not cleared of snow in the winter months;
- Polyethylene sheeting and absorbent pads will be in place beneath the pipe work area as it progresses;
- Any potential areas of prior impact will be documented, and the GS coordinates recorded;
- Then a collection drum or lined tote will be put into position under each pipe section before pipe cuts are to be made;
- Each section of pipe will be drained of any remaining flowable residual, cut to manageable/recyclable lengths and placed in the lined containment/storage area;
- All liquids drained from the pipes will be collected in open top Department of Transportation (DOT) compliant 55-gallon drums or lined totes, the tar characterization/disposal sample will be collected directly from the tar flowing from a pipe section;
- The drums will be labeled, “Non-hazardous Pending Analysis” and will be stored in or near the containment area on the property.
- The pipe sections will be wrapped and staged for micro-encapsulation;
- Following removal of the pipe and spill prevention materials, the rack will be inspected and photographed by Inventum; and
- The electrical lines on the former conveyor structure will be reenergized and electrical power will be restored to the BCP Site.

Following collection of all liquid or other residual materials, samples will be collected. The liquids and solids will be tested for full waste characterization parameters:

1. TCL Volatile Organic Compounds (VOCs);
2. TCL Semi-Volatile Organic Compounds (SVOCs);
3. TAL Metals;
4. Pesticides and Herbicides;
5. PCBs;
6. Asbestos;
7. TCLP VOCs, SVOCs, Metals; and
8. Corrosivity, Reactivity and Ignitability.

Based on the volume of material expected; one sample of tar, one sample of the water from the western area near the tunnel entrance, and one sample from the box of residuals from the pump house will be collected. The tar sample will be collected directly from material flowing from a pipe section to preserve the potential VOC concentration.

The sample results will be shared with the New York State Department of Environmental Conservation (NYSDEC) and the appropriate disposal facilities and brokers. The NYSDEC will be notified no less than 5 days before any transportation of the drummed, solid, and pipe materials.

Please let us know if you have any questions.

Respectfully submitted,

John P. Black, P.E.

Attachments

Engineering Certification

I, John. P. Black certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Pipe Rack Pipe Leak Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Respectfully Submitted,

Inventum Engineering, P.C.

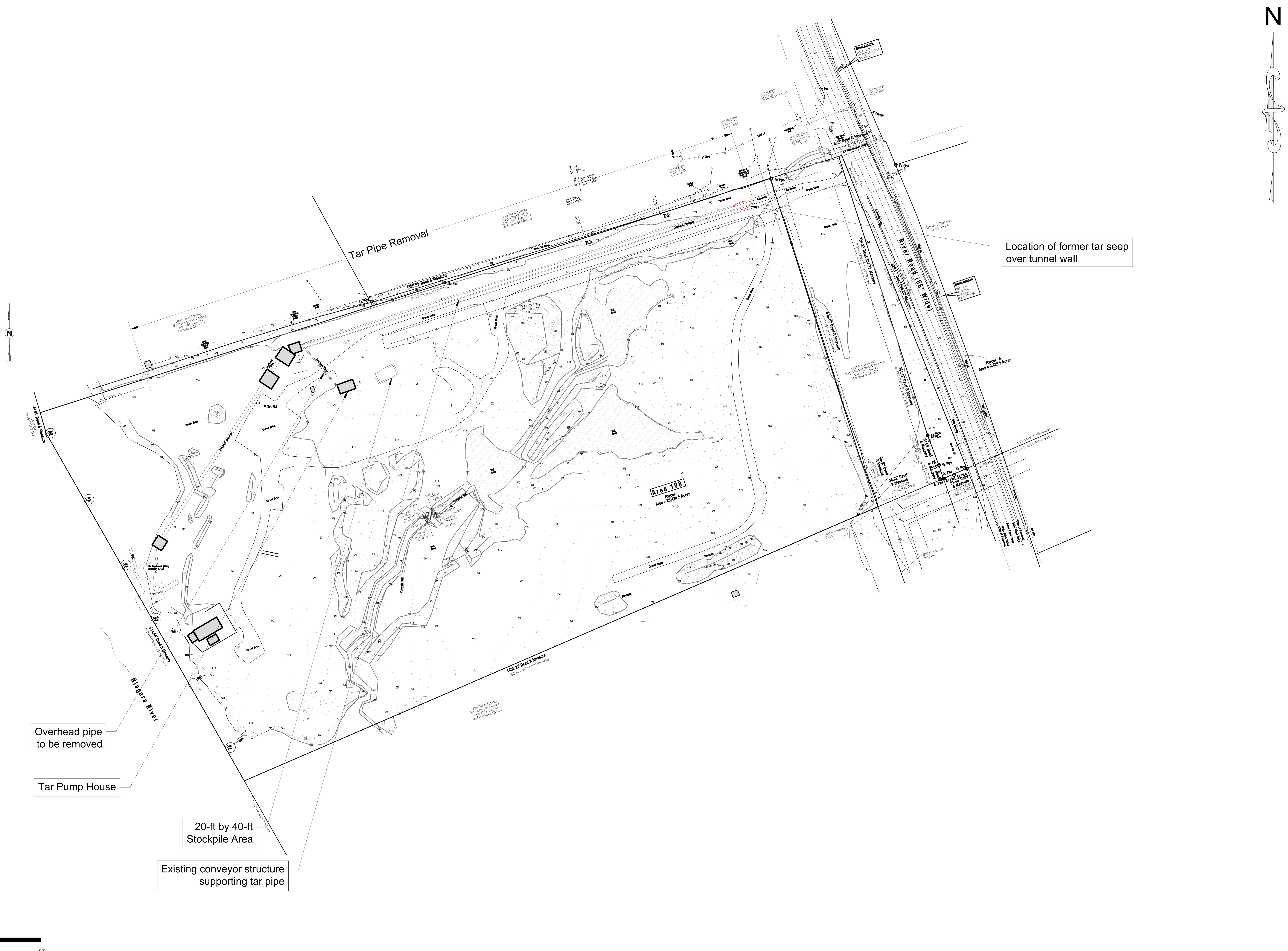
Date: March 17, 2023

John P. Black, P.E. License No: 062818-1

Seal:

It is a violation of the laws of New York, for any person, unless acting under the direction of a Licensed Professional Engineer, to alter any item or any portion of this document in any way. If an item bearing the seal of a Licensed Professional Engineer is altered, the altering Engineer shall affix to the item his/her seal and notation "altered by" followed by his/her signature and the date of such alternation, and a specific description of the alteration.

Figure



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DRAWING BY RB
CHECKED
APPROVED

TAR PIPE REMOVAL
3800 RIVER ROAD
RIVERVIEW INNOVATION & TECHNOLOGY CAMPUS, INC.
TOWN OF TONAWANDA, NEW YORK

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FIGURE 1
DRAWING NUMBER

Attachments

Photographs

Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/ conveyor**	**Project:** Tonawanda
Photo No. 1 **Direction Photo Taken:** North		
Description: North side of pipe rack / conveyor system from River Road Tunnel. Eastern most end of pipe rack (River Road side), and entrance to River Road Tunnel. Note tar dripping from top 8-inch diameter pipe.		
Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/conveyor**	**Project:** Tonawanda
Photo No. 2 **Direction Photo Taken:** South		
Description: South side of pipe rack. Note fresh flowable tar on concrete wall. To the east (left side of photo) is the entrance to the River Road tunnel.		

Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/ conveyor**	**Project:** Tonawanda
Photo No. 3 **Direction Photo Taken:** Northwest		
Description: Top 8-inch diameter pipe is leaking tar. Note the pipe was previously capped covered in poly and sealed with tape. The tar is seeping from the seams of the tape.		
Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/ conveyor**	**Project:** Tonawanda
Photo No. 4 **Direction Photo Taken:** Aerial		
Description: View is from top down. Note the tar staining on concrete, electrical conduit, and tar in tunnel water.		

Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/ conveyor**	**Project:** Tonawanda
Photo No. 5 **Direction Photo Taken:** East		
Description: Entrance to River Road Tunnel, south side of pipe rack /conveyor.		
Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/ conveyor**	**Project:** Tonawanda
Photo No. 6 **Direction Photo Taken:** Southwest		
Description: Pervious repair on south side of pipe rack. No observed leaks in this area. Same 8-inch diameter pipe from above photos.		

Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/ conveyor**	**Project:** Tonawanda
Photo No. 7 **Direction Photo Taken:** Southwest		
Description: Previous repair on south side of pipe rack. No observed leaks in this area. Same 8-inch diameter pipe from above photos.		
Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/ conveyor**	**Project:** Tonawanda
Photo No. 8 **Direction Photo Taken:** West		
Description: South side of pipe rack valve control area. All valves are in the closed position. No leaks observed in this location.		

Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/ conveyor**	**Project:** Tonawanda
Photo No. 9 **Direction Photo Taken:** Southeast **Description:** Pipes at the conveyor transfer station.		
Client Name: RITC	**Location of Cleanup: Site 108 north side of conveyor transfer station**	**Project:** Tonawanda
Photo No. 10 **Direction Photo Taken:** Northeast **Description:** North pipe rack, east of transfer building		

Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/ conveyor**	**Project:** Tonawanda
Photo No. 11 **Direction Photo Taken:** Southwest		
Description: Western most end of pipe rack (Niagara River right side of photo). Note the welded cap on the 8-inch diameter pipe. Note a small bead of fresh (wet) tar pictured bottom right.		
Client Name: RITC	**Location of Cleanup: Site 108 north side of pipe rack/ conveyor**	**Project:** Tonawanda
Photo No. 12 **Direction Photo Taken:** Northwest		
Description: Western most end of pipe rack (Niagara River top left side of photo).		

MARCH 17, 2023

Community Air Monitoring Plan (CAMP)

INVENTUM ENGINEERING, PC

Community Air Monitoring Plan

Operable Unit (OU) 3 (Site 108)

Of the Tonawanda Coke - State Superfund Site

Site No. 915055

3800 River Road

Tonawanda, NY 14150

March 17, 2023

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1 Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required.

- *The Tar Pipe removal work on 3800 River Road is limited in extent and duration[1]. The critical potential receptor location is the Shoreline Trail east of the work area.*
- *The monitoring location will be no more than 50 feet from the active work zone, between the activities and the Shoreline Trail. The CAMP Station will be moved as work progresses*.

Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

- *There are no sensitive receptors on the property. The closest residence is more than 0.5 miles away from the work zone.*

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

2 Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

- *VOC and particulate monitoring will be incorporated into the pipe removal activities.*

[1] The text in *italic font* are comments inserted by Riverview in addition to the standard CAMP Template.

Continuous monitoring will be required for all ground intrusive activities, during the demolition of contaminated or potentially contaminated structures, and during the decontamination and deconstruction of Above Ground Storage Tanks (ASTs). Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells. Decontamination and deconstruction of ASTs include, but are not limited to, removal of residual products, decontamination of ASTs and ancillary piping and equipment, and emptying and decontamination of secondary containment structures.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

- *During sampling periodic monitoring will be implemented with hand-held instruments.*

3 VOC Monitoring, Odors, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. If a tar related odor is observed at the property line by olfactory observation during active site work, work activities must be halted, the source of vapors identified, corrective actions taken to abate odors, and monitoring continued. After these steps, work activities can resume provided to the reported observed odor at the property boundary has diminished.

5. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

6. The NYSDEC and NYSDOH project managers will be notified there is an exceedance of the VOC action levels.

4 Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped, and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

4. The NYSDEC and NYSDOH project managers will be notified where there is an exceedance of the CAMP particulate monitoring action levels.

5 Controlled Demolition with Asbestos

The four controlled demolition buildings have been designated because they were either not safe for entry by the Asbestos Containing Material (ACM) inspection contractor (BCP-14, BCP-66 and BCP-68) or that contain loose asbestos packing that cannot be safely removed (BCP-56). These buildings will be demolished in place and the resulting demolition materials will be inspected and sampled after they are safely on the ground.

The demolition with ACM present will be preformed in accordance with NYS Code, Rules and Regulations Section 56-11.5(a)(b)(c). Required dust control measure of Section 56-11.5 will consist of:

1. Air sampling for asbestos at the upwind and downwind perimeter of the building work area will be conducted daily during activities including demolition, abatement, and cleaning.

2. All debris generated by the demolition shall be considered to be asbestos contaminated waste, except for structural members, steel components and similar non-suspect items which shall be fully decontaminated as per this Part, until sample results are available indicating ACM is not present.

3. The demolition waste shall be wetted on a continuous basis that is prior to, during and subsequent to its actual collection and removal. Fog nozzles or similar type of equipment shall be used to perform the wetting.

4. Wetted piles of waste. Piles of waste not actively being worked on, *i.e.*, piles being added to or portions being removed or piles left over extended periods of time, shall be covered with at least one layer of six mil polyethylene to retain its moisture level and to prevent fiber release.

5. Wetted piles of waste. Piles of waste not actively being worked on, *i.e.*, piles being added to or portions being removed or piles left over extended periods of time, shall be covered with at least one layer of six mil polyethylene to retain its moisture level and to prevent fiber release.

Appendix A-1
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;

(b) Measurement Ranges: 0.001 to 400 mg/m^3 (1 to 400,000 :ug/m^3);

(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m^3 for one second averaging; and +/- 1.5 g/m^3 for sixty second averaging;

(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);

(e) Resolution: 0.1% of reading or 1g/m^3, whichever is larger;

(f) Particle Size Range of Maximum Response: 0.1-10;

(g) Total Number of Data Points in Memory: 10,000;

(h) Logged Data: Each data point with average concentration, time/date and data point number

(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;

(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;

(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;

(l) Operating Temperature: -10 to 50^o C (14 to 122^o F);

(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m^3 (15 minutes average). While conservative, this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m^3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m^3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m^3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential-- such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads and demolitions;

(b) Wetting equipment and excavation faces;

(c) Spraying water on buckets during excavation and dumping;

(d) Hauling materials in properly tarped or watertight containers;

(e) Restricting vehicle speeds to 10 mph;

(f) Covering excavated areas and material after excavation activity ceases; and

(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m^3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.