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MEMORANDUM

TO:	Darlene Stringer, MDEQ Matt Gamble, MDEQ	REF. NO.:	017360-T05Y13
FROM:	Jeni Quigley/ds/69/Pwl.	DATE:	October 14, 2013
CC:	David Favero, RACER		
RE:	**Proposed Sample Locations** **2013 Site-Wide Investigation – Stage VI** **Former Grand Rapids Metal Plant** **Wyoming, Michigan**		

Conestoga-Rovers & Associates (CRA), on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust, conducted soil and groundwater investigation activities at the former Grand Rapids Metal Plant property located at 300 36th Street SW in Wyoming, Michigan (Site) between 2011 and 2013. This memorandum (Memorandum) has been prepared to present the Scope of Work (SOW) for additional assessment of the Site based on the results of previous investigations.

SCOPE OF WORK

The SOW presented below describes additional proposed investigation activities. The Areas of Interest (AOIs) described were presented in the memorandum entitled *Proposed Sample Locations, 2013 Site-Wide Investigation – Stage IV, Former Grand Rapids Metal Plant, Wyoming,* Michigan, which was submitted to the Michigan Department of Environmental Quality (MDEQ) on February 20, 2013. The procedures employed during the implementation of the SOW in the above document were described in the Site-Wide Investigation Work Plan (Work Plan), submitted to the MDEQ on January 7, 2011 and in subsequent discussions and correspondence. The proposed activities will be completed in accordance with the protocols specified in the Work Plan. The implementation of the proposed on-Site investigation activities will be contingent upon access availability to the Site and timing of any redevelopment work being conducted by the new property owner.

AOI 10.1 – Former Power House

The former Power House was constructed at the Site in 1970 and was located to the south of the former Main Manufacturing Building and adjacent to the east of the former Baler House. The Power House provided building heat and steam to the Site. The Power House was a multiple story building with a basement and included three natural gas–fired boilers, which had the ability to burn waste oil, No. 2 oil, or No. 6 oil. A below grade brine pit was present outside to the north of the former Power House and to the south of the former cooling water towers and pumps. A 500-gallon diesel AST was present within the Power House. Staining and sumps were noted in the basement of the current Power House. No evidence

of a release associated with the former Power House operations was observed or identified in the documents reviewed. The Power House was demolished in 2012 during Site redevelopment activities; however, the basement foundation floor and portions of the foundation walls remain in-place following Site grading activities. A soil sample collected from beneath the basement foundation from SB195-12 during the 2012 Site-Wide Investigation exhibited a concentration of benzo(a)pyrene above Part 201 Generic Non-Residential Cleanup Criteria (GNRCC). In order to further delineate contamination associated with the former Power House, three soil borings (SB274-13 through SB276-13) will be advanced around the former Power House foundation footprint to a maximum depth of 15 feet (ft.) below ground surface (bgs). Soil samples from each boring will be collected from the same depth as SB195-12 (11 to 13 ft. bgs) unless visual/olfactory soil impacts or elevated photoionization detector (PID) readings are observed. If such evidence is observed, a sample will be collected from that interval. Soil samples will be submitted to an analytical laboratory and analyzed for polynuclear aromatic hydrocarbons (PNAs). Figure 1 presents the proposed sample locations. Table 1 presents a summary of sample depths and analyses for the proposed locations.

AOI 27 – Bulk Unload Area

The Site formerly utilized the area to the west of Oil Stores for the bulk unloading of petroleum products. This area includes exterior load/unload fill ports and associated concrete pad, sump, and containment trench. The containment trench in this area was installed in 2004. During the installation of the containment trench, excavated materials were identified to have exceeded the toxicity characteristic leaching procedure (TCLP) limit for lead. Subsequently, investigations were conducted in this area between 2005 and 2013 to evaluate the nature and extent of impacts. The investigations in the bulk unload area have identified the presence of metals, PNAs, and polychlorinated biphenyls (PCBs) at concentrations above the Part 201 GNRCC in soil. In order to further delineate contamination associated with this area, seven soil borings (SB277-13, SB278-13, SB280-13, SB282-13, SB284-13, SB292-13, and SB294-13) will be advanced to a depth of 10 ft. bgs. Soil samples will be collected in 2-foot intervals for laboratory analysis of Target Compound List (TCL) volatile organic compounds (VOCs), PCBs, PNAs, and Site-specific Target Analyte List (TAL) metals. Figure 2 presents the proposed sample locations. Table 1 presents a summary of sample depths and analyses for the proposed locations.

Additionally, in order to characterize the soil in this area for potential disposal, 12 soil borings (SB279-13, SB281-13, SB283-13, SB285-13, SB286-13, SB287-13, SB288-13, SB289-13, SB290-13, SB291-13, SB293-13, and SB301-13) will be advanced in this area. Soil samples will be collected in 4-foot intervals for laboratory analysis of waste characterization parameters. Figure 2 presents the proposed sample locations. Table 1 presents a summary of sample depths and analyses for the proposed locations.

AOI 40 – On-Site Fill Area (Column Zc, Rows 5.5-7)

During Site demolition and re-grading activities in June 2012, a black fill material containing slag, metal fragments, and concrete rubble was uncovered beneath the slab in the former Main Manufacturing Building at Column Zc, Rows 5.5 through 7. A sample of the fill material was collected from 0.25 to 1 ft. bgs and the demolition contractor was requested to leave the materials in place for evaluation at a later date. Several metals, PNAs, and trichloroethylene (TCE) were detected at concentrations above the Part 201 GNRCC in the soil sample collected. Subsequent soil samples collected during the 2012 and 2013 Site-wide investigations also exhibited concentrations of metals, PNAs, and TCE above the Part 201 GNRCC. In order to further delineate contamination associated with the fill material, four soil borings (SB295-13, SB297-13,

SB299-13, and SB300-13) will be advanced to a depth of 10 ft. bgs and soil samples will be collected in 2-foot intervals for laboratory analysis of TCL VOCs, PNAs, and Site-specific TAL metals. Soil boring SB300-13 will be advanced to the water table and a temporary monitoring well (TW300-13) will be installed in the annulus. A grab groundwater sample will be collected from TW300-13 for laboratory analysis of TCL VOCs. Figure 2 presents the proposed sample locations. Table 1 presents a summary of sample depths and analyses for the proposed locations.

Additionally, in order to characterize the soil in this area for potential disposal, two soil borings (SB296-13 and SB298-13) will be advanced in this area. Soil samples will be collected in 4-foot intervals for laboratory analysis of waste characterization parameters. Figure 2 presents the proposed sample locations. Table 1 presents a summary of sample depths and analyses for the proposed locations.

Please contact David Favero at (217) 741-6235 or Jeni Quigley at (269) 685-5181 with any questions regarding this Memorandum.

No	Revision	Date	Initial

0 80 140ft

LEGEND

- SB296-13 PROPOSED WASTE CHARACTERIZATION SAMPLE BORING LOCATION
- SB275-13 PROPOSED SOIL BORING LOCATIONS
- SB269-13 HISTORICAL SOIL BORING LOCATIONS
- TW20-2 HISTORICAL SAMPLE LOCATION
- MW6-03 HISTORICAL MONITORING WELL LOCATION
- MW25-11 DESTROYED MONITORING WELL LOCATION
- APPROXIMATE SITE BOUNDARY
- FENCE
- RAILROAD
- COLE DRAIN
- APPROXIMATE AOI

KEY MAP

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

PROPOSED SAMPLE LOCATIONS

SITE-WIDE INVESTIGATION - STAGE VI

FORMER GRAND RAPIDS METAL PLANT
WYOMING, MICHIGAN

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager:	Reviewed By:	Date:
J.Q.	E.B.	OCTOBER 2013
Scale: 1:140	**Project No:** 017360-T05	**Report No:** MEMO069 / **Drawing No:** Figure 1

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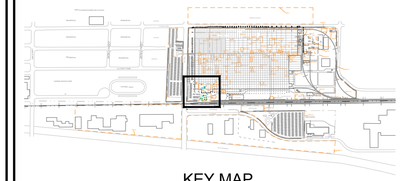
No	Revision	Date	Initial

0 10 20ft

LEGEND

- SB296-13 PROPOSED WASTE CHARACTERIZATION SAMPLE BORING LOCATION
- SB300-13 PROPOSED SOIL BORING LOCATIONS
- SB254-13 HISTORICAL SOIL BORING LOCATION
- TW20-2 HISTORICAL SAMPLE LOCATION
- MW6-03 HISTORICAL MONITORING WELL LOCATION
- MW25-11 DESTROYED MONITORING WELL LOCATION
- APPROXIMATE SITE BOUNDARY
- FENCE
- RAILROAD
- COLE DRAIN
- APPROXIMATE AOI



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PROPOSED SAMPLE LOCATIONS

SITE-WIDE INVESTIGATION - STAGE VI

FORMER GRAND RAPIDS METAL PLANT
WYOMING, MICHIGAN

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager:	Reviewed By:	Date:	
J.Q.	E.B.	OCTOBER 2013	
Scale: 1:20	Project No: 017360-T05	Report No: MEMO069	Drawing No: Figure 2

017360-T05(MEMO069)GN-DE008 OCT 14/2013

TABLE 1
PROPOSED SAMPLE LOCATIONS - SITE-WIDE INVESTIGATION STAGE VI
FORMER GRAND RAPIDS METAL PLANT
WYOMING, MICHIGAN

Sample Location	Soil Sample Analyses	Sample Depth(s) (ft bgs)	Sampling Rationale
SB274-13	PNAs	11-13	Delineation of NRDCC exceedance associated with SB195-12
SB275-13	PNAs	11-13	Delineation of NRDCC exceedance associated with SB195-12
SB276-13	PNAs	11-13	Delineation of NRDCC exceedance associated with SB195-12
SB277-13	TCL VOCs [1] PNAs TAL Metals PCBs	0-2, 2-4, 4-6, 6-8, 8-10	Attempt to reduce the extent of excavation
SB278-13	TCL VOCs [1] PNAs TAL Metals PCBs	4-6, 6-8, 8-10	Attempt to reduce the extent of excavation; previous data indicates that no NRDCC or NRPSIC exceedances exist in the 0-2 ft or 2-4 ft bgs interval.
SB279-13	TCLP VOCs[1] TCLP Metals	0-4	Waste characterization in support of planned remedial action
SB280-13	TCL VOCs [1] PNAs TAL Metals PCBs	4-6, 6-8, 8-10	Attempt to reduce the extent of excavation; previous data indicates that no NRDCC or NRPSIC exceedances exist in the 0-2 ft or 2-4 ft bgs interval.
SB281-13	TCLP VOCs[1] TCLP Metals	0-4	Waste characterization in support of planned remedial action
SB282-13	TCL VOCs [1] PNAs TAL Metals PCBs	4-6, 6-8, 8-10	Attempt to reduce the extent of excavation; previous data indicates that no NRDCC or NRPSIC exceedances exist in the 0-2 ft or 2-4 ft bgs interval.
SB283-13	TCLP VOCs[1] TCLP Metals[1]	0-4	Waste characterization in support of planned remedial action
SB284-13	TCL VOCs [1] PNAs TAL Metals PCBs	4-6, 6-8, 8-10	Attempt to reduce the extent of excavation; previous data indicates that no NRDCC or NRPSIC exceedances exist in the 0-2 ft or 2-4 ft bgs interval.
SB285-13	TCLP VOCs[1] TCLP Metals	0-4	Waste characterization in support of planned remedial action
SB286-13	TCLP VOCs[1] TCLP Metals	0-4	Waste characterization in support of planned remedial action
SB287-13	TCLP VOCs[1] TCLP Metals	0-4	Waste characterization in support of planned remedial action
SB288-13	TCLP VOCs[1] TCLP Metals	0-4	Waste characterization in support of planned remedial action
SB289-13	TCLP VOCs[1] TCLP Metals	0-4	Waste characterization in support of planned remedial action
SB290-13	TCLP VOCs[1] TCLP SVOCs TCLP Metals	0-4	Waste characterization in support of planned remedial action
	TCL VOCs [2]	0-2, 2-4, 4-6, 6-8, 8-10	Investigation of the presence of VOCs in "hotspots" identified within the Bulk Unload Area
SB291-13	TCLP VOCs[1] TCLP SVOCs TCLP Metals	0-4	Waste characterization in support of planned remedial action
	TCL VOCs [2]	0-2, 2-4, 4-6, 6-8, 8-10	Investigation of the presence of VOCs in "hotspots" identified within the Bulk Unload Area
SB292-13	TCL VOCs [1] PNAs TAL Metals PCBs	2-4, 4-6, 6-8, 8-10	Attempt to reduce the extent of excavation; previous data indicates that no NRDCC or NRPSIC exceedances exist in the 0-2 ft bgs interval.
SB293-13	TCLP VOCs[1] TCLP Metals[1]	0-4	Waste characterization in support of planned remedial action
SB294-13	TCL VOCs [1] PNAs TAL Metals PCBs	2-4, 4-6, 6-8, 8-10	Attempt to reduce the extent of excavation; previous data indicates that no NRDCC or NRPSIC exceedances exist in the 0-2 ft bgs interval.
SB295-13	TCL VOCs PNAs TAL Metals	2-4, 4-6, 6-8, 8-10	Attempt to reduce the extent of excavation; previous data indicates that no NRDCC or NRPSIC exceedances exist in the 0-2 ft bgs interval.
SB296-13	TCLP VOCs TCLP Metals	0-4	Waste characterization in support of planned remedial action
SB297-13	TCL VOCs PNAs TAL Metals	2-4, 4-6, 6-8, 8-10	Attempt to reduce the extent of excavation; previous data indicates that no NRDCC or NRPSIC exceedances exist in the 0-2 ft bgs interval.
SB298-13	TCLP VOCs TCLP SVOCs TCLP Metals	0-4	Waste characterization in support of planned remedial action
SB299-13	TCL VOCs PNAs TAL Metals	2-4, 4-6, 6-8, 8-10	Attempt to reduce the extent of excavation; previous data indicates that no NRDCC or NRPSIC exceedances exist in the 0-2 ft bgs interval.
SB300-13/TW300-13	TCL VOCs PNAs TAL Metals	2-4, 4-6, 6-8, 8-10	Attempt to reduce the extent of excavation; previous data indicates that no NRDCC or NRPSIC exceedances exist in the 0-2 ft bgs interval.
	TCL VOCs	water table	Investigation of groundwater quality downgradient of the Zc-5.5 Area
SB301-13	TCLP VOCs[1] TCLP Metals[1]	0-4	Waste characterization in support of planned remedial action

Notes:
[1] Sample Analysis will be placed on "hold" pending results of samples with accelerated turnaround time
[2] Samples will be analyzed on an accelerated 5-day turnaround time.
ft bgs - feet below ground surface
DCC - Direct Contact Criteria
NR - Non-Residential
PNAs - Polynuclear Aromatic Hydrocarbons
PSIC - Particulate Soil Inhalation Criteria
SVOCs - Semi-volatile Organic Compounds
TAL - Target Analyte List
TCL - Target Compound List
VOCs - Volatile Organic Compounds