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MEMORANDUM

TO:	Darlene Stringer, MDEQ Matt Gamble, MDEQ	REF. NO.:	017360-T05121-06Y12
FROM:	EB for Jeni Quigley/jq/59/Pwl.	DATE:	October 16, 2012
CC:	David Favero, RACER		
RE:	**Proposed Sample Locations 2012 Site-Wide Investigation – Stage III 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) in 2011 and 2012. The scope of work implemented was described in the Site-Wide Investigation Work Plan (Work Plan), submitted to the Michigan Department of Environmental Quality (MDEQ) on January 7, 2011 and in subsequent discussions and correspondence. This memorandum (Memorandum) has been prepared to present the scope of work for additional assessment of the Site based on the results of previous investigations conducted at the Site. Additionally upon the approval of the MDEQ, it is anticipated that the October 2012 Semi-Annual Groundwater Monitoring activities will be completed in conjunction with the Stage III Site-wide investigation pending the installation of new monitoring wells to replace those destroyed during demolition activities conducted at the Site as part of the on-going redevelopment of the property.

Table 1 presents the proposed 2012 Stage III Site-Wide Investigation sample matrix. Figure 1 presents the proposed sample locations for all areas of the plant with the exception of the former Tar House and former Bulk Unload Area, which are shown on Figures 2 and 3, respectively. All activities will be completed in accordance with the protocols specified in the Work Plan. Advancement and installation of borings and wells are subject to access approval by the new property owner for proposed on-Site locations, by the City of Wyoming and/or the Michigan Department of Transportation (MDOT) to the northwest of the Site for proposed off-Site locations, and by Norfolk Southern Railroad Corporation to the west of the Bulk Unload Area for proposed off-Site locations. The implementation of the proposed investigation activities will be contingent upon access availability to the Site and timing of the redevelopment work currently underway by the new property owner. Additionally, due to timing and budgetary constraints, portions of the attached scope of work may not be able to be completed until a later date.

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

NO.	Revision	Date	Initial

0 80 140ft

LEGEND

- SB189-12 PROSED SOIL BORING LOCATIONS
- SB51-11 STAGE I/II SITE-WIDE INVESTIGATION SOIL BORING LOCATION
- TW20-2 HISTORICAL SAMPLE LOCATION
- MW6-03 HISTORICAL MONITORING WELL LOCATION
- SB78-11/ MW21-11 STAGE I/II SITE-WIDE INVESTIGATION SOIL BORING/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 III

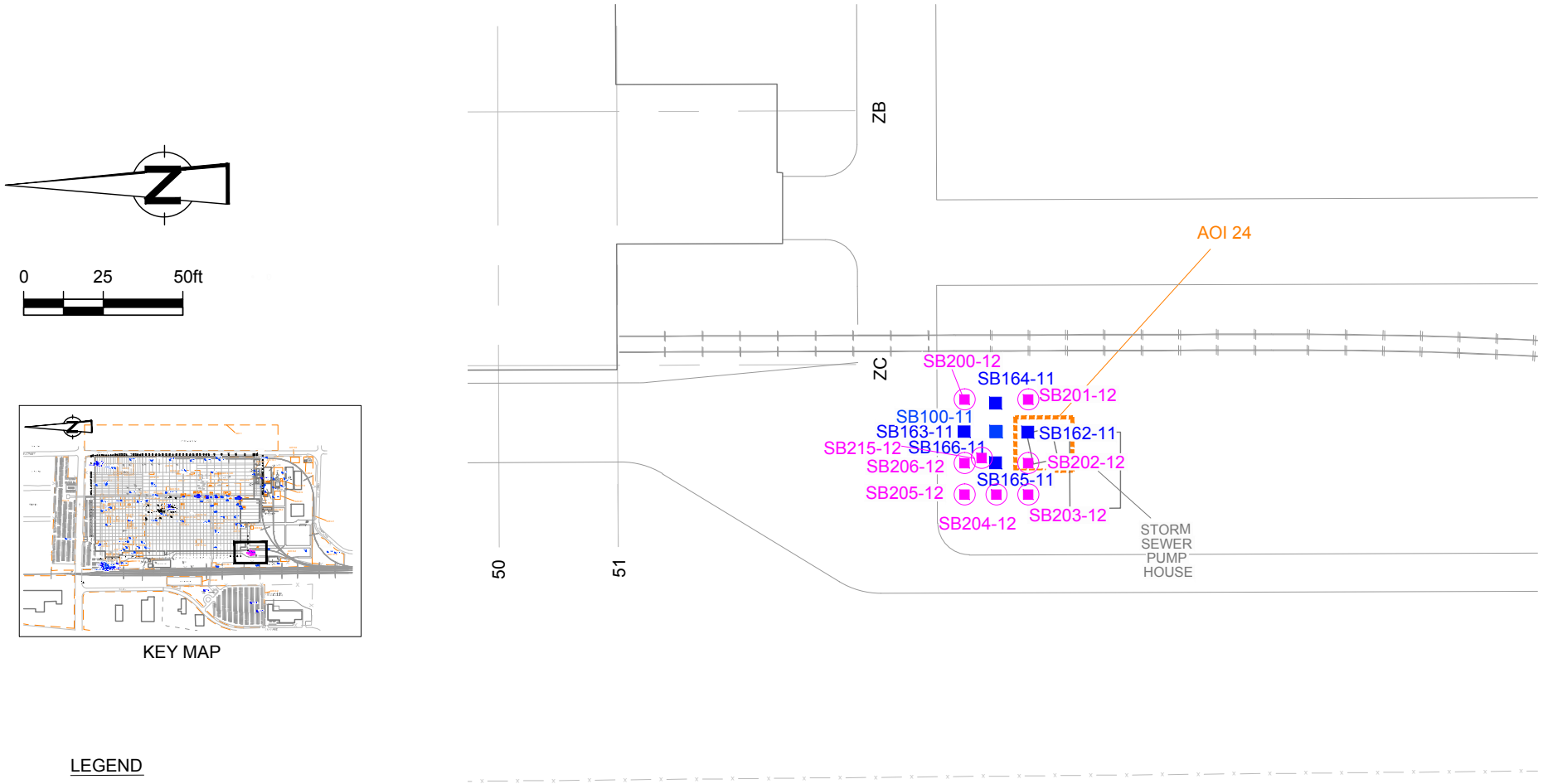
FORMER GRAND RAPIDS METAL PLANT
WYOMING, MICHIGAN

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager:	Reviewed By:	Date:	
J.Q.	E.B.	SEPTEMBER 2012	
Scale: 1:140	Project No: 017360-T05	Report No: MEMO059	Drawing No: FIGURE 1

017360-T05(MEMO059)GN-DE002 SEP 25/2012



LEGEND

FENCE

RAILROAD

APPROXIMATE AOI

LEGEND

SB204-12 PROPOSED SOIL BORING LOCATION

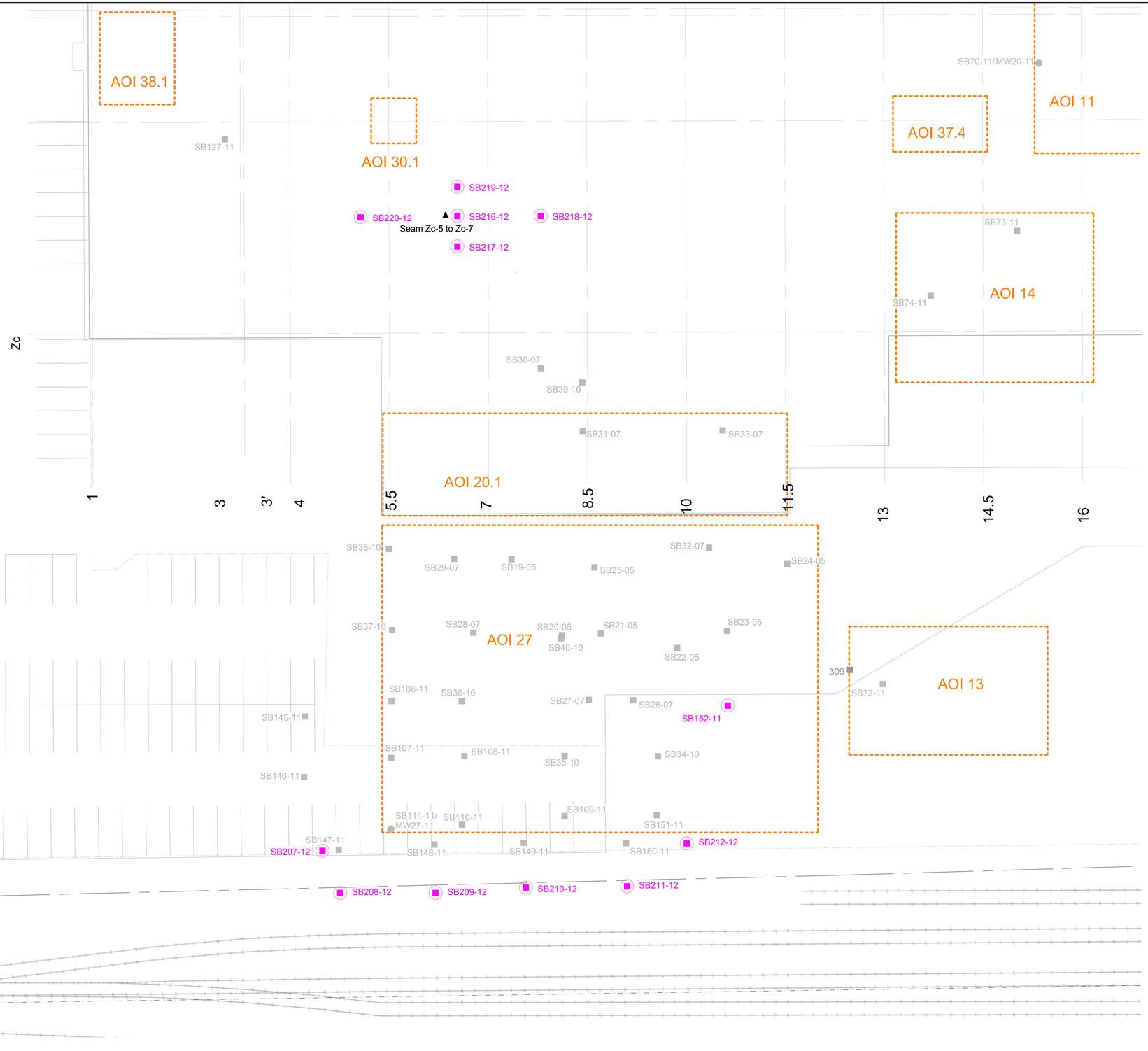
SB51-11 STAGE I/II SITE-WIDE INVESTIGATION SOIL BORING LOCATION

figure 2

PROPOSED SAMPLE LOCATIONS - FORMER TAR HOUSE
SITE-WIDE INVESTIGATION - STAGE III
FORMER GRAND RAPIDS METAL PLANT

Wyoming, Michigan

017360-T05(MEMO059)GN-DE001 OCT 16/2012

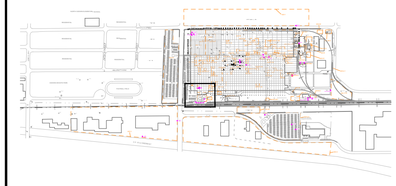


N

0 10 20ft

LEGEND

- SB145-11 PROPOSED SOIL BORING LOCATION
- SB51-11 STAGE I/II SITE-WIDE INVESTIGATION SOIL BORING LOCATION
- SB78-11/MW21-11 STAGE I/II SITE-WIDE INVESTIGATION SOIL BORING/MONITORING WELL LOCATION
- Seam Zc-5 to Zc-7 GRAB SAMPLE LOCATION
- APPROXIMATE SITE BOUNDARY
- FENCE
- RAILROAD
- COLE DRAIN
- APPROXIMATE AOI



SCALE VERIFICATION

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

PROPOSED SAMPLE LOCATIONS- BULK UNLOAD AND Zc-5.5 AREAS

SITE-WIDE INVESTIGATION - STAGE III

FORMER GRAND RAPIDS METAL PLANT
WYOMING, MICHIGAN

CONESTOGA-ROVERS & ASSOCIATES

Source Reference: SOURCE: EDI ENGINEERING & SCIENCE, JUNE 1987 AND JUNE 1988 AND EARTH TECH, SEPTEMBER 2001.			
Project Manager: J.Q.	Reviewed By: E.B.	Date: SEPTEMBER 2012	
Scale: 1" = 20'	Project N°: 017360-T05	Report N°: MEMO059	Drawing N°: FIGURE 3

017360-T05(MEMO059)GN-DE003 OCT 16/2012

TABLE 1

PROPOSED STAGE III SAMPLE MATRIX
SITE-WIDE INVESTIGATION
FORMER GRAND RAPIDS METAL PLANT
WYOMING, MICHIGAN

AOI Number	*AOI Description*	*Summary of AOI*	*Summary of Previous Results/Exceedances*		*Proposed Sample Locations* [1]		*Number of Samples*	*Analytical Parameters* [2, 3]
			Matrix	*Location*	*Matrix*			
AOI 1	Adjacent Properties - East of Buchanan Avenue SW between 36th Street and 40th Street	Based on the review of historical information, the adjacent properties to the east of the Site, across Buchanan Avenue SW, have been operated as commercial/industrial properties since at least 1950, with a gas station operating on the properties associated with 3565 and/or 3636 Buchanan Avenue SW from between at least 1938 to 1975. Additional historical commercial/industrial occupation of properties noted on Sanborn maps and in city directories includes: a gas station at the intersection of 36th Street SW and Buchanan Avenue SW since at least 1966; a buried gas tank on the property located at 3700 Buchanan Avenue SW; a paint shop at 3818 Buchanan Avenue SW; auto repair facilities at 3826 Buchanan Avenue SW; heat treat operations at 3832 Buchanan Avenue SW; and a machine shop at 3890 Buchanan Avenue SW. In addition, the properties located adjacent to the east of the Site across Buchanan Avenue SW at 3890 Buchanan Avenue SW (Conical Tool Company), 3832 Buchanan Avenue SW (entity not listed), and 3840 Buchanan Avenue SW (Commercial Heat Treating Company) are listed in the Baseline Environmental Assessment (BEA) Database indicating exceedances of Part 201 GRCC are present on those properties.	Soil		Soil	1 soil boring (HP28-12)	2 soil samples, 0-2 ft. bgs and above water table	VOCs
			Water	VOCs > DWC	Groundwater	Vertical Aquifer Sampling (HP28-12) 1 monitoring well (MW47-12, installed adjacent to HP28-12)	4 hydropunch gw samples, samples collected at 10 foot intervals beginning at the water table until the clay confining layer is encountered (which is anticipated at approximately 40 feet bgs) 1 gw sample	VOCs
AOI 2	Adjacent Properties - Along Clay Avenue SW to the west of the Site	Based on the review of the environmental database search results, the Ryder Truck property located at 3663 Clay Avenue SW is listed in the LUST Database as having an open status. Additionally, the property located at 3940 Clay Avenue SW (entity not listed), to the south of the Clay Avenue Parking Lot portion of the Site, is listed in the BEA Database, indicating exceedances of Part 201 GRCC are present on that property.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 3	Adjacent Properties - West side of Cole Drain to the northwest of the Site	The area to the northwest of the Site has been developed for industrial use since at least 1960, based on aerial photographs. Based on the nature of the long-term historical operations conducted on these properties, the groundwater flow direction to the north-northeast in this area making these properties downgradient and cross-gradient of the Site, and the known impacts on those properties above the Part 201 GRCC that may be commingling with the plume from the Site.	Soil		Soil	2 soil borings (HP29-12 and HP30-12)	4 soil samples, 0-2 ft. bgs and above water table for each	VOCs
			Water	VOCs > DWC	Groundwater	Vertical Aquifer Sampling (HP29-12 and HP30-12) 2 monitoring wells (MW48-12 and MW49 12, installed adjacent to HP29-12 and HP30-12)	12 hydropunch gw samples, samples collected at 10 foot intervals beginning at the water table until the clay confining layer is encountered (which is anticipated at approximately 60 feet bgs) at each location 2 gw samples	VOCs
AOI 4	Historical Site Operations							
AOI 4.1	Long-Term Industrial Operations - Main Parcel	The majority of the Site was operated on a long-term basis as an industrial property between 1936 and 2010, including operations associated with stamping, machining, degreasing, metal finishing, and various other manufacturing operations and the associated industrial infrastructure (i.e. sewers, pits, etc.). No specific documentation was available regarding chemicals used, chemical storage locations, or historic disposal practices during the entire timeframe the property has been utilized for industrial purposes. Industrial facilities like the Site typically, either currently or historically, use significant quantities of chlorinated solvents, heavy metals, PCBs, and petroleum products.	Soil	TCE> DWPC	Soil	1 soil boring (SB189-12)	2 soil samples, 0-2 ft. bgs	VOCs, SVOCs, TAL Metals, PCBs
			Water	Manganese - MW18-10, 87-11 85-1, 85-2, 85-5B, 87-2 Zinc - 85-7, 87-1, 87-4, 87-5, 87-11 Chromium - 86-1 Lead - 87-5 > DWC or GSIC	Groundwater	Grab gw sample from soil boring	1 gw sample	VOCs, SVOCs, TAL Metals[4], PCBs
						Site perimeter monitoring wells 85-1, 85-2, 85-5B, 85-7, 86-1, 87-1, 87-2, 87-4, 87-5, 87-11, MW18-10	11 gw samples	TAL Metals and speciated chromium (86-1 only) (in addition to other Semi-Annual Monitoring parameters)
					Surface Water	1 grab sw sample (Cole Drain)	1 sw sample	Hardness, pH
AOI 4.2	Historical Operations - Western Parcel	The property to the west of the former main manufacturing property along Clay Avenue SW was historically utilized for agricultural purposes and for water supply wells, a softener plant, and a chlorinator building. A 1957 drawing and 1960 aerial photograph identify the presence of small structures located on this property. The 1957 drawing identifies Well Nos. 11 to 16, a softener plant, and a chlorinator building on this property. Based on the historic use of the western portion of the Site as cultivated farmland, agricultural chemicals such as pesticides, herbicides and fertilizer would have historically been used on the Site. Information regarding historic use, storage or application rates was not available. If the chemicals were applied in accordance with manufacturer recommendations, residuals remaining in Site soils would be expected to be similar to other area properties. Application of agricultural chemicals for intended use is not considered a release.	Soil		Soil	None	N/A	N/A
			Water	Manganese, Sodium, Copper, and Vanadium > DWC or GSIC	Groundwater	None	N/A	N/A

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FORMER GRAND RAPIDS METAL PLANT
WYOMING, MICHIGAN

AOI Number	*AOI Description*	*Summary of AOI*	*Summary of Previous Results/Exceedances*		*Proposed Sample Locations* [1]		*Number of Samples*	*Analytical Parameters* [2, 3]
			Matrix	*Location*	*Matrix*			
AOI 4.3	Historical Operations - Northern Parcels	The properties to the north of 36th Street SW were historically utilized for residential, agricultural, and commercial purposes. Based on the review of historical aerial photographs, city directories, topographic maps, and Site drawings, portions of the Site were historic residential and commercial properties. No information was available regarding the type of heating, UST or AST use, or the presence of septic systems, cesspools or water wells. Based on the historic use of the northern portion of the Site as cultivated farmland, agricultural chemicals such as pesticides, herbicides and fertilizer would have historically been used on the Site. Information regarding historic use, storage or application rates was not available. If the chemicals were applied in accordance with manufacturer recommendations, residuals remaining in Site soils would be expected to be similar to other area properties. Application of agricultural chemicals for intended use is not considered a release.	Soil	Selenium > GSIPC	Soil	None	N/A	N/A
			Water	Zinc, Copper > GSIC Lead > DWC	Groundwater	None	N/A	N/A
AOI 5	Release from Press HS-5 (Columns B to F, Rows 34 to 39)	Contamination from a release of water-soluble oil from a press pit pan (HS-5 Press, which was identified to be near Press Z-1, in 15-Bay) was identified in soil and groundwater at the Site in 1981. The release was investigated in 1981 and 1982, with soil and groundwater samples collected in this area. Black stained soil was observed during the sample collection. Soil and groundwater samples collected during the investigation were analyzed for grease and oil, TOC, and chlorinated paraffin. Based on analytical results from soil and groundwater samples collected in the vicinity of the release and a review of the MSDS for the oil, EDI concluded that no chemicals of concern were detected in the soil or groundwater samples above the applicable regulatory limits at the time the samples were collected. Analysis for PNAs, metals or PCBs was not conducted on the samples.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 6	LNAPL and SVOC-Impacted Groundwater (Columns A to C, Rows 11 to 18)	An area in the northeastern portion of the Site was excavated during plant modernization activities in June 1985. The excavation was approximately 20 feet in depth, and was located near Column A-15 of the plant. Soil was removed in particular areas to the water table, where a layer of free product was observed. The free product was believed to consist of mineral seal oil and/or mineral spirits, which were used in processes in this portion of the plant for approximately 50 years. According to Site records reviewed, a release was reported to the National Response Center and the MDNR on July 26, 1985. During demolition activities in 2011, the basement to the northwest of this area was flooded and an oil sheen was observed on top of the water. Shortly after, the water level receded. Additionally, during redevelopment activities in 2012 near Column A-16 to A-18, oil globules were observed on the surface of the water table and near Column A-21, a mineral spirits-type odor was noted.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	Check for LNAPL in replacement monitoring wells for MW18-10, 85-5B, 85-6, and 86-1. Install 3 new monitoring wells downgradient (MW50-12 - MW52-12). Conduct recovery test for LNAPL, if observed, to determine transmissivity of LNAPL.	3 gw samples	VOCs, SVOCs, PCBs
AOI 7	Former Metal Finishing Operations							
AOI 7.1	Bonderizing Operations (Columns U to W, Rows 42 to 46)	A bonderizing/prime system was identified on a 1951 drawing between Columns U and W, Rows 42 to 46 in the former Main Manufacturing Building. This system included an alkali rinse, hot rinse, bonderite, cold rinse, and chromic acid dip tanks, a blow off oven, a prime spray booth, a final spray booth, and a final oven. The drawing also identified floor drains and a sludge tank in this area.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 7.2	Lacquer and Cement Spray (Columns O to Q, Rows 39 to 42)	Lacquer and cement spray booth operations were identified on a 1939 drawing to have been historically conducted on instrument panels from Columns O to Q, Row 39 to 42 in the former Main Manufacturing Building. Site personnel also indicated that this area was historically utilized for zinc prime operations in subsequent years. No further information regarding these operations was available.	Soil	Methylene Chloride > DWPC	Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 7.3	Anti-Rust Spray Booth No. 1 (Columns U to X, Row 16)	Anti-rust oil spray booth operations, which included approximately 110-gallon oil tanks situated on the plant floor or in below-grade pits, were identified on a 1937 drawing to have been historically conducted at Columns U to X, Row 16 in the former Main Manufacturing Building. No further information regarding these operations was available.	Soil	Mercury, Methylene Chloride > DWPC	Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 7.4	Anti-Rust Spray Booth No. 2 (Columns O to R, Row 13)	Anti-rust oil spray booth operations, which included approximately 110-gallon oil tanks situated on the plant floor or in below-grade pits, were identified on a 1937 drawing to have been historically conducted at Columns O to R, Row 13 in the former Main Manufacturing Building. Site personnel also indicated that this general area was historically utilized for zinc prime operations in subsequent years. No further information regarding these operations was available.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 7.5	Anti-Rust Spray Booth No. 3 (Columns U to X, Row 7)	Anti-rust oil spray booth operations, which included approximately 110-gallon oil tanks situated on the plant floor or in below-grade pits, were identified on a 1937 drawing to have been historically conducted at Columns U to X, Row 7 in the former Main Manufacturing Building. Site personnel also indicated that this general area was historically utilized for zinc prime operations in subsequent years. No further information regarding these operations was available.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOI 7.6	Anti-Rust Spray Booth No. 4 (Columns Q to T, Row 4)	Anti-rust oil spray booth operations, which included approximately 110-gallon oil tanks situated on the plant floor or in below-grade pits, were identified on a 1937 drawing to have been historically conducted at Columns Q to T, Row 4 in the former Main Manufacturing Building. No further information regarding these operations was available.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 7.7	Former West Paint Booth (Columns P to Q, Rows 24 to 25)	A waterfall-type (i.e., wet) paint booth with below-grade water tanks and sump pits was historically located at the Site at Columns P to Q, Rows 24 to 25 in the former Main Manufacturing Building. The paint booth is identified as "gun carriage" on a drawing circa 1942. No further information was available regarding this paint booth. No information was identified regarding the duration this unit operated or a release from the system. Painting operations typically utilize solvent and metal-based chemicals.	Soil	TCE > DWPC	Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 7.8	Former West Paint Booth (Current Steam Clean Booth)(Column N, Row 47)	The current steam clean booth located at Column N Row 47 in the former Main Manufacturing Building, was reportedly historically used as a wet paint booth. No information was identified regarding the duration this unit operated or a release from the system. Painting operations typically utilize solvent and metal-based chemicals.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 7.9	Former East Paint Booth (Columns O to N, Rows 26 to 28)	A waterfall-type (i.e., wet) paint booth with below-grade water tanks and sump pits was historically located at the Site at Columns O to N, Rows 26 to 28 in the former Main Manufacturing Building. No information was identified regarding the duration this unit operated or a release from the system. Painting operations typically utilize solvent and metal-based chemicals.	Soil	Methylene Chloride > DWPC	Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 8	USTs							
AOI 8.1	Former Mineral Spirits and Mineral Seal Oil USTs (Columns R to S, South of Row 51)	Based on the review of available documentation from 1981, the Site historically utilized mineral spirits to dilute mineral seal oil that was used in operations. The mineral spirits and mineral oil were stored in four USTs (one mineral spirits UST and three mineral seal oil USTs) located to the south of Row 51 between Columns R and S. Based on the review of an air emissions permit application for the mineral spirits UST, the capacity of the mineral spirits UST was approximately 7,800 gallons. The capacities of the mineral seal oil USTs were not identified; however, drawings of the tanks depict the three mineral seal oil USTs to be similar in size to the mineral spirits UST. Review of a MDNR Notification for USTs, dated April 24, 1986, identified four 8,000-gallon fiberglass USTs were present at the Site at that time, containing mineral seal oil, mineral spirits, machine oil, and hydraulic oil (Tank Nos. 1 through 4, respectively). The UST database identified four removed USTs (Tank Nos. 1 through 4) associated with the Site, including two 8,000-gallon hazardous substance USTs (Tank Nos. 1 and 2), one 8,000-gallon machine oil UST (Tank No. 3), and one 8,000-gallon hydraulic oil UST (Tank No. 4). Additionally, a drawing available from the City of Wyoming Fire Department depicted four 8,000-gallon fiberglass fuel oil USTs to the south of the Main Manufacturing Building (at that time), east of former Railroad Track No. 5, northeast of the Primary Switch House, and west of the cooling towers. These USTs appear to be in the same general location as the aforementioned USTs. According to the Environmental Impairment Liability Questionnaire dated October 13, 1982, mineral seal oil and mineral spirits were stored in USTs at that time. No further information regarding the 8,000-gallon mineral spirits/mineral seal oil USTs was available.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 8.2	Former Gasoline and Diesel USTs (South of Metal Storage Shed)	One 3,000-gallon diesel and one 8,000-gasoline UST were present at the Site. The USTs were reportedly installed on April 24, 1985 and are made of cathodically protected double-walled steel, with fiberglass reinforced double-walled plastic piping. The USTs are equipped with automatic tank gauging and interstitial monitoring for leak detection. Based on leak detection readings, a potential leak from the 8,000-gallon gasoline UST was reported to the MDNRE on April 27, 2006. Information reviewed at the Site indicated that the leak detection reading resulted from a faulty sensor board that needed replacement. The Site was not listed in the LUST Database for this incident, as it was only a "suspected" release. Testing of Gasoline and Diesel Fuel Underground Tanks forms completed on 12 occasions between 1991 and 1998 were available for review on Site. The items tested during each event included monitoring wells N.E., N.W., S.E., S.W., gasoline containment vessel, diesel containment vessel, catch basin (reportedly 12 feet deep), and pollution alert electrical system. No significant issues associated with these items were identified during the inspections. Both tanks were removed in November 2011 in support of ongoing redevelopment activities. A confirmed release was reported to the MDEQ after a floor sample taken under the 3,000-gallon diesel tank exhibited concentrations of naphthalene greater than GSIPC. RACER is currently pursuing closure under Part 213.	Soil	1,1-DCE > RSVIAC Naphthalene > GSIPC	Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 8.3	Former Heating Oil and Oil USTs (North of the East Cooling Tower)	Three 50,000-gallon fuel oil tanks for boiler backup for the current Power House were installed in 1970 to the north of the former east cooling tower. According to records reviewed, the three 50,000 gallon USTs were removed from the Site on August 21, 1985. The UST removal was overseen by the Fire Department and according to the inspection report, two of the USTs contained "oil" and one contained fuel oil. The USTs were reportedly cleaned by Great Lakes Tank Cleaning Company and removed and disposed off Site by Hardman Construction Company. Photographs of the UST removal included in the Fire Department file for the Site were reviewed by CRA. None of the photographs available for review indicated a release from the USTs and the USTs appeared to be in good condition at the time of removal. However, no verification soil samples were collected at the time of the tank removal.	Soil	Arsenic/Manganese >DWPC, GSIPC	Soil	None	N/A	N/A
			Water	PCE > DWC	Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOI 8.4	Former 5,000-Gallon and 8,000-Gallon Gasoline USTs (South of the Main Manufacturing Building, east of Railroad Track No. 5, and west of the cooling towers)	One 5,000-gallon gasoline UST was inspected by the Fire Department on September 19, 1985 during removal. Based on the review of available Fire Department records, the 5,000-gallon gasoline UST was located to the south of the plant, east of Railroad Track No. 5, and west of the cooling towers. No information was available regarding the age or construction of the former UST. An 8,000-gallon gasoline UST and associated dispenser are identified in the same general area on a February 1985 drawing from the Site. It could not be confirmed i these were the same tanks, with an incorrect volume listed on the drawing or if one was a replacement for the other, from the available documentation. According to the inspection report, the 5,000-gallon UST was removed by Bosch Mechanical and Riverside Gravel Co., cleaned, and disposed off Site. Based on review of the inspection report, no evidence or indication of a release was observed at the time of removal. No verification soil samples were collected at the time of the tank removal.	Soil		Soil	1 soil boring (SB190-12)	2 soil samples, 0-2 ft. bgs and above water table	VOCs, SVOCs, TAL metals, PCBs
			Water		Groundwater	Grab gw sample from soil boring	1 gw sample	VOCs, SVOCs, TAL Metals[4], PCBs
AOI 8.5	Former 1,000-Gallon Gasoline UST No. 1 (South of Row 35, no Column identified, likely near Column L)	Based on the review of a 1951 drawing, a 1,000-gallon gasoline UST and pump were identified south of Row 35 (no Column available), and just south of the outside of the 1950 addition on the eastern side of the Main Manufacturing Building. No further details were identified on the drawing. Based on the review of additional drawings prior to implementation of the private utility locate for the Site-Wide Investigation, the former 1,000-gallon UST identified in AOI 8.5 appeared to have been located further to the north than originally estimated. Additional drawings showed the exterior rows/walls of the 1950 addition to be further to the north then originally anticipated. As such, SB60-11 was advanced associated with the revised potential former UST location, based on the additional drawing review, which has been identified as AOI 8.7 on the drawing, with SB61-11 advanced in the original AOI 8.5 area. Due to drawing inconsistencies, the definitive former tank location could not be confirmed.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 8.6	Former 1,000-Gallon Gasoline UST No. 2 (North of former Heat Treat Building and west of former Baler House)	On a 1955 drawing, a "gas tank and pump" were identified as being relocated. There are no Columns or Rows identified on the drawing; however, the tank is shown to the north of the former Heat Treat Building and to the west of the former Baler House. No further details were identified on the drawing. It could not be confirmed if the 1,000-gallon UST identified on the 1951 drawing (see AOI 8.5) was relocated to the south after the 1954 addition in this area. Based on the review of additional drawings prior to implementation of the private utility locate for the Site-Wide Investigation, the former 1,000-gallon UST identified in AOI 8.6 appeared to have been located further to the north than originally estimated. Additional drawings showed the exterior rows/walls of the 1954 addition to be further to the north then originally anticipated. As such, SB61-11 was advanced associated with the revised potential former UST location near the previously identified AOI 8.5, based on the additional drawing review. SB77-11 was advanced adjacent to the original AOI 8.6 location. Due to drawing inconsistencies, the definitive former tank location could not be confirmed.	Soil		Soil	None	N/A	N/A
			Water	Manganese > DWC	Groundwater	None	N/A	N/A
AOI 8.7	Potential UST (Near Column O, Row 34)	Based on the review of additional drawings prior to implementation of the private utility locate for the Site-Wide Investigation, the former 1,000-gallon USTs identified in AOIs 8.5 and 8.6 appeared to have been located further to the north than originally estimated. Additional drawings showed the exterior rows/walls of the 1950 and 1954 additions to be further to the north then originally anticipated. As such, SB60-11 and SB61-11 were moved northward accordingly and the northernmost location (SB60-11) was identified as AOI 8.7. During the private utility locate conducted as part of the implementation of the Site-Wide Investigation, a potential UST was identified near Column O, Row 43 (AOI 8.6). No further information regarding the tank was available, including age, construction, contents, etc. Due to the drawing inconsistencies, the definitive former tank locations associated with AOIs 8.5, 8.6, and 8.7 could not be confirmed; however, soil borings were advanced in each of these areas. During demolition and re-grading activities in this area, no tanks were identified.	Soil		Soil	None	N/A	N/A
			Water	Manganese> DWC	Groundwater	None	N/A	N/A
AOI 8.8	Potential UST (Near Column O, Row 45)	During the implementation of the private utility locate for AOIs 7.8 and 30.3, a potential UST was identified by the ground penetrating radar. No information was available regarding the tank age, contents, construction, etc. During the demolition activities conducted in this area, a curved section of concrete was encountered in this area. No staining, odors, or evidence of a release was observed by the demolition contractor upon removal.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 9	Treatment Plant (South of Main Manufacturing Building)	The former WWTP was constructed in 1970 for the pretreatment of process wastewater from the Site prior to discharge to the City of Wyoming municipal sanitary sewer system. The WWTP was constructed to pre-treat process wastewater discharged from the metal finishing, heat treat, battery charge, steam clean, press pit, and elevator pit areas, where chemicals such as petroleum products, solvents, and acids would have been utilized. The 100,000-gallon single-walled steel used oil AST located outside the WWTP to the east was noted on Site drawings to have been constructed on an oily sand cushion. Additional ASTs at the WWTP include: (2) 45,000-gallon steel oily wastewater batch tanks located outside the building; (1) 2,200-gallon single-walled steel oil/water separator AST inside the building; (1) 3,000-gallon single-walled steel scum holding AST inside the building; (2) 6,000-gallon single-walled steel used oil ASTs located outside the building between the batch tanks and the 100,000-gallon used oil AST; (1) 5,000-gallon single-walled steel oily WWTP sludge AST inside the building; and (4) ASTs of unknown capacity containing wastewater treatment chemicals. During the FEA, concrete cores taken near the sludge pit exhibited concentrations of PCBs greater than 1 ppm. During the demolition activities, soil samples were collected from a hand auger boring (SB188-12) from 0 to 2 feet and 2 to 4 feet bgs for analysis for PCBs. PCBs were not detected above 1 ppm in the soil samples. During the demolition activities, oil was observed in a trench previously in the secondary containment for the used oil ASTs and batch tanks and in a sump/catch basin located outside the secondary containment area. These structures were removed, along with the building slab and above ground structures and the area was re-graded.	Soil	SVOCs > RDCC and GSIPC Arsenic > DWPC, GSIPC	Soil	4 soil borings (SB191-12 to SB194-12)	8 soil samples 0-2 ft. bgs and above water table	VOCs, SVOCs, TAL Metals, PCBs
			Water	Manganese, PCE > DWC	Groundwater	Grab gw samples from 2 soil borings	2 gw samples	VOCs, SVOCs, TAL Metals[4], PCBs

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AOI Number	*AOI Description*	*Summary of AOI*	*Summary of Previous Results/Exceedances*		*Proposed Sample Locations* [1]		*Number of Samples*	*Analytical Parameters* [2, 3]
			Matrix	*Location*	*Matrix*			
AOI 10	Power House Operations							
AOI 10.1	Former Powerhouse (South of Main Manufacturing Building)	The current Power House was constructed at the Site in 1970 and was located to the south of the Main Manufacturing Building and adjacent to the east of the 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. No information was available regarding the construction details of the brine pit. 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.	Soil		Soil	2 soil borings (SB195-12 and SB196-12)	4 soil samples, 0-2 ft. bgs and above water table for each	VOCs, SVOCs, TAL Metals, PCBs
			Water		Groundwater	Grab gw sample from soil boring	1 gw sample	VOCs, SVOCs, TAL Metals[4], PCBs
AOI 10.2	Former Powerhouse (Column ZZ, Rows 19 to 24, with tunnel Columns ZZ to W, Rows 22 to 22 1/2)	A coal-fired Power House was constructed at the Site during the initial development of the property by GMC in 1936 and was operated until 1970/71. The former Power House was located to the west of the Main Manufacturing Building, adjacent to Column ZZ, Rows 19 and 24. Coal was stored outside, adjacent to the south of the former Power House, between Rows 24 and 33, in an area approximately 220 feet by 350 feet in area. Demolition plans for the former Power House indicated that the structural components, with the exception of the western wall of the building, were to be removed to the basement (or lowest floor) slab, with the concrete cracked to allow for infiltration. The former Power House utilized a 4-inch drain tile around the perimeter of the building, as well as numerous process fluid conveyances throughout the structure. A below grade tunnel, located between Columns ZZ to W, Rows 22 ½ and 22, was also reportedly removed, with the exception of the concrete floor that was cracked, to the western edge of the Main Manufacturing Building. This area is currently beneath the Main Manufacturing Building.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 11	Former AOF House (Column ZZ, Rows 15 to 18)	An AOF House was historically present to the west of the Main Manufacturing Building at Column ZZ, Rows 18 to 15. The AOF House was constructed circa 1936 and was demolished circa 1970. Available drawings indicate that the AOF originally included use of a 12,000-gallon UST containing oleum spirits; however, notes on the drawings indicated that the tank was never installed. Additionally, a 420-gallon ferrolene UST was present to the south of the AOF House. The AOF House consisted of the ferrolene room (including cyanide and lead pots), a pump room, the oxygen manifold and storage room, the carbide storage room, the acetylene storage room, the acetylene generator room, a loading platform serviced by a railroad siding, and sludge pits. Additional information regarding the chemicals utilized during the operation of the AOF House was not available.	Soil	Chromium > GSIPC	Soil	None	N/A	N/A
			Water	Manganese > DWC	Groundwater	None	N/A	N/A
AOI 12	Former Cooling Tower Basin (Column Zc, Rows 19 to 22)	A cooling tower and cooling tower basin are identified on a 1971 drawing to the west of the former Power House, to the north of the 500,000-gallon fire suppression water AST and associated pump house, and to the south of the former 250,000-gallon elevated fire suppression water AST, in line with Rows 19 to 22 for the Main Manufacturing Building. No further information regarding the operation and construction of the cooling water tower and basin was available, including information regarding water treatment chemicals utilized, process associated with the generation point of water cooled or sludge removal practices. The majority of cooling water systems operated during this timeframe used chromium as a biocide. This area is currently paved with concrete and/or asphalt.	Soil	Copper > GSIPC	Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 13	Former Cooling Water Spray Pond (West of Main Manufacturing Building, Rows 13 to 18 1/2)	A cooling water spray pond was historically located to the west of the former Power House, between Rows 13 and 18 ½. The cooling water spray pond received process wastewater from air compressor blowdown and welding machine cooling water and discharged cooled water via return lines to the plant and to the storm sewer. Historical documentation indicates that silver, lead, and copper were historically utilized during welding operations. No information was available regarding the potential use of algaecides/biocides was available, nor was information related to removal of sludges from the cooling water spray pond.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 14	Former Sludge Bed (General area of Column Zc, Rows 13 to 16)	A "present sludge bed to be filled in" was identified on a 1954/1955 drawing of the Site. Based on the review of available aerial photographs, this sludge bed was located to the north of the former Power House, to the northwest of the former AOF Building, and to the east of the cooling water spray pond. The area was not observed to be utilized as a sludge bed in the 1938 or 1960 aerial photographs; however, an undated aerial obtained from the Site that appears to be from prior to 1954 (based on facility construction) shows this area. This area is currently under a portion of the Main Manufacturing Building. No information was available regarding the nature of the sludges or whether they were deposited in this area.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOI 15	Former Baler Operations							
AOI 15.1	Former Main Manufacturing Building Balers (Columns O to Q, Rows 20 1/2 to 22)	An area with two balers is identified on 1936 and 1950 drawings between Columns Q to O, Rows 20 ½ to 22. No further information was available regarding the timeframe that this area was operated for baling operations or the specific building structures used.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 15.2	Former Baler House (Columns C to H, Rows 42 to 44)	A former Baler House was located between Columns C and H, Rows 42 to 44. Scrap metal was conveyed to the former Baler House via an underground conveyor system, which was located between Columns E and F. This Baler House was demolished during the 1964 expansion activities, with the current Baler House constructed in 1965.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 15.3	Former Baler House (South of Main Manufacturing Building)	A Baler House was located to the south of the Main Manufacturing Building, adjacent to the west of the former Power House. The Baler House was constructed in 1965 and consisted of four balers for scrap metal processing, which were set in below grade concrete pits. Significant oil staining and scrap metal were observed in the visually accessible portions of the Baler House pits during the Site inspection portion of the CCR. Additionally, a sump is located in the corner of this building, which discharges through below grade piping to the WWTP. The Baler House was demolished in 2012 during redevelopment activities.	Soil	Methylene Chloride > DWPC	Soil	2 soil borings (SB197-12 and SB198-12)	4 soil samples, 0-2 ft. bgs and above water table for each	VOCs, SVOCs, TAL Metals, PCBs
			Water	PCE > DWC	Groundwater	Grab gw sample from soil boring	1 gw sample	VOCs, SVOCs, TAL Metals[4], PCBs
AOI 16	Former Heat Treat Operations							
AOI 16.1	Main Manufacturing Building Area No. 1 (Column O, Row 4)	Heat treat operations were conducted in a variety of locations throughout the Site. A former Heat Treat Room was located near Column O, Row 4 on a 1936 drawing. This area was identified to consist of a "homo" furnace, oven furnaces, lead and cyanide pots, quenching tanks, a caustic tank, and a forge. Floor drains, a pit and a trench were identified in this area. No further information was available regarding the timeframe that heat treat operations were conducted in this area. A former Heat Treat area was located between Columns U and W, Rows 26 and 27 on a 1944 drawing. This drawing identifies a large quench pit in this area, with four tanks shown in the pit and at least one 12,000 gallon oil tank.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 16.2	Building Area No. 2 (Columns U to W, Rows 26 to 27)	A former Heat Treat area was located between Columns U and W, Rows 26 and 27 on a 1944 drawing. This drawing identifies a large quench pit in this area, with four tanks shown in the pit and at least one 12,000 gallon oil tank. No further information was available regarding the timeframe that heat treat operations were conducted in this area.	Soil		Soil	None	N/A	N/A
			Water	Zinc > GSIC	Groundwater	None	N/A	N/A
AOI 16.3	Former Heat Treat Building No. 1 (Columns J to M, Rows 29 to 30 1/2)	A former Heat Treat Building was located between Columns J through M, Rows 29 to 30 ½ on a 1945 drawing. This area was identified to consist of a sand blast room, gas crackers and furnaces and associated pits. No further information was available regarding the timeframe that heat treat operations were conducted in this area; however, this area is present beneath an addition to the Main Manufacturing Building.	Soil	TCE > DWPC	Soil	none	N/A	N/A
			Water	Arsenic, Manganese >DWC	Groundwater	None	N/A	N/A
AOI 16.4	Former Heat Treat Building No. 2 (Columns H to O, Rows 45 to 50)	A former Heat Treat Building was located to the south of the Main Manufacturing Building and the former Baler House in a 1955 drawing; however, no rows or columns were present on available drawings. It is estimated that this structure was located from approximately Columns H to 0, Rows 45 to 50. No further information was available regarding the timeframe that heat treat operations were conducted in this area. Based on the review of available historical aerial photographs, it is not present on the 1960 aerial photograph and it is currently beneath an addition to the Main Manufacturing Building that was built in 1986.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOI 17	Former Tool and Die Operations							
AOI 17.1	Building Operations (Columns AA to O, Rows 1 to 11)	Tool and Die Operations (TDO) were conducted between Columns AA and O, Rows 1 to 11. A below-grade grinding swarf and chip conveyor system is present in this area, running east-west, then turning southward until Column AA, Row 11-12, where the materials were brought aboveground and placed in a gondola. A small heat treat area was also present in this area. Historical operations in this area also included an electrical discharge machine (EDM) and milling operations. The swarf and conveyor system was not intended to transfer hazardous materials and there was no information or evidence indicating a release. In conjunction with redevelopment activities conducted in 2012, approximately 123 cubic yards of PNA-impacted soils were removed from this area. Verification samples did not indicate the presence of PNAs in soil above the Part 201 Non-Residential SVIAC, PSIC, VSIC, or DCC.	Soil	Methylene Chloride > DWPC	Soil	None	N/A	N/A
			Water	Manganese > DWC	Groundwater	None	N/A	N/A
AOI 17.2	Historical Exterior Die Storage (South of Main Manufacturing Building)	Based on discussions with Site personnel, dies and scrap metal roll-offs were historically stored outside the facility, primarily on the southern portion. This area was not and is not entirely paved. The potential exists for oils on the dies to impact the underlying soils or storm water during exterior storage. PCBs have been detected on stamping and TDO equipment utilized within the facility. There was no information or evidence of a release of materials associated with the storage.	Soil		Soil	1 soil boring (SB199-12)	2 soil samples, 0-2 ft. bgs and above water table	VOCs, SVOCs, PCBs, TAL Metals
			Water	PCE >DWC	Groundwater	1 monitoring well (MW53-12, installed adjacent to the location of SB199-12)	1 gw sample	VOCs, SVOCs, PCBs, TAL Metals[4]
AOI 18	Former Coolant Recovery System (Columns W to Y, Rows 49 to 50)	Based on the review of a 1953 drawing, a coolant recovery and chip disposal system, including sterilizer, was present between Columns Y to W, Rows 49 to 50. No further information regarding the system was available. There was no information or evidence indicating a release from the coolant system.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 19	Former Stamping Operations (Columns AA to O, Rows 12 to 55)	Blanking and stamping press operations were conducted between Columns AA and O, Rows 12 to 55. A basement and metal scrap conveyor is located beneath this area, which leads to the current Baler House. Stamping operations utilize oils and may have utilized solvents during operations. Review of available drawings indicates the presence of numerous tanks, likely containing hydraulic oil for the presses, located in pits beneath the presses throughout the blanking area. The tanks were identified to primarily consist of 4-foot by 8-foot tanks on a concrete. These tanks are identified on a 1939 drawing of the area with Press Lines E, F, G, H, J and K, which are located between Columns C and K, Rows 13 to 22.	Soil		Soil	None	N/A	N/A
			Water	Manganese > DWC	Groundwater	None	N/A	N/A
AOI 20	ASTs							
AOI 20.1	Former Oil Stores ASTs	Five ASTs were present in the Oil Stores area, all of which were considered empty at the time of the Site inspection. The ASTs included the following: one 6,000-gallon single-walled fiberglass AST that formerly contained steam cleaner; two 9,700-gallon single-walled steel ASTs that formerly contained different weights of motor oil; one 6,000-gallon single-walled steel AST that formerly contained reclaimed oil; and one 6,000-gallon single-walled steel AST that formerly contained used oil. No significant staining was noted in the visibly accessible areas around the ASTs at the time of the Site inspection, and the concrete appeared to be in good condition.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOI 20.2	Former South Pump House AST (South Pump House, south of Main Manufacturing Building)	One 400-gallon steel diesel fuel AST was formerly located in the South Pump House. No significant staining was noted in the visibly accessible areas around the AST at the time of the Site inspection, and the concrete appeared to be in good condition.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 20.3	Former North Pump House AST (North Pump House, west of Main Manufacturing Building)	One 500-gallon steel diesel fuel AST was formerly located in the North Pump House. No significant staining was noted in the visibly accessible areas around the AST at the time of the Site inspection, and the concrete appeared to be in good condition.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 20.4	Pump House AST (South of Main Manufacturing Building)	One 900-gallon steel diesel fuel AST was formerly located in the Cooling Tower Pump House. No significant staining was noted in the visibly accessible areas around the AST at the time of the Site inspection, and the concrete appeared to be in good condition.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 20.5	Former Bulk Deadener AST (Column P, Row 51)	According to MDNRE records reviewed, one 4,000 gallon AST containing bulk deadener was historically located in the "bulk deadener storage area" (P-51). The AST was identified in Permit to Install No. 20 78 issued February 28, 1978. No further information was available regarding the AST.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 21	Substations	Electricity was provided on Site by the following substations: Roof Top Substations D, E, G, J, L, N, O, P, S, T, U, W, X, Y, and Z (Main Manufacturing Building) and Substations H and Q (Power House Substation); Basement Substations B, C, F, K, M and V (Main Manufacturing Building); and Ground Floor Substation R (Baler House). Potential issues associated with the Roof Top Substations are related to potential storm water impacts and are addressed under AOIs 22 and 35; therefore, these Substations are not discussed in this section. Based on the review of available documentation, three substations at the Site were confirmed to have utilized PCB electrical equipment; Substation K, Substation H and Substation Q. Releases are documented associated with Substation K, which was also historically utilized as a PCB storage area. Staining was noted on the concrete surface in these substations. No specific information was available regarding the potential for additional PCB electrical equipment historically present in the electrical equipment in the substations at the Site or releases there from.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOIs 21.2 through 21.24	Individual Substations	Transformers in all of the Site substations were gas-filled at the time of the Site inspection; however, the manufacture dates indicated the potential for the current transformers to be replacement transformers. Labeled PCB large capacitors were observed in Substations B and E during the Site inspection. Based on the above, each of the substations is identified as sub-AOIs: AOI 21.1 – Substation B; AOI 21.2 - Substation C; AOI 21.3 – Substation D; AOI 21.4 – Substation E; AOI 21.5 – Substation F; AOI 21.6 – Substation G; AOI 21.7 – Substation H; AOI 21.8 – Substation J; AOI 21.9 – Substation K; AOI 21.10 – Substation L; AOI 21.11 – Substation M; AOI 21.12 – Substation N; AOI 21.13 – Substation O; AOI 21.14 – Substation P; AOI 21.15 – Substation Q; AOI 21.16 – Substation R; AOI 21.17 – Substation S; AOI 21.18 – Substation T; AOI 21.19 – Substation U; AOI 21.20 – Substation V; AOI 21.21 – Substation W; AOI 21.22 – Substation X; AOI 21.23 – Substation Y; and AOI 21.24 – Substation Z.During decommissioning activities, concrete core samples were collected from Substations B, C, F, K, M, and V. PCBs were detected in concrete core samples collected from Substations B, C, K, and M at concentrations above 1 ppm. Subsequently, these areas were delineated for Substations B, C, and M and PCB-impacted concrete at greater than 1ppm was removed prior to backfilling these areas. Based on concrete core sample results for Substation K, an approximate 20-foot by 50-foot area of the concrete floor in Substation K was removed. Upon removal, soil samples were collected from the saturated soil beneath the removed concrete area for analysis for PCBs. No PCBs were detected in the soil samples collected.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 22	Storm water Retention Pond	Based on files reviewed at the facility, the storm water retention basin was originally constructed in 1972 on property owned by Consumers, for which the Site secured an easement agreement. The basin was reported to be lined with a rubber liner and equipped with two containment booms that diverted floating oil to a skimmer installed in the basin outlet. Oil was pumped from the skimmer to an AST located adjacent to the west of basin, which is currently out of service. Significant sediment accumulation and vegetation growth were observed in the retention basin during an inspection in 2001, which resulted in upgrades to the pond in 2002/2003. Based on the review of available documentation, the storm water retention pond currently receives discharges from portions of the Site roof and foundation drains, and historically also received discharges from non-contact cooling water and the groundwater treatment system. Roof drains were observed in proximity to several caged substations that historically were documented to include PCB transformers. No information was identified that the liner on the pond had failed prior to the upgrades or has failed subsequent to the upgrades.	Soil		Soil	None at this time due to the presence of liner	N/A	N/A
			Water		Groundwater	None at this time due to the presence of liner	N/A	N/A
AOI 23	Wood Floor Block	Based on the review of available documentation and observations during the Site inspection, wood floor block was historically present throughout the facility. Operations that have been identified to have utilized oils containing PCBs were conducted at the Site. Analytical results for samples collected from wood floor block and associated mastic materials have indicated the presence of PCBs in the materials.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 24	Former Tar House	Based on the review of documentation from 1978, a "tar house", which was used to heat tar for floor block repairs, was located south of the former Main Manufacturing Building near the Storm Water Building at that time. No further information regarding the tar house was available. No information was identified regarding operations in the Tar House or any evidence of releases there from.	Soil	PAHs > RDCC and GSIPC PCBs > RDCC	Soil	8 soil borings (SB200-12 to SB206-12 and SB215-12)	One soil sample collected per 2-foot interval to 10 feet bgs; one soil sample for 6-8 ft. and 8-10 ft. intervals for prior SB165-11	PCBs
			Water		Groundwater	None	N/A	N/A
AOI 25	Former Maintenance Degreaser (Column T, Row 27)	A former degreaser was operated in the maintenance shop at Column T, Row 27 in the former Main Manufacturing Building from 1953 to 1979. According to Site personnel, this degreaser was an open top metal tank situated in a concrete pit, where equipment was dipped using an overhead crane. The Site is listed in the SHWS Database as General Motors – CPC Metals (Facility Identification No. 41000115) and a status of "interim response in progress." The listing is primarily associated with a release of TCE from the former degreaser. VOC impacts to soil and groundwater in this area were identified in 1985 and investigations were conducted between 1985 and 1989 to evaluate the nature and extent of the impacts at the Site and the adjacent properties to the north of the Site. In 1989, a combination GWE and SVE system was installed in the source area in the plant, with groundwater monitoring conducted and a second purge well installed at the northern property line in 1993. The SVE and GWE systems were run with groundwater monitoring occurring until 2004/2005. Additional investigations to further evaluate the extent of the groundwater impacts to Part 201 GRCC were conducted between 2003 and 2011.	Soil	TCE > DWPC, NRSVIAC	Soil	None	N/A	N/A
			Water		Groundwater	Monitoring existing wells	N/A	N/A

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SITE-WIDE INVESTIGATION
FORMER GRAND RAPIDS METAL PLANT
WYOMING, MICHIGAN

AOI Number	*AOI Description*	*Summary of AOI*	*Summary of Previous Results/Exceedances*		*Proposed Sample Locations* [1]		*Number of Samples*	*Analytical Parameters* [2, 3]
			Matrix	*Location*	*Matrix*			
AOI 26	Additional Former Degreasing Operations							
AOI 26.1	Shell Cooler After Degreaser (Columns V to W, Row 34)	An area identified as "shell cooler after degreaser" was present on a 1944 drawing between Columns V and W, Row 34 in the former Main Manufacturing Building.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 26.2	Former Degreaser (Column U, Row 46)	A degreaser is identified on a 1953 drawing at Column U, Row 46 in the former Main Manufacturing Building. No further information was available regarding the former degreaser.	Soil	TCE > DWPC	Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 26.3	Former Degreaser (Columns R to S, Row 9)	A degreaser was historically located at Columns R to S, Row 9 in the former Main Manufacturing Building.	Soil		Soil	None	N/A	N/A
			Water	TCE > DWC	Groundwater	None	N/A	N/A
AOI 26.4	Former Degreaser (Column O, Row 44)	A degreaser was historically located at Column O, Row 44 in the former Main Manufacturing Building.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 27	Oil Stores 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 TCLP for lead. Subsequently, investigations were conducted in this area in 2005 and 2007 to evaluate the nature and extent of impacts. The investigations in the bulk unload area near the current Oil Stores area have identified the presence of metals, PNAs, and PCBs at concentrations above the Part 201 GRCC in soil. These impacts have not been delineated to date.	Soil	Metals, PAHs, PCBs > NR Part 201	Soil	6 soil borings (SB207-12 to SB212-12) 5 soil borings (SB216-12 to SB220-12)	30 soil samples, one soil sample collected per 2-foot interval to 10 feet bgs 2 soil samples, 0-2 ft. bgs and above water table	TAL Metals, PCBs, PAHs, fractionated lead (hold), VOCs, TAL Metals, PCBs, PAHs, fractionated lead (hold), speciated chromium (hold)
			Water		Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOI 28	Additional Bulk Load and Unload Areas	The Site currently and formerly utilized several areas for bulk unloading and loading of petroleum products and waste and raw materials. These areas include exterior load/unload fill ports and associated concrete pads, as well as former train wells, some of which were unpaved. Some of these areas have been replaced in the recent past; however, others have been in place since the facility was developed. There is no evidence of a release from other bulk load and unload areas at the Site to the environment.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 29	Former Incinerators							
AOI 29.1	Former Incinerator Area No. 1	Based on the review of available information, an incinerator was located to the south of the former Power House, to the east of the railroad tracks, and along the western property boundary in a 1954/1955 drawing in line with Row 42 of the former Main Manufacturing Building. It could not be determined from available documentation if these were all the same incinerator; however, available drawings/aerials located them in the same approximate area.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 29.2	Former Incinerator Area No.2 (Columns H to I, South of Row 40)	Based on the review of historical drawings, incinerators were formerly located on the Site. One of the incinerators was located to the south of the former Power House, to the east of the railroad tracks and one of the incinerators was to the southwest of the former Power House between Columns H and J, south of Row 40 (numbering did not extend that far south on the drawing). Additionally, an incinerator area was identified along the western property boundary in a 1954/1955 drawing in line with Row 42 of the former Main Manufacturing Building. No information regarding the nature of the materials burned in the incinerators or construction, operation or demolition dates of the incinerators was available.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 30	Elevator Pits							
AOI 30.1	Former Passenger Elevator (Column ZB, Row 5)	A passenger elevator is located in the former office area near Column ZB, Row 5 of the former Main Manufacturing Building. During demolition activities, the elevator pit was visually evaluated. No significant staining was noted on the concrete surface in the pit and no significant cracks or deterioration were noted.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 30.2	Former Freight Elevator No.1 (Column O, Row 26)	A freight elevator is located in plant area near Column O, Row 26 of the former Main Manufacturing Building. Minor staining was observed on the concrete surface of the elevator shaft located near Column O, Row 26 at the time of removal; however, on-Site representatives indicated that the staining was from the removal of the piston and was not present prior to removal.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOI 30.3	Former Freight Elevator No.2 (Column N, Row 45)	A freight elevator is located in plant area near Column N, Row 45 in the former Main Manufacturing Building. Standing oil was present in the pit of the former freight elevator near Column N, Row 45. Additional oil was released into the concrete pit during the removal of the pistons. All oil was removed from the pit upon completion of piston removal and the pit was cleaned prior to backfilling with crushed stone. No evidence of significant cracks or staining, or a drop in the fluid level within the pit was observed by CRA. Analytical data collected in the vicinity of this former freight elevator did not indicate a significant release.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 30.4	Former Freight Elevator (Column S, Row 7)	No subsurface structures or stained/odorous soils were encountered in this area during demolition/re-grading activities. According to Site personnel, a former freight elevator was located in the plant area near Column S, Row 7 of the former Main Manufacturing Building.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 31	Former Scrap Metal Storage Pad	The Site utilized a concrete paved area with a trench drain to store dumpsters of scrap metal, which may have contained residual cutting fluids. The trench drain discharges below grade to the WWTP. Significant staining was noted on the concrete surface of the pad; however, the concrete appeared to be in good condition with no significant cracks or deterioration observed. No documentation was available regarding releases in this area that may have reached the subsurface.	Soil		Soil	2 soil borings (SB213-12 and SB214-12)	4 soil samples, 0-2 ft. bgs and above water table	VOCs, SVOCs, PCBs, TAL metals, fractionated lead (hold), speciated chromium (hold)
			Water		Groundwater	Grab gw sample from boring	1 gw sample	VOCs, SVOCs, PCBs, TAL metals[4]
AOI 32	Former Compactor (Column X, Row 53)	The Site utilized a hydraulic compactor for general refuse. Staining was observed in the general area surrounding the compactor during the Site inspection.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 33	Former Railroad Track Operations	Railroad tracks were historically located throughout the Site and were historically utilized for the delivery of raw materials and the shipment of finished products. Site personnel were unaware of the nature of historical delivery of chemicals via railcar, and no documented or known releases of chemicals from the rail shipment activities have occurred. Site personnel indicated that no known dust suppression activities have occurred along the railroad tracks at the Site. Additionally, several railroad tracks are present to the west of the main manufacturing portion of the Site, between this area and the Clay Avenue Parking Lot. Railcars are currently and were historically parked in this area for extended periods of time. In addition, railroad tracks that historically entered the former Main Manufacturing Building were not paved and were lower in elevation than the production floor, which have since been filled and capped to grade. Observations during the re-grading of the Site indicated that a variety of materials had been utilized as fill materials in these areas, primarily consisting of cinders, slag, gravel, and coal. Soil samples collected from this material did not have exceedances of Part 201 Non-Residential DCC, PSIC, or VSIC. Waste railroad ties were formerly stockpiled to the south of the Main Manufacturing Building, along the eastern property line, on bare ground.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOI 34	Former Battery Charging Areas	Satellite battery charging areas were located throughout the former Main Manufacturing Building. Areas of deteriorated concrete were observed beneath the battery charging areas; however, the deterioration was not observed to have penetrated the concrete to the subsurface in the visually accessible areas. No visual or olfactory evidence of impact was noted by the demolition contractor in these areas during the on-going redevelopment activities.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 35	Process Infrastructure	Various additional pits, trenches, and sumps were present throughout the Site. These either discharged to the process wastewater sewer system or were blind. Petroleum, solvent, and acidic products were utilized throughout the facility and staining was noted around several of these areas, as well as deterioration. The integrity of these units could not be determined at the time of the Site inspection due to the below grade construction. During demolition and re-grading activities, the building concrete slab was removed and all subsurface structures were removed to a depth of four feet below final grade. Stained or potentially impacted materials were sampled, with no remaining concentrations exceeding the Part 201 Non-Residential DCC, PSIC, or VSIC.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 36	Potential On-Site Fill Activities	Based on the review of a historical aerial photograph taken between 1950 and 1954, an area of potential fill activities was identified to the south of the former Main Manufacturing Building. No further information was available regarding the potential on-Site fill activities.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 37	Hazardous Waste Storage Areas							
AOI 37.1	Former Hazardous Waste Storage Area - Main Plant (Column O to P, Row 50)	The facility reportedly operated two hazardous waste treatment tanks inside the main plant building. It was reported that the treatment tanks contained only paint related waste (F017), which was later delisted as a hazardous waste.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 37.2	Former Hazardous Waste Storage Area - South of WWTP	The facility reportedly operated a zinc primer residue storage area located south of the plant. It was reported that the storage area was utilized for only paint related waste (F017), which was later delisted as a hazardous waste.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOI 37.3	Former Hazardous Waste Storage Area - Western Property Boundary	A drawing with the Part A Application indicated that drums of zinc primer were historically stored south of the Main Manufacturing Building, along the western property boundary. It was reported that the storage area was utilized for only paint related waste (F017), which was later delisted as a hazardous waste.	Soil	VOCs > DWPC/GSIPC	Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 37.4	Former Hazardous Waste Storage Area (Column Zb, Row 13)	Hazardous waste was more recently stored for less than 90-days in a caged epoxy-sealed concrete area in the Main Manufacturing Building, near Zb-13. This area has two blind containment sumps. No staining or deterioration was observed on the concrete in this area.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 38	Switch House Operations							
AOI 38.1	Former Switch House	A former Switch House was identified on a 1936 drawing, between Rows 1 and 2 ½, and is currently located under the Main Manufacturing Building. This structure is identified to have a four-inch drain tile around the structure that discharged to the storm sewer. The basement of this building includes three floor drains, which discharged to a three-foot by three-foot by four-foot sump that also discharged to the storm sewer. No information regarding any releases from electrical equipment previously operated in this area was available.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A
AOI 38.2	Current Switch House	Electricity for the Site is supplied by Consumers, who leases a portion of the Site for a substation and Switch House on the Site. The substation consists of a fenced gravel area with electrical equipment on concrete pads/footings, if appropriate. The electrical equipment in the substation was not observed to be labeled as to PCB content. Access to the Consumers portion of the Switch House, which is shared with the Site, was not available. Floor drains were observed in the Switch House. Staining was noted on the gravel surface beneath one of the transformers in the substation. The Switch House consists of an exterior switch yard, which is a fenced area with gravel paving. The majority of the equipment in the switch yard appeared to be labeled as non-PCB. No staining was observed in the switch yard area. Concrete core samples collected from adjacent to floor drains in the Switch House were identified to have PCBs present at 11 ppm and 22 ppm. No further delineation of this area has been conducted in concrete to date.	Soil		Soil	None at this time	N/A	N/A
			Water		Groundwater	None at this time	N/A	N/A
AOI 39	PCB Areas							
AOI 39.1	PCB Area No. 1 (Column O, Rows 38-39)	During a Site-wide investigation in February 2011, PCBs were identified in soil at a concentration above 1 ppm. Subsequent investigations were conducted in September 2011 and April 2012 to delineate the impacted area. A Self-Implementing Plan (SIP) was submitted to the U.S. EPA in June 2012 to address investigation and remediation of the area. The SIP was approved on August 6, 2012. Removal of approximately 30 cubic yards of soil was conducted on August 22, 2012. Verification soil samples indicated that PCBs were not present above 1 ppm in soil.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A

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			Matrix	*Location*	*Matrix*			
AOI 39.2	PCB Area No. 2 (Column P, Rows 50-51)	During a Site-wide investigation in February 2011, PCBs were identified in soil at a concentration above 1 ppm. Subsequent investigations were conducted in September 2011 and April 2012 to delineate the impacted area. A Self-Implementing Plan (SIP) was submitted to the U.S. EPA in June 2012 to address investigation and remediation of the area. The SIP was approved on August 6, 2012. Removal of approximately 121 cubic yards of soil was conducted on August 22, 2012. Verification soil samples indicated that PCBs were not present above 1 ppm in soil.	Soil		Soil	None	N/A	N/A
			Water		Groundwater	None	N/A	N/A

Notes:

(1) Shallow MWs will be installed such that 2 feet of the screen is above the water table. Deep MWs will be installed such that the bottom of the screen is just below the top of the confining clay layer (6 inches).

(2) VOCs - Target Compound List Volatile Organic Compounds
SVOCs - Target Compound List Semi-volatile Organic Compounds
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls
TAL - Target Analyte List
TPH - Total Petroleum Hydrocarbons
TMBs - 1,2,4-Trimethylbenzene and 1,3,5-Trimethylbenzene
BTEX - Benzene, Toluene, Ethylbenze, Xylene

(3) Target Analyte List Metals - Antimony, Arsenic, Barium, Beryllium, Cadmium, total Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc and total Cyanide, not including the earth metals Aluminum, Calcium, Iron, Magnesium, Potassium and Sodium. Groundwater to include amenable cyanide.
Field parameters for groundwater to include turbidity, temperature, specific conductance, pH, and ORP

(4) Groundwater grab samples will be field filtered for the analysis of TAL Metals