U.S. ENVIRONMENTAL PROTECTION AGENCY - REGION 5

Proposed Plan to Amend the September 2002 Record of Decision for the Rockwell International Corp. (Allegan Plant) Site

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Rockwell International Corp. (Allegan Plant)
Allegan, Michigan
MID006028062

The United States Environmental Protection Agency (EPA), in consultation with the Michigan Department of Environmental Quality (MDEQ), is releasing for public comment this Proposed Plan for the Rockwell International Corp. (Allegan Plant) Superfund Site. This is being done in accordance with Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), which requires the issuance of decision documents for remedial actions taken pursuant to CERCLA Sections 104, 106, 120, and 122, and in accordance with Sections 300.430(f)(2), 300.430(f)(4) and 300.435(c)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), which establishes the regulatory requirements for decision documents.

Following public comment on this Proposed Plan, in consultation with our state partner MDEQ, EPA will make a final decision for the Site. The final cleanup plan will be presented in an EPA document called a Record of Decision (ROD) Amendment and could differ from this Proposed Plan. The ROD Amendment will become part of the Administrative Record file to comply with NCP Section 300.825(a)(2).

A. INTRODUCTION

This Proposed Plan presents the EPA's recommendation to eliminate two components of the originally selected groundwater remedial action as a Record of Decision (ROD) Amendment (2016 ROD-A) for the Rockwell International Corp. (Allegan Plant) Site ("Rockwell" or "Site"). EPA will be accepting comments for 30 days from the issuance of this Proposed Plan. EPA encourages interested members of the public to comment on this Proposed Plan.

Cleanup of the soils and source material at the Site was conducted in accordance with the September 20, 2002 ROD (2002 ROD). The 2002 selected remedy included demolition and removal of the former manufacturing buildings (including related foundations and related infrastructure); removal of oil layer and contaminated soil/sediment for off-site treatment and disposal; and installation of a groundwater treatment and containment system using a slurry wall with treatment gates.

Quarterly groundwater monitoring conducted at the Site in 2013 and 2014 indicates that the removal of contaminated source material has significantly addressed groundwater contamination and that the Remedial Action Objectives (RAOs) established for the Site have been attained or will be attained with implementation of the institutional controls (ICs) required by the 2002 ROD. EPA is proposing to amend the 2002 selected remedy to remove the following two components as they are no longer necessary to achieve protection of the public health and welfare and the environment:

- Construction of a soil-bentonite slurry wall to laterally surround the Site (fully or partially) and restrict groundwater flow; and
- Installation of permeable reactive gates within the slurry wall footprint to allow in-situ treatment of groundwater prior to its movement into the Kalamazoo River.

All other components of the Site remedy remain unchanged. Consistent with the 2002 ROD, the 2016 ROD-A will continue to require removal of any encountered liquid oil and smear zone soils at any depth as they continue to be discovered, implementation of a long-term groundwater monitoring program, institutional controls, and Five-Year Reviews.

EPA, in consultation with the Michigan Department of Environmental Quality, will determine if and how to amend the selected remedy after reviewing and considering all information submitted during the 30-day public comment period. If EPA elects to move forward with the proposed or other changes, a ROD Amendment will be issued and become part of the Administrative Record file to comply with NCP Section 300.825(a)(2).

B. SITE BACKGROUND

The Site is an inactive manufacturing facility that occupies approximately 30 acres bordering the Kalamazoo River at 1 Glass Street in Allegan, Michigan (see Figure 1). The City of Allegan, Michigan is a small Midwestern town with a population of approximately 5,000 people. The

Site is bordered on the east by River Street, on the south by North Street, on the west by the City of Allegan's waste water treatment plant (WWTP), and on the northwest and north by the Kalamazoo River (backwater area). The Site and immediate surrounding area are used for residential and industrial purposes. North Ward Elementary School is located about 200 feet east of the Site across River Street. A recreational park is located immediately across the former railroad bridge to the south that is frequently traveled by foot traffic. See Figure 1 for the Site location map.

Site History

From 1901 to 1914, the Site was owned by Allegan Mirror and Plate Glass Company, which manufactured glass products. Blood Brothers Machine Company purchased the Site in 1914 for manufacturing universal joints and automobiles. Operations through 1938 are believed to have included steel heat-treatment (annealing) and machining and parts assembly. The annealing process did not require chemical treatment, though machining required the use of cutting oils. The Site was purchased by Standard Steel Spring in 1938 to manufacture drive lines. Operations included steel heat-treatment; and machining and parts assembly. Heat-treatment processes included annealing and oil quenching; these processes continued until Site manufacturing operations ceased. Case-hardening using cyanide-salt baths was conducted until 1947. Through a series of mergers, Rockwell became the Site owner in 1953 and operated the Site until 1996.

Building construction and expansions took place throughout the life of the Site. The original building, constructed in 1908, was expanded several times through 1969. The Rockwell WWTP was completed and operational in 1972. Rockwell began to scale back operations in the mid-1980s, and decommissioning activities began in 1987. In 1990 inventory materials were transferred to other Rockwell facilities. Floor drains between the manufacturing building and the Rockwell WWTP were plugged and asbestos removal was conducted. The western section of the Site, which included the former manufacturing building, was sold to the Allegan Industrial Redevelopment Corporation. In 1992, the WWTP stopped handling miscellaneous storm water runoff. The WWTP's in-ground concrete holding tanks were cleaned, filled with sand, and brought to floor grade with concrete. The exterior, 14,000-gallon, in-ground holding tanks were also cleaned and backfilled with sand. In 1996, ownership of the western section of the facility reverted to the City of Allegan. In 1995, the eastern section of the Rockwell Site was sold to Allegan Metal Finishing. That portion of the Site was sold to JML Real Estate LLC in 2014.

From approximately 1950 to 1974, the City of Allegan operated a municipal landfill in the southern portion of the low lying area north and south of North Street. Fill materials encountered in the soil borings drilled throughout the landfill primarily consisted of sand, gravel, and concrete debris. Municipal waste was reportedly burned and black stained sands indicated that foundry sand was possibly disposed at the landfill. Several organic and inorganic chemicals were present in the landfill contents. Portions of the landfill operated over areas previously impacted by prior landfilling from Rockwell manufacturing operations.

Site Contamination and Selected Remedy

Rockwell filed a Notification of Hazardous Waste Site form with EPA in 1981. In 1984, Ecology and Environment, Inc., the field investigation team for EPA, conducted a preliminary

site assessment. The Site was proposed for addition to the National Priorities List (NPL) on April 10, 1985 and listed on the NPL on July 22, 1987.

The RI/FS for the landfill contents, OU1, indicated that there was no current or future risk posed by the landfill, and a "No Action" ROD was signed in 1995. However, any groundwater contamination associated with the landfill was to be addressed with the 2002 ROD for the Site.

In the fall of 2001 a potentially responsible party (PRP)-lead removal action was initiated at the Site to address elevated concentrations of PCBs found in residential surface soils and to investigate and address indications that oil was moving off-site into surface water. This work led to the discovery of subsurface contaminated soil and a clay pipe which led directly to the Kalamazoo River south of the Site and which contained PCB-contaminated oil. After addressing the soils and the pipe the removal action was thought to be complete. However, City of Allegan municipal workers, trying to locate a blockage in the sewer system near the Site, found oil in the bedding material of the sewer system. The oil contained high concentrations of PCBs and was subsequently removed.

The Remedial Investigation and Feasibility Study (RI/FS) was originally initiated as a potentially responsible party (PRP)-lead project in 1989, under EPA oversight. This work was performed under an Administrative Order by Consent (AOC) between EPA and Meritor, Inc., the spinoff corporation that previously comprised Rockwell's automotive division. Rockwell submitted draft RI reports to EPA in 1990, 1993, 1997, and 1998. EPA rejected all the draft RI reports and took over the investigation as a fund-lead project in 1998. Meritor, Inc. later merged with Arvin, Inc. to form ArvinMeritor, Inc., then in 2011 ArvinMeritor changed its name back to Meritor, the current PRP.

To evaluate the extent of contamination and estimate the risks to human health and the environment at the Site, samples were taken from: soils, groundwater, surface water, sediments, and the oil layer on the groundwater that is present as light non-aqueous phase liquid (LNAPL). Samples were also taken from biota to evaluate the ecological risk at the Site. Analytical data from these samples were used to determine the contaminants of concern (COCs) for the Site. COCs are summarized in the following table:

SUMMARY OF CONTAMINANTS OF CONCERN		
Area	Matrices	Contaminants of Concern
Former Soluble Oil Separation (SOS) Pond	Surface soil	VOCs, pesticides, Aroclor 1254, and TAL metals
	Subsurface soil	VOCs, SVOCs, pesticides, Aroclor 1254, and TAL metals
	LNAPL	SVOCs, Aroclor 1254, and TAL metals
Former Rockwell WWTP Area	Surface soil	VOCs, SVOCs, pesticides, Aroclor 1254, and TAL metals
	Subsurface soil	VOCs, SVOCs, pesticides, Aroclor 1254, and TAL metals
	LNAPL	VOCs, SVOCs, Aroclor 1254, and TAL metals
	Surface water	SVOCs and TAL metals
	Sediments	SVOCs, pesticides, Aroclor 1254, and TAL metals
Former railroad right-of-way	Surface soil	VOCs, SVOCs, pesticides, Aroclor 1254, and TAL metals
	Subsurface soil	VOCs, SVOCs, pesticides, Aroclor 1254, and TAL metals
	LNAPL	SVOCs and Aroclor 1254
Grassy area	Surface soil	Aroclor 1254 and pesticides
Manufacturing building	Subsurface soil	SVOCs, Aroclor 1254, and TAL metals
	LNAPL	SVOCs, Aroclor 1254, and TAL metals
Kalamazoo River	Surface water	VOCs and TAL metals
	Sediments	VOCs, SVOCs, PCBs, and TAL metals
Site-wide groundwater	Groundwater	VOCs, SVOCs, PCBs, pesticides, and TAL metals
Background	Surface soil	None
	Subsurface soil	None

The RI included a baseline human health risk assessment which demonstrated non-carcinogenic human health risk to child and adult on-site residents, child off-site residents, and an on-site construction or utility worker from exposure to one or more COCs. The baseline human health risk assessment demonstrated significant carcinogenic risk (greater than 1×10^{-4}) to: child and adult on-site residents, a child off-property resident, an on-site construction or utility worker, and an on-site worker from exposure to one or more COCs.

The RI also included an ecological risk characterization, which indicated potential adverse effects on aquatic and terrestrial receptors from contaminated soil, surface water, sediment, and ground water. In the aquatic areas, a Hazard Index (HI) greater than 1.0 was noted for all evaluated receptor communities and plant guilds. The primary risk drivers in the aquatic areas of concern were Polycyclic Aromatic Hydrocarbons (PAHs), Aroclor 1254, DDT, and 2,3,7,8-TCDD. In the terrestrial habitats, HIs greater than 1.0 were noted for all evaluated receptor species except for herbivorous mammals. The primary risk drivers in the terrestrial habitats were PAHs and pesticides.

The FS Report (Tetra Tech EM Inc. 2001) included an evaluation of several remedial action alternatives for each of the Site components (e.g. soil, groundwater, LNAPL, and sediment and

surface water in WWTP holding ponds). Source materials included: contaminated unsaturated soil (from the ground surface to the water table), the smear zone (the zone where LNAPL, fluctuating with groundwater elevation, has impacted soil), and LNAPL. Groundwater alternatives addressed groundwater in the shallow aquifer only. The individual alternatives for each focus area were developed in a way which enabled them to be combined into a comprehensive, site-wide remedial approach. The report also outlined remedial action objectives (RAOs). On September 30, 2002, EPA issued an OU2 ROD for the Site, and included demolition and removal of the former manufacturing buildings including related foundations and related infrastructure, oil layer and contaminated soil/sediment removal and off-site treatment and disposal, institutional controls, and slurry wall with treatment gates groundwater containment and treatment.

Remedy Implementation Activities

On September 30, 2002, a Unilateral Administrative Order (UAO) was issued which required ArvinMeritor to conduct a Remedial Design and a Remedial Action to implement the selected remedy. Remedial Actions taken under that UAO include: pond sediment stabilization and removal, soil excavation, LNAPL removal, and Site restoration activities. The remedial design for these actions was completed in April 2005. The actions were completed in November 2006.

In December 2007, an Interim Monitoring Program (IMP) was approved by EPA. The purpose of the IMP was to evaluate the effectiveness of remedial actions taken up to that point in time, and to determine the status of the Site with respect to Groundwater-Surface Water Interface (GSI) criteria. The IMP required monitoring for certain COCs at the Site, including metals and PCBs, but not for VOCs or SVOCs. Sampling results from the IMP yielded detections of mercury and, less frequently, PCBs. The sampling activities also resulted in detection of LNAPL at monitoring wells at the Site.

The detection of LNAPL in monitoring wells demonstrated the need for a second round of soil excavation and LNAPL removal. ArvinMeritor proposed a LNAPL Delineation Plan for the Site to determine where the additional excavation was required. The LNAPL removal consisted of the remediation of areas of the Site where LNAPL was identified in monitoring wells and soil borings. The second excavation event was conducted from October 2010 to January 2011. During the removal activities, excavations were advanced until visual or olfactory evidence suggested that the appropriate material had been removed and the cleanup objectives achieved. PRP contractor personnel then collected Oil-in-Soil™ verification tests from the walls and floor of the excavation. The number and location of verification tests were determined in the field during excavation activities following discussions between the PRP contractor and EPA Oversight Personnel. Maps of actual excavated areas can be found in Figure 2.

Based on the LNAPL investigation conducted in 2010, eight small excavations were planned to remediate the identified LNAPL zones during the 2010-2011 excavation. Combined, these would have encompassed 1,178 square yards of surface area. However, when the excavation was underway, contamination was found to be more extensive than anticipated, and all of the eight smaller excavations were encompassed by two larger excavations identified as EA-1(large red outline, Figure 2) and EA-4 (small red outline, Figure 2). In all, a total of 32,571 tons of contaminated soil was disposed of off-site from the two excavations. During these excavations,

groundwater levels were relatively shallow (about 12 feet below ground surface), and the depths of the excavations ranged from 12-16 feet. Groundwater and LNAPL entering the excavations were treated on-site, analyzed, and discharged to the City of Allegan publicly owned treatment works (POTW). A total of 99,503 gallons of water were treated and discharged.

In addition to the removal of impacted soils at the Site, utilities, a historical oil-water separator, catch basins, sewer and other piping were removed from the impacted areas of the Site. All excavated areas were backfilled with clean backfill. Some building foundations, slabs, and utility piping remain in non-excavated portions of the Site. LNAPL was not found during testing in these areas. However, because of the possibility of some contamination beneath these remaining foundations and slabs, ICs need to be implemented in these areas to ensure remedy integrity.

C. SITE CHARACTERISTICS

The former Rockwell International facility covers approximately 30.4 acres and is located in a mixed industrial / residential area of Allegan, Michigan. The Site borders the Kalamazoo River and has been utilized for a variety of manufacturing operations since 1908.

Geology

Stratigraphic units encountered during investigations at the Rockwell Site include, from deepest to shallowest, shale bedrock, till, alluvial and glaciofluvial sediments, and fill. The lowermost unit encountered during Site investigations is the upper portion of the bedrock. Bedrock is composed of light blue-gray shale of the Coldwater Formation, which was encountered at two boring locations during previous PRP-lead investigations The bedrock surface elevation is lower at MW-5 and MW-9 than at MW-12, possibly as a result of erosion by the Kalamazoo River channel. Only the uppermost surface of the Coldwater Formation shale was penetrated at MW-9 and MW-12; at MW-12, about 7 feet of the shale was penetrated. See Figure 3 for previous well locations and previous existing conditions at the Site.

The till unit directly overlies the shale bedrock unit and consists of a dry, dense, dark grayish-brown, silty clay with trace amounts of sand and gravel. The till unit appears to be continuous beneath the Site. Relatively high till surface elevations are apparent north and south of the former manufacturing building. The till appears to be at least 30 feet thick beneath the Site. Several sand and gravel lenses are present within the till below an elevation of about 540 feet above msl. The thickness of these lenses ranges from about 4 to 15 feet.

Alluvial and glaciofluvial sediments directly overlie the till unit. These sediments consist of coarse to fine-grained sands, silts, and gravels and are typical of recent deposition from river system and outwash environments. It is difficult to distinguish between the alluvial and glaciofluvial sediments because the river sediments (alluvium) consist of reworked outwash and both deposits vary in composition from clayey silt to fine gravel in lateral and vertical directions. Other than the area near the northwest corner of the former manufacturing building where these deposits are thin, the average thickness of these deposits throughout most of the Site ranges from

about 30 to 45 feet. A thorough discussion of the sampling and modeling of the geology can be found in the RI Report.

Hydrology

The Kalamazoo River is the main hydrological unit controlling groundwater flow patterns, surface water runoff, and water use in Allegan County. The relationship between the Kalamazoo River and regional groundwater is constantly dynamic, heterogeneous, and anisotropic. Precipitation is the primary source of groundwater recharge. During high river stages, staff gauges installed in the Kalamazoo River indicate that water levels are higher than groundwater elevations near the river. This indicates that the Kalamazoo River also recharges shallow groundwater when the river elevation is high. Conversely, during seasons of relatively low precipitation, groundwater elevations higher than the Kalamazoo River have been documented, indicating that groundwater is discharging into the Kalamazoo River. Available data suggest that the Kalamazoo River is typically a discharge boundary for groundwater. The Calkins Dam, located about 8 miles northwest of the Site, forms Lake Allegan, and also serves to moderate water levels in the river near the Rockwell Site.

Although the hydrology of the Rockwell Site is complex because of the heterogeneity of subsurface materials, the following primary hydrological units have been identified:

- A shallow, silt, clay, and sandy gravel aquifer above the till unit (approximately 5 to 50 feet bgs); and
- A deep sand and gravel layer within the till unit.

In general, the shallow aquifer is composed of silts and clays with interbedded sand and gravel lenses. The shallow aquifer is horizontally and vertically continuous across the Rockwell Site. Water in the shallow aquifer comes primarily from precipitation (and the Kalamazoo River when the river elevation is high and flow reversals occur from the river to groundwater). Shallow groundwater primarily discharges to the Kalamazoo River and may also percolate downward and recharge the deep aquifer. Below the shallow aquifer, the till member acts as an aquitard where present and may limit vertical migration of groundwater. Because the till appears to be fairly continuous beneath the Site, discharge to the deep aquifer would likely be localized in areas where the till may be thin or absent.

Groundwater at the Rockwell Site flows semi-radially to the north, south and west. Because the Rockwell Site is basically surrounded by the Kalamazoo River on the north, south, and west, groundwater flows outward toward the Kalamazoo River when the river elevation is low. Based on Site data, the RI estimates that groundwater at the Rockwell Site flows at the rates for the directions listed below.

Direction	**Flow Rate (ft/day)**
North	0.78
South	0.18
West	0.60

The deep aquifer is located in the till member approximately 100 feet bgs. The aquifer consists of sand with some gravel and is discontinuous across the Rockwell Site. It is bounded above and below by the sandy silt till unit, which is characteristically impermeable, dense, and confining. The till member below the Rockwell Site is anisotropic and heterogeneous. Conversely, the deep aquifer below the Rockwell Site appears to be relatively isotropic and homogeneous.
To determine the possibility of aquifer communication between the shallow aquifer and deep aquifer, vertical groundwater flow between the shallow and deep aquifers was evaluated by comparing groundwater elevations in shallow and deep monitoring well pairs. Based on RI evaluations groundwater elevations in the shallow monitoring wells were significantly higher than groundwater elevations in the deep monitoring wells. This elevation difference indicates that there is a potential downward vertical gradient.

Although a potential downward vertical gradient exists, the till unit is an aquitard that minimizes vertical groundwater migration, where present. The hydraulic conductivity values for the till range from 1.5×10^{-7} to 3.3×10^{-6} cm/s. These hydraulic conductivity values are more than three orders of magnitude lower than the hydraulic conductivity values of the shallow aquifer, which averaged 2.6×10^{-3} cm/s. The thickness of the till member separating the two aquifers ranges from 50 feet to 70 feet. In addition, October 2000 sampling results show that no organic constituents of concern were detected in the lower aquifer.

Ecological Habitat

A shallow backwater area of the Kalamazoo River is located on the north side of the Site. This area has very little flow-through and is covered with emergent vegetation throughout. The north backwater area was observed to be approximately 2 to 3 feet deep within 20 feet of the shore and underlain by thick muck up to 2 feet deep.

The former Rockwell Site WWTP was located in the northwest portion of the Site, and included the three holding ponds and a former interim holding pond that was backfilled in the 1970s, as well as underground holding tanks. After backfilling, the former interim pond was partially covered at its western edge by the WWTP building. The remaining interim pond area was allowed to return to vegetation and is now covered by grasses, shrubs, and small to medium-sized trees typical of a riparian riverbank habitat. Similar vegetative cover is present in the former SOS pond area.

In the northeast portion of the Site is a low-lying, undeveloped area that is seasonally flooded by surface runoff from surrounding properties. The depression was reportedly created when soil was removed from the area for use as fill in other areas of the Rockwell Site. The area is currently returning to more natural successional vegetation, including grasses and other ground cover, shrubs, and small to medium-sized trees. Based on the environmental setting of the Site and surrounding area, four major habitat types may be present at the Rockwell Site: (1) the aquatic habitats of the Kalamazoo River and WWTP holding ponds; (2) emergent marsh habitat of the north backwater area; (3) riparian habitat along the riverbank, backwater shoreline, WWTP interim pond, and SOS pond; and (4) the old field habitat of the northeast portion of the Site.

Land and Groundwater Use

The Site is located adjacent to a residential neighborhood and the City of Allegan's Publicly Owned Treatment Works (POTW). Although the Rockwell property is currently zoned as exempt (government owned) and industrial use (eastern portion), the City of Allegan has previously indicated it would like to modify the zoning to allow development of the property for residential, municipal, educational or recreational use. Correspondence from the City of Allegan concerning anticipated land uses has been placed in the Administrative Record. The City of Allegan is aware of potential limitations on residential activities at the Site due to cleanup standards (i.e. no human consumption of groundwater) and they should be consulted as discussions of long-term Site stewardship occur. The 2002 ROD for the Site envisioned future land use as mixed use. A small portion of the western edge of the 30 acre Site has been re-used for a POTW expansion, and the eastern building, the former Drive Lin Assembly, was sold and is being reused.

Residents in the area use water from Allegan's municipal water system, and private wells are prohibited by City Ordinance 413 of 2009 (February 2, 2009). During the course of the emergency removal action, a private well was found in close proximity to the Site, although it was in the opposite direction of historical groundwater flow. While there is no information that the well was being used for consumption, and it is not expected exposures were occurring, neighbors reported that the well was being used for watering and for filling a child's swimming pool. The well owners would not permit a sample to be taken of their well and would not provide any information on the extent of its use. The Allegan County Health Department was contacted regarding this situation, but they did not feel they were able to force closure of the well. This situation demonstrates that while there may be an ordinance banning the use of private wells, Institutional Controls (ICs) remain necessary to successfully further ban private well use and installation.

Current Nature and Extent of Contamination

Following the 2010-2011 soil excavation, additional interim groundwater monitoring was required. Four quarters of groundwater sampling were conducted from December 2012 through September 2013. The Groundwater Monitoring Summary Report (Conestoga-Rovers & Associates, January 2014a) summarizes the year of quarterly sampling. The results indicate the following.

Groundwater elevation data recorded between December 2012 and September 2013 indicates seasonal fluctuations, but the overall groundwater flow directions appear stable and constant across the Site and are consistent with historical elevation data and flow directions. LNAPL was not observed at the Site over the course of the four sampling events, indicating that potential continuing source(s) of LNAPL have been adequately removed during past RA activities. Low concentrations of VOCs detected in groundwater at the Site are not consistently greater than cleanup criteria, do not comprise a defined plume, and are not a threat to surface water quality in the nearby Kalamazoo River. Although SVOCs were detected in groundwater at the Site, none were detected at concentrations above generic Groundwater/Surface Water Interface (GSI) criteria.

Of the annual Target Analyte List (TAL) metals data, lead and mercury were reported at concentrations above site-specific GSI criteria or generic GSI criteria. Mercury has been detected in Site groundwater at concentrations above the previous site-specific mixing zone GSI criteria of 0.0013 µg/L. However, the detections of mercury are below the quantification level of 0.2 µg/L using EPA method 245.1 and are considered to be a de minimis condition (i.e., a level of risk that is too small to be concerned with) pursuant to Section 20120e of Part 201 MDEQ Policy and Procedure No. 09-014 ("Evaluating Mercury in Groundwater Relative to the GSI" June 20, 2012), and activity beyond evaluations will not be required.

During the June 2013 sampling event, lead was detected in seven groundwater samples at concentrations above the generic GSI criteria (27µg/L). Lead was detected in these wells at very low concentrations (below the generic GSI criteria) during previous sampling events, but not detected above laboratory detection limits in any groundwater samples from the most recent September 2013 sampling event. With the exception of MW-621, these wells are located within the interior of the Site. Available cyanide was detected once during the June 2013 sampling event at MW-503 at a concentration of 20µg/L, above the generic GSI criteria of 5.2 µg/L. Available cyanide was not detected in this well or any other wells sampled during the other sampling events. The single detection of available cyanide in groundwater appears to be anomalous and should not present a threat to the Kalamazoo River.

During the September 2013 sampling event, PCBs were detected at or above the generic GSI criteria (0.2 µg/L) in groundwater samples collected from monitoring wells MW-624 (0.2 µg/L), MW-601S (0.32 µg/L), and MW-633 (0.35 µg/L). Based on these detections, PCBs should be included in future groundwater monitoring developed in the Long Term Stewardship (LTS) plan.

Pesticide compounds were consistently detected in groundwater at MW-156 above the generic GSI criteria during each quarterly sampling event. MW-156 is located in the southwest interior of the Site adjacent to the City of Allegan POTW property. Based on these detections, pesticides should be included in future groundwater monitoring developed in the LTS plan.

Polychlorinated dibenzodioxin (PCDD) and dibenzofuran (PCDF) concentrations detected during the four sampling events did not demonstrate TEQ values above generic GSI criterion of 0.00001 µg/L, except at MW-630D, which had a TEQ of .0000318J during the March 2013 sampling event. The footnote J was used to indicate that the result is considered estimated. This same location had low level detections below the GSI TEQ during the December and August 2013 sampling events, and had no detected dioxin/furans during June 2013. MW-630-D is located in the northwestern corner of the former manufacturing building footprint.

This data collected in 2012-2013 for this Site indicate that groundwater at the Site has been significantly addressed. Some building foundations and slabs remain at the Site. LNAPL was not found during testing in these areas. Nevertheless, because of the possibility of contamination beneath these foundations and slabs, these areas need to have ICs implemented to ensure remedy integrity.

D. SCOPE AND ROLE OF RESPONSE ACTION

EPA expects that the alternative chosen pursuant to this proposed plan will be the final action for the Site. The action will be documented in an Amendment to the 2002 ROD for the Site. EPA is proposing to remove the following two components from the selected groundwater remedy as they are no longer necessary to protect the public health and welfare and the environment from actual or threatened releases of hazardous substance, pollutants, or contaminants from the Site:

- Construction of a soil-bentonite slurry wall to laterally surround the Site (fully or partially) and restrict groundwater flow; and
- Installation of permeable reactive gates within the slurry wall footprint to allow in-situ treatment of groundwater prior to its movement into the Kalamazoo River.

All other components of the Site remedy remain unchanged. Consistent with the 2002 ROD, the 2016 ROD-A will continue to require removal of liquid oil and smear zone soils at any depth, implementation of a long-term groundwater monitoring program, institutional controls, and Five-Year Reviews. Implementation of these proposed changes will meet all statutory requirements and achieve the Remedial Action Objectives (RAOs) originally set forth in the 2002 ROD.

E. SUMMARY OF SITE RISKS

The Human Health Risk Assessment (HHRA) developed for the Site evaluated both cancer risks and non-cancer health hazards from exposure to contaminants of concern (see table on page 5) at the Rockwell Site before the remedial action was implemented. Unacceptable risks and hazards are those that exceed EPA's goals for protection, which are one-in-a-million excess cancer risk and a non-cancer hazard index (HI) of 1. At the time of the assessment, several complete exposure scenarios existed for the following receptors:

- Child and teenage trespassers (current only)
- On-site construction workers (current and future)
- Construction or utility worker (current and future)
- Adult and child off-property residents (current and future)
- Adult, teenage, and child off-property recreationalist (current and future)
- Adult and child on-site residents (future only)
- Adult and child on-site visitor (future only)
- Adult on-site parking attendant (future only)

The Ecological Risk Assessment (ERA) summarized existing conditions at the Rockwell Site with respect to exposure to and effects of chemicals in soil, sediment, groundwater, and surface water. Four major habitat types may have been affected by COPCs associated with the Rockwell Site: (1) the aquatic habitat of the Kalamazoo River; (2) the emergent marsh habitats of the north backwater area, holding ponds, and northeast flooded area; (3) flood plain hardwood forest habitat in the former SOS pond area, former WWTP area, northeast area, and along the riverbank and backwater shoreline; and (4) the grassy field habitat of the former railroad right-of-way.

The risk characterization indicated potential adverse effects on aquatic and terrestrial receptors from contaminated soil, surface water, sediment, and groundwater. In the aquatic areas, HIs greater than 1.0 were noted for all receptor communities and guilds evaluated. The primary risk drivers in the aquatic areas of concern were PAHs, Aroclor 1254, DOT, and 2,3,7,8-TCDD. The excess risks noted for the Kalamazoo River by groundwater discharge from the Site and the former City of Allegan landfill also indicated the potential for adverse effects on aquatic receptors from groundwater COPCs. In the terrestrial habitats, HIs greater than 1.0 were noted for all receptor communities and guilds evaluated except for the herbivorous mammal guild. The primary risk drivers in the terrestrial habitats were PAHs and pesticides.

Implementation of the remedy documented in the 2002 ROD, with the exclusion of the slurry wall and with treatment gates, has achieved the required protection of human health and the environment by eliminating the exposure pathways described in the HHRA. The slurry wall with treatment gates system was selected in order to protect the Kalamazoo River from being contaminated by Site contaminants through the groundwater/surface water interface (GSI). The 2012-2013 sampling events demonstrated that only a fraction of the COCs were present at a fraction of the wells on-site, and few of those detections exceeded the MDEQ GSI criteria for protection of the Kalamazoo River. The sampling also indicates that direct contact exposure pathways for human and ecological have been removed due to removal of the contamination, and ingestion and inhalation pathways have been largely removed, but can be effectively eliminated with institutional controls. The Site has not been cleaned up to Unlimited Use/Unrestricted Exposure (UU/UE), so long-term monitoring of the Site and five year reviews will be required to ensure the remedy remains protective. Implementation of institutional controls such as land use and groundwater use restrictions will also ensure the final remedy remains protective of human health and the environment in the future.

F. REMEDIAL ACTION OBJECTIVES

From the 2002 ROD, the RAOs for soil, groundwater, LNAPL, and on-site WWTP pond sediment and surface water are discussed below.

RAOs for Soil
The following RAOs were developed for soil associated with the Rockwell Site:

- Prevent direct contact with or ingestion of soil exceeding applicable criteria for all potential receptors.
- Prevent further leaching of contaminants from soil to groundwater at concentrations above Michigan Part 201 Residential and Commercial Drinking Water Protection criteria.
- Prevent further leaching of contaminants from soil to groundwater and ultimately migrating to surface water at concentrations above Michigan Part 201 GSI criteria.

RAOs for Groundwater
The following RAOs were developed for groundwater associated with the Rockwell Site:

- Prevent direct contact with groundwater exceeding applicable criteria.

- Prevent ingestion of groundwater exceeding maximum contaminant levels (MCLs) and Michigan Part 201 Residential and Commercial Drinking Water Protection criteria.
- Protect surface water from groundwater in accordance with Michigan Part 201 requirements.
- Restore the shallow aquifer to its highest level of beneficial use.

RAOs for LNAPL
The following RAOs were developed for LNAPL associated with the Rockwell Site:

- Prevent direct contact with any hazardous substances contained in LNAPL for all potential receptors.
- Prevent further release of LNAPL as a source of soil, groundwater, and surface water contamination.

RAOs for Sediment and Surface Water in WWTP Holding Ponds
The following RAOs were developed for surface water and sediment in the ponds:

- Prevent direct contact with or ingestion of sediment exceeding applicable criteria for all potential receptors.
- Prevent further leaching of contaminants from sediment to groundwater at concentrations exceeding Michigan Part 201 soil Residential and Commercial Drinking Water Protection criteria.
- Prevent further leaching of contaminants from sediment to groundwater and ultimately migrating to surface water at concentrations above Michigan Part 201 GSI criteria.

G. ORIGINAL SELECTED REMEDY

A "No Action" ROD for the landfill contents (OU1) was signed in 1995. This ROD Amendment does not pertain to or affect the 1995 ROD.

The 2002 Site-wide ROD selected Source Material Alternative 5, "Collection of Oil Layer, Targeted Soil Excavation With Off-Site Disposal", and Groundwater Alternative 4, "Physical Containment Wall and Permeable Reactive Gates, Monitoring, with a Contingency Plan for Collection, Treatment, and Discharge." Specific details of each alternative are presented below.

<u>Selected Source Material Alternative</u>
Source Material Alternative 5 includes the following requirements:

- Excavation and off-site disposal of approximately 47,106 cubic yards of soil and pond sediments in total from facility property and off-facility property;
- Attainment of Michigan Part 201 residential cleanup levels and a 1 part per million (ppm) total PCB cleanup level for the top 2 feet of soil and pond sediments on the facility property;
- Attainment of Michigan Part 201 industrial/commercial cleanup levels and a 10 ppm total PCB cleanup level in the zone between 2 feet below ground surface and 12 feet below ground surface, or to the top of the water table in areas where groundwater is encountered

above 12 feet below ground surface for the subsurface soil on the facility property;

- Attainment of Michigan Part 201 industrial/commercial cleanup levels and a 10 ppm total PCB cleanup level in the zone between 2 feet below ground surface and 12 feet below ground surface for the pond sediments on the facility property;
- Attainment of PCB cleanup standard (1 ppm total PCBs), regardless of depth, for soil and pond sediment in adjacent and/or erodible areas along the Kalamazoo River;
- Removal of liquid oil and smear zone soils at any depth, with the off-site thermal treatment of collected oil and off-site disposal of contaminated soil. Use of best engineering practices to maximize removal of material below the water table. For the zone below two feet, regardless of PCB concentration, excavation of oil-impacted soil and pond sediment, such as the "smear zone" at the water table. There is flexibility to use visual evidence of contamination rather than extensive sampling to identify areas requiring excavation at depths below two feet;
- Excavation and off-site disposal of all impacted off-site soil to meet Michigan Part 201 residential cleanup levels and a 1 ppm total PCB cleanup level. Excavation will be to twelve feet below ground surface, or to the top of the water table in areas where groundwater is encountered above twelve feet below ground surface;
- Investigation and removal of any contaminated drains, lines, vaults, etc. that may be found under the building;
- Demolition and removal of former manufacturing buildings, including out buildings and foundations, to the extent necessary to address contamination, oil, and the "smear zone" under the main building;
- Restoration of the Site to current grades, with the option of allowing the northern pond area to return to its historical elevation when it was a backwater area of the Kalamazoo River; and
- Implementation of deed restrictions to limit development to uses which are consistent with cleanup zones.

This remedy assumes the property could be developed without restriction for industrial or commercial use, and for recreational development some restrictions would be required to restrict access to soils below 2 feet below ground surface. Limited residential development may be acceptable with additional ICs, including restrictive covenants. The cost for this Source Material portion of the remedy was estimated at $10,046,000.

Selected Groundwater Alternative

Groundwater Alternative 4 includes the following components:

- Construction of a soil-bentonite slurry wall to laterally surround the Site (fully or partially) and restrict groundwater flow;
- Installation of permeable reactive gates within the slurry wall footprint to allow in-situ treatment of groundwater prior to its movement to the Kalamazoo River;
- Installation of additional monitoring wells and implementation of a groundwater monitoring program;
- Implementation of groundwater use restrictions; and
- Contingency for closure of the slurry wall and extraction and treatment of groundwater if the slurry wall and permeable reactive gates fail to sufficiently prevent the movement of contaminated groundwater to the Kalamazoo River.

The cost for this Groundwater portion of the remedy was estimated at $4,556,029.

Implementation of the Selected Source Material portion of the remedy occurred between June 2005 and November 2006, with a second LNAPL source removal action implemented between October 2010 and November 2011. The details and results of these remedial action activities can be found in the Completion of Remedial Action Report (Conestoga-Rovers & Associates, 2007) and the LNAPL Removal Work Plan Implementation Report (Conestoga-Rovers & Associates, 2011). Actual volumes of soil removed can be found in these reports, as well as contaminant cleanup levels for the Site. Deed restrictions to limit development to uses which are consistent with cleanup zones still need to be implemented at the Site. Portions of slabs, foundations, and utilities left in place may require additional considerations when developing the ICs.

H. DESCRIPTION OF AMENDED REMEDY

The results from sampling events of 50 Site wells conducted after implementation of the Source Materials remedial action (December 2012, March 2013, June 2013, and August-September 2013, illustrated in Figure 4) indicate residual levels of groundwater contamination remain at the Site, mostly below MDEQ generic or site-specific groundwater-surface water interface (GSI) criteria. The data also suggests natural degradation of VOCs is occurring at the Site, and no LNAPL was found in any wells during the four quarters of sampling. Based on this information, the groundwater containment system described in the ROD is no longer necessary. Continued long-term monitoring to ensure that there is not a continuing LNAPL or other contaminant source at the Site, along with institutional controls, will continue to be protective of human health and the environment.

The proposed ROD-A would remove the following three components from the selected groundwater remedy:

- Construction of a soil-bentonite slurry wall to laterally surround the Site (fully or partially) and restrict groundwater flow; and
- Installation of permeable reactive gates within the slurry wall footprint to allow in-situ treatment of groundwater prior to its movement into the Kalamazoo River.
- Contingency for closure of the slurry wall and extraction of groundwater if the slurry wall and permeable reactive gates fail to sufficiently prevent the movement of contaminated groundwater to the Kalamazoo River.

All other components of the Site remedy remain unchanged. Excavation and off-site disposal of contaminated on-facility and off-facility soils and pond sediments, removal and off-site treatment of encountered liquid oil and smear zone soils and demolition and removal of the former manufacturing buildings, including removal of those foundations, drains, lines, etc., beneath the buildings to the extent necessary to address contamination have been completed. Consistent with the 2002 ROD, the 2016 ROD-A would continue to require implementation of a long-term groundwater monitoring program, institutional controls, and Five-Year Reviews. The estimated net present worth of the proposed amended remedy is $459,133. This cost estimate assumes no

additional LNAPL removal and $37,000 per year for 30 years of groundwater monitoring (from original ROD cost estimate). If additional LNAPL is encountered in the future, however, it will be addressed per the originally selected remedy.

EPA expects the amended remedy to achieve all RAOs for the Site once the ICs are implemented and to satisfy the following statutory requirements of CERCLA section 121(b): 1) be protective of human health and the environment; 2) comply with applicable or relevant and appropriate requirements (ARARs); 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) meet the preference for treatment. The EPA expects the ICs to be implemented within one year of the issuance of this ROD Amendment.

The Applicable or Relevant and Appropriate Requirements (ARARs) were reviewed as part of this ROD-A. The State of Michigan Part 201 Cleanup Criteria included in the 2002 ROD have been revised. This ROD-A replaces the State of Michigan cleanup criteria with the current Michigan Part 201 Cleanup Criteria, dated 2013. The Part 201 criteria can be found at: http://www.michigan.gov/deq/0,4561,7-135-3311_4109-251790--,00.html .

I. COMMUNITY PARTICIPATION

EPA, in consultation with MDEQ, will evaluate the public's response to this Proposed Plan during the public comment period before deciding to move forward with the ROD Amendment. Based on new information or public comments, EPA may either modify its recommendation to amend the 2002 ROD, or choose not to move forward with the proposed amendment. EPA encourages the public to review and comment on this Proposed Plan.

EPA will respond in writing to all significant comments in a Responsiveness Summary, which is part of the final decision document called the Record of Decision Amendment. EPA will announce when the final decision has been made and will place a copy of the ROD Amendment in the local information repository.

Following the release of this document for public review, the public participation requirements set out in the NCP Section 300.435(c)(2)(ii) will have been met.

For more information
The Administrative Record (AR), Site-related documents, engineering reports, and other reports and studies are available for public viewing at the Allegan Public Library, 331 Hubbard Street, Allegan, Michigan, or at the EPA Region 5 Records Center, 7th Floor, 77 West Jackson Boulevard, Chicago, Illinois.

You can also view the AR and other information about the Site from the EPA Web Site: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0502367

The public comment period will run from June 10, 2016 to July 11, 2016 and the EPA will be accepting comments on the Proposed Plan during the public comment period. Written comments can be sent to the following addresses:

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