EQP 5111 ATTACHMENT XIV.B2
CORRECTIVE ACTION INFORMATION

Applicant for Operating License for Existing Facility:

☒ R 299.9629 Corrective Action

☐ Elimination from corrective action requirements proposed for one or more units

B2.A FACILITY BACKGROUND
- B2.A.1 History and Description of Ownership and Operation
  - B2.A.1(a) Overview of Plant Manufacturing Operations
  - B2.A.1(b) Overview of Plant Waste Management Practices
- B2.A.2 Environmental Setting
  - B2.A.2(a) Climate
  - B2.A.2(b) Topography
  - B2.A.2(c) Hydrogeology
  - B2.A.2(d) Soil
  - B2.A.2(e) Surface Water
  - B2.A.2(f) Surrounding Land Uses
  - B2.A.2(g) Critical Habitats and Endangered Species
- B2.A.3 Characterization of Potential or Actual Sources of Contamination

B2.B FACILITY'S ASSESSMENT OF KNOWN NATURE AND EXTENT OF CONTAMINATION
- B2.B.1 Soil
  - B2.B.1(a) Characterization History
  - B2.B.1(b) Description of Horizontal and Vertical Extent of Contamination
  - B2.B.1(c) Description of Soil and Contaminant Properties
  - B2.B.1(d) Velocity and Direction of Contaminant Movement
  - B2.B.1(e) Extrapolation or Future Contaminant Movement
  - B2.B.1(f) Recommendations of Established Requirements for Additional Investigations
- B2.B.2 Groundwater
  - B2.B.2(a) Characterization History
  - B2.B.2(b) Description or Horizontal and Vertical Extent of Plume(s)
  - B2.B.2(c) Horizontal and Vertical Direction of Contaminant Movement
  - B2.B.2(d) Velocity of Groundwater Contaminant Movement
  - B2.B.2(e) Factors Influencing Plume Movement
  - B2.B.2(f) Extrapolation of Future Contaminant Movement
  - B2.B.2(g) Recommendations or Established Requirements for Additional Investigations
- B2.B.3 Surface Water and Sediment
  - B2.B.3(a) Characterization History
  - B2.B.3(b) Description of Horizontal and Vertical Extent of Any Contamination
  - B2.B.3(c) Velocity of Contaminant Movement
  - B2.B.3(d) Description of Sediment Characteristics
  - B2.B.3(e) Description of Physical, Biological, and Chemical Factors That May Influence Contaminant Movement and Their Effects

- B2.B.3(f) Proposed or Final Mixing Zone Determinations for Any On-Site Contamination Venting to a Surface Water Body
- B2.B.3(g) Recommendations or Established Requirements for Additional Investigations
- B2.B.4 Air
  - B2.B.4(a) Characterization History
  - B2.B.4(b) Description of Horizontal and Vertical Direction and Velocity of Contaminant Movement
  - B2.B.4(c) Rate and Amount of Release
  - B2.B.4(d) Recommendations or Established Requirements for Additional Investigations
- B2.B.5 Subsurface Gas Contamination
  - B2.B.5(a) Characterization History
  - B2.B.5(b) Description of Horizontal and Vertical Extent of Subsurface Gas Contamination Migration
  - B2.B.5(c) Rate, among, and Density of Gases Being Emitted
  - B2.B.5(d) Recommendations or Established Requirements for Additional Investigations

B2.C FACILITY'S EXPOSURE ASSESSMENT

- B2.C.1 Human Exposure and Threats
  - B2.C.1(a) Exposure Pathway
  - B2.C.1(b) Actual or Potential Receptors
  - B2.C.1(c) Evidence of Exposure
- B2.C.2 Environmental Exposure and Threats
  - B2.C.2(a) Exposure Pathway
  - B2.C.2(b) Actual or Potential Receptors
  - B2.C.2(c) Evidence of Exposure

B2.D INTERIM MEASURES

- B2.D.1 Site-Wide Containment
  - B2.D.1(a) Objective of the Measure
  - B2.D.1(b) Design and Construction
  - B2.D.1(c) Operation, Monitoring, and Maintenance
  - B2.D.1(d) Evaluation of Measure Effectiveness
  - B2.D.1(e) Proposed or Required Schedules for Continued Operation or Future Changes in the Measure
- B2.D.2 Worker Exposure Control Program
  - B2.D.2(a) Objective of the Measure
  - B2.D.2(b) Design and Construction
  - B2.D.2(c) Operation, Monitoring, and Maintenance
  - B2.D.2(d) Evaluation of Measure Effectiveness
  - B2.D.2(e) Proposed or Required Schedules for Continued Operation or Future Changes in the Measure
- B2.D.3 Monitored Natural Attenuation
  - B2.D.3(a) Objective of the Measure
  - B2.D.3(b) Design and Construction
  - B2.D.3(c) Operation, Monitoring, and Maintenance
  - B2.D.3(d) Evaluation of Measure Effectiveness
  - B2.D.3(e) Proposed or Required Schedules for Continued Operation or Future Changes in the Measure

B2.D.4 Contaminant Mass Reduction
- B2.D.4(a) Objective of the Measure
- B2.D.4(b) Design and Construction
- B2.D.4(c) Operation, Monitoring, and Maintenance
- B2.D.4(d) Evaluation of Measure Effectiveness
- B2.D.4(e) Proposed or Required Schedules for Continued Operation or Future Changes in the Measure

B2.D.5 Off-Site Correction Action
- B2.D.5(a) Characterization History
- B2.D.5(b) Description of Horizontal and Vertical Extent of Off-Site Corrective Action
- B2.D.5(c) Rate and Amount of Release
- B2.D.5(d) Evaluation of Measure Effectiveness
- B2.D.5(e) Proposed or Established Requirements for Continued Operation or Future Changes in the Measure

B2.D.6 Plan and Schedule for the Site-Wide Corrective Action Program and Streamlined Oversight Process
- B2.D.6(a) Results Based Work Progress
- B2.D.6(b) Documentation of Progress and Results

B2.E ENVIRONMENTAL INDICATORS

B2.F FACILITY'S ASSESSMENT OF KNOWN OR PROPOSED CONSTITUENTS OF CONCERN

B2.G ESTABLISHED OR PROPOSED CLEANUP CRITERIA

B2.H ESTABLISHED OR PROPOSED COMPLIANCE POINTS AND PERIODS

B2.I OFF-SITE ACCESS

B2.J PUBLIC INVOLVEMENT PLAN

B2.K HEALTH AND SAFETY PLAN

B2.L NOTICE REQUIREMENTS

B2.M JUSTIFICATION FOR PROPOSED ELIMINATION OF ANY WASTE MANAGEMENT UNIT FROM THE CORRECTIVE ACTION PROGRAM OR INTENT TO PROCEED WITH CORRECTIVE ACTIONS

Table B2-1	Summary of Potential or Actual Sources of Contamination
Table B2-1a	Summary of WMUs / AOCs with on-going Corrective Action Obligations
Table B2-2	Soil Characterization Summary
Table B2-3	Groundwater Characterization Summary
Table B2-4	Ranges of Detected Compounds in Soils
Table B2-5	Ranges of Detected Compounds in Groundwater

Figure B2-1	Dow Michigan Operations Midland Plant History Timeline
Figure B2-2	Dow Michigan Operations Midland Plant Historical Products
Figure B2-3	Historic WW Treatment Ponds, Powerhouse and Tar Burner Locations
Figure B2-4	Historic Outfalls
Figure B2-5	Waste Manageme nt Areas
Figure B2-6	Areas of Concern

Appendix A	Work Plan for Groundwater Collection Tile Upgrade Projects
Appendix B	Staging Pile and Corrective Action Management Unit Design Information
Appendix C	Worker Exposure Control Plan
Appendix D	Current Compliance Schedule
Appendix E	Environmental Indicator Forms
Appendix F	Corrective Action and Post-Closure Monitoring and Maintenance Plans
Appendix G	Corrective Action Implementation Plan
Appendix H	Corrective Action Cost Estimate

B2.A FACILITY BACKGROUND

B2.A.1 History and Description of Ownership and Operation

The Midland Plant began operations in 1897 as The Dow Chemical Company (Dow). Expansion in production operations during the past century resulted in growth of the Midland Plant from 25 to the current approximately 1,900 acres. The majority of the Midland Plant is located on the east side of the Tittabawassee River and south of the City of Midland. Some of the current waste management (tertiary treatment ponds) operations are located on the southwest side of the river. The plant location and layout are depicted on Drawing B2-010-927122 – RCRA PART A FACILITY MAP. The following subsections summarize the historical operations and waste management practices of the Midland Plant. Figure B2-1 is a timeline that summarizes historical operations at the Midland Plant, chemicals produced, waste management practices and the development of environmental laws and regulations over time. Figure B2-2 presents the chemicals produced during the various stages of Midland Plant operations.

B2.A.1(a) Overview of Plant Manufacturing Operations

Initially, the Midland Plant operations involved extracting brine from groundwater pumped from production wells ranging in depth from 1,300 to 5,000 feet below ground surface. Over the time of its operation, the Midland Plant has produced over 1,000 different inorganic and organic chemicals.

1890s

In the 1800s, bromine was an important chemical used in patent medicines, as a disinfectant, and in early photographic films. In 1878, the first successful brinewell was drilled in Midland. In 1890, Herbert Henry Dow, along with partner John H. Osborne, formed the Midland Chemical Company to extract bromine from cold brine using a novel electrolytic bromine recovery system. Early products included iron bromide, potassium bromide, and bromine purifier (Brandt, 1997; Dow, 1938; Dow, 1926; Leddy, 1989; Levenstein, 1998; Haynes, 1954a). Soon after, H.H. Dow completed development on the chlorine cell and established a manufacturing process for the production of bleach or “chloride of lime” (calcium hypochlorite). (Brandt, 1997; Dow, 1926; Dow, 1938; Haynes, 1954a; Karpiuk, 1984). By 1897, the newly created Dow Chemical Company began the manufacture of bleaching powder using waste brine from bromine production operations. During this early time period, Dow Chemical also began production of sulfur chloride, various

bromides, mining salts, Epsom salts, and magnesium carbonate, maximizing the economic return from the rich mineral resources available in the brine (Levenstein, 1998).

1900-1914

In 1902, the Midland Chemical Company merged into The Dow Chemical Company. That same year, H.H. Dow organized the new Midland Chemical Company II (which was ultimately combined with The Dow Chemical Company in 1914), for the commercial synthesis of chloroform from carbon tetrachloride, using sulfur chloride from Dow's chlorine cell operation. Chloroform and carbon tetrachloride were first commercially available in 1903. (Brandt, 1997; Dow, 1939; Haynes, 1954a; Karpiuk, 1984).

Between 1904 and 1905, Dow began the manufacture of benzoic acid by treating toluene with chlorine and then converting the resultant benzyl chloride into benzoic acid. This represented Dow's first venture into benzene ring chemistry (Haynes, 1954a). By 1908, Dow manufactured two principal products, bromides and bleaching powder, and other small volume products based on bromine and chlorine extraction, including mining salts, chemical insecticides and food preservatives, sulfur chloride, benzyl chloride and benzoic acid, carbon tetrachloride, and chloroform. In 1910 Dow Chemical had its first sales of lime sulfur (calcium sulfide) and lead arsenate sprays. (Brandt, 1997; Campbell and Hatton, 1951; Haynes, 1954a; Karpiuk, 1984; Levenstein, 1998).

In 1914, H.H. Dow announced the company would quit the manufacture of bleaching powder. He told associates the "real future of the Company lay in the use of its chlorine for products other than bleaching powder, especially chlorinated hydrocarbons." Dow produced its last bleach in July 1915. Demand was shifting from bleaching powder to chlorine, prompted by chlorine's effectiveness in stemming typhoid outbreaks by direct injection into domestic water supplies; the blockade of German dyestuffs and organic intermediates; the liquefaction of chlorine and its transport in cylinders and tank cars; and the introduction of liquid chlorine into the manufacture of pulp and paper after World War I (Haynes, 1945a; Haynes, 1945b; Haynes, 1949; Leddy, 1989; Karpiuk, 1984).

1914-1919

During World War I (1914-1918), in response to the British Navy's blockade of German exports and subsequent increased domestic demand, Dow began the manufacture of phenol using a benzenesulfonation process. Dow manufactured 40 tons per day for use in producing trinitrophenol

for artillery shells. Other wartime-introduced products included dichloroethylsulfide (for mustard agent), monochlorobenzene (for explosives), and hexachloroethane (for smoke screens). In 1918, the United States Army operated a plant manufacturing mustard agent based on chlorine at the Midland Plant. The United States manufactured up to 10,000 pounds per day of mustard agent (Brandt, 1997).

During this same period Dow also began to produce acetic anhydride, ethylene glycol, ethylene chlorohydrin and its acetate, dichloroacetic acid, aspirin and other salicylates, calcium chloride, dichloroethylsulfide, monochlorobenzene, hexachloroethane, sodium acetate, trichloroethylene, trinitrophenol, and tetrachloroethylene. Also in response to wartime demand, Dow began commercial production of synthetic brominated indigo and its intermediates, aniline and chloroacetic acid. Military needs for incendiary flares prompted the production of magnesium metal. Dow continued production of inorganic bromide- and chloride-based products, including caustic soda, chlorine, bromine, Epsom salts, magnesium products, and insecticides (Bennett, 1926; Brandt, 1997; Dow, 1939; Haynes, 1945a; Haynes, 1945b; Leddy, 1989). Dow also perfected a new synthetic process for production of phenol using chlorobenzene and began production and marketing of Paradow™ (p-dichlorobenzene) (Haynes, 1945a; Haynes, 1945b).

Beginning in 1919, Dow began promoting its new magnesium alloy, Dowmetal™, for structural uses. By 1927, Dow was the sole domestic producer of magnesium and by 1929 was producing over 840,000 pounds annually.

1920s

During the 1920s Dow resumed production of its peacetime products and introduced several new products, including vinyl chloride, carbonic acid, ethylene dibromide, ethylene dichloride, propylene dichloride, synthetic ammonia, trichloroethane, and trichloroacetic acid. During this time period, production of aniline from chlorobenzene and aqua ammonia and Dowtherm™ heat transfer fluids (a mixture of diphenyl and diphenyloxide) began (Dow, 1939; Haynes, 1945a; Haynes, 1945b; Dow, 1928; Midland Sun, 1926).

1930s

During the early 1930s, Dow developed ethyl cellulose, Dow's first plastic, which was used extensively during World War II for telephone headsets, dust goggles, airplane parts, etc. During this time, Dow also began production of vinylidene chloride and 1,1,1-trichloroethane. In the mid-1930s, the Midland Plant began producing various chlorinated phenols that were used primarily as fungicides, bactericides, or herbicides (Dowicides™). Commercial production of polystyrene

(Styron™) followed in 1938. Also during this time period, Dow began production of synthetic rubber and copolymer of vinyl chloride and vinylidene chloride (Saran™). (Agin et al., 1984; Brandt, 1997; Dow, 1928; Dow, 2006; Haynes, 1948; Karpiuk, 1984; Whitehead, 1968).

1940s

As Dow entered the 1940s, over 500 products were being manufactured at the Midland Plant, which by then covered 525 acres. Dow added 2,4-D herbicide to its product line. Dowex™ ion exchange resins were developed and used for purification of water, liquid food, and other materials. In 1947, a new pentachlorophenol plant was built. By the end of the decade, over half the American domestic production of phenol was produced at the Midland Plant (Brandt, 1997; Haynes, 1954b).

1950s and 1960s

During the 1950s the Midland Plant expanded its manufacturing capacity of existing products and added several new products including acrylic acid, acrylamide, ethanolamines, phenolics, herbicides, soil fumigants, polyacrylamide and other plastics, and styrene/butadiene latexes. (Brandt, 1997; Dow, 1947; Karpiuk, 1984).

In the 1960s, the Midland Plant continued to expand both its production capacity and the number and range of products being manufactured, while ceasing to produce other products. In 1964, Dow improved the 2,4,5-T production process to increase efficiency and reduce waste. During the late 1960s, Dow built a new trichlorophenol plant and a new chlor-alkali plant (Dow, 1960; Dow, 1966; Dow, 1970).

1970s

In the 1970s, Dow commenced full-scale production of the chlorpyrifos insecticides Dursban™ (household market) and Lorsban™ (agricultural market). Dow also introduced 2-chloro-*N*isopropylacetanilide (Propachlor™). Also, a new 2,4-D herbicide plant was built and the existing chlorinated benzene production facilities were replaced and expanded to more efficiently produce monochlorobenzene, *o*- and *p*-dichlorobenzene, trichlorobenzene, and tetrachlorobenzene. During the mid- to late 1970s, Midland stopped production of 1,2-dibromo-3-chloropropane (Fumazone™), *o*,*o*-dimethyl-*o*-(2,4,5-trichlorophenyl) phosphorothioate (Ronnel™), and 2,4,5-T (Dow, 1966; Dow, 1970).

1980s and 1990s

In the 1980s and 1990s, Dow began to convert manufacturing at the Midland Plant away from bulk commodities and its traditional products manufactured at the Facility and into more specialized but lower volume products. On-site production began to decrease both in terms of capacity and range of products. The Midland Plant pentachlorophenol manufacturing facility was closed in October 1980. Also during this time, the decision was made to shut down the chlorine/caustic soda production facilities and, by the mid-1980s, the Midland Plant exited the brine and bromine business. Dow introduced Seldane™, a non-sedating antihistamine, and Drytech™, the active absorbent in disposable diapers. (Brandt, 1997; Dow, 1973; Dow, 1975; Dow, 1977; Dow, 2006a; Amendola, 1986).

2000s and Present

Recently Dow has continued and accelerated the conversion of manufacturing at the Midland Plant into specialized products while continuing to shutdown or divest of older and more traditional product lines. Significant investments have been made in adhesives, fluids and other products for the automobile industry, agricultural chemicals and solar shingle building products. The XALT Energy, LLC is operating battery manufacturing facility on Dow owned land to the north east of the Facility. At the same time Dow divested ownership of manufacturing plants producing polystyrene resins and styrene/butadiene latex. The divested assets continue to be operated on the Facility by an independent Trinseo Corporation.

Currently, the Midland Plant consists of approximately 20 production units, associated manufacturing support facilities (administration, logistics, chemical distribution, maintenance etc) waste management facilities (TSDF and waste water treatment) and Research & Development facilities that serve Dow's global operations. The Facility produces agricultural products, and chemicals and materials for the Advanced Materials, Performance Plastics and Performance Products businesses.

B2.A.1(b) Overview of Plant Waste Management Practices

During the Midland Plant history waste management practices have evolved with the changes to technology, production and regulatory requirements. Waste management practices at the Facility have included on-site and off-site treatment and disposal of various waste products (MDEQ, 2003b). In the very early history of the Midland Plant, wastes were generated from the chlorine

production and were discharged directly to the Tittabawassee River. Early production of chlorine used graphite electrodes in cells constructed from tarred pine boards. Althought unknown at the time, the combination of cell construction and chemical processes generated chlorinated furans as a by-product, which were subsequently released to the Tittabawassee River with the discharge of spent brine. Sometime later, wastes were stored and treated in ponds prior to discharge. Other wastes were disposed of on-site either on land or by open burning (Agin et al., 1984). Over time, improvements in waste management practices included the installation and operation of a modern wastewater treatment plant, incinerator and landfill.

Improvements in the wastewater treatment plant and subsequent incorporation of pollution controls into both the operations of and emissions from the incinerator have reduced or eliminated releases and emissions from the Midland Plant.

Historical Aqueous Waste Management

Beginning in the 1920s, aqueous waste was managed using a network of collection ditches, pipelines, and pumps that delivered waste to a series of storage ponds. Figure B2-3 depicts locations of historic wastewater treatment conveyances and ponds. Outlet structures controlled releases to the Tittabawassee River during high river flow periods. Waste brines were placed in a series of storage ponds. Sludges were stored in a 64-acre pond designed to collect and thicken suspended matter. Organic wastes, defined by odor, were also stored in ponds designed for long retention periods. Acid wastes were stored in a pond system during cold months; during warmer months discharges to the River were controlled based on temperature and stream condition. Clear water wastes from condenser and cooling waters were continuously discharged. Discharges were periodically monitored for sodium chloride concentration and phenol content (Michigan Stream Control Commission, 1937).

In the 1930s, a secondary wastewater treatment plant (trickling filter) was built and operated to treat phenolic wastes. In 1945, the wastewater treatment plant (WWTP) was upgraded to include preliminary treatment in trickling filters followed by activated sludge treatment and final clarification (Velz, 1958). The wastewater treatment processes have undergone several upgrades over the years, including the construction of tertiary treatment ponds (referred to as “T-ponds”) in 1974.

By 1984, through efforts to recover and reclaim process wastewaters, the wastewater effluent discharge flow to the river had dropped from 35.4 million gallons per day (MGD) to 20 MGD. Continued efforts throughout the 1980s and 1990s resulted in construction of several process

waste recovery and reclamation facilities and subsequent reduction of influent pollutant loads at the facility-wide WWTP.

In 1985, sand filters were constructed to remove particulates from the tertiary effluent prior to discharge to the river. In 2001, a ballasted clarification system was added to further treat tertiary effluent. During 2015, a dissolved air flotation system was brought on-line with the goal of replacing the ballasted clarification system. Operation of the T-ponds has been regulated by Dow's NPDES permit since 1988. Currently the NPDES permit authorizes the treatment and discharge of waste water from on-site and off-site operations, on-site and off-site remediation operations, incinerator scrubber wastewater, commercial hazardous waste combustor wastewater, power and feedwater operations wastewater, groundwater, landfill leachate, noncontact cooling water, sanitary wastewater, miscellaneous plant service wastewaters, dredging dewatering water from the maintenance of the surface water intake lagoon, and storm water runoff.

Effluent from the WWTP discharges to the Tittabawassee River via an outfall. Historically, there were numerous outfalls from the Midland Plant discharged to the Tittabawassee River (MDNR, 1972). Over time, the number of outfalls was reduced to a primary process wastewater outfall, with one emergency back-up outfall and a few storm water outfalls. A number of historic outfalls have been identified and their locations are shown in Figure B2-4.

During the early 1980s, Dow discontinued the use of deep disposal wells for discharge of phenolic wastes. These wells discharged into the Sylvania formation and the Dundee formation. The closed chemical disposal wells are shown on Figure B2-5.

Historic Air Emissions Management

Process Emissions

Historically, waste process gases were vented to the atmosphere. Over time, efforts have been focused on recovering wastes for reclamation and reuse (Agin et al., 1984; Haynes, 1945a; Haynes, 1945b; Haynes, 1948; Haynes, 1949; Haynes, 1954a: Haynes 1954b). Beginning in the late 1960s, Dow aggressively pursued reduction in emissions from its process vents through process changes or elimination, implementation of material recovery and reuse, and installation of air pollution control technologies (Agin et al., 1984; Dow, 2006a).

Dow has historically supplied its own power needs using on-site power generation plants. As of 1984, the on-site 60 megawatt 2 million pound per hour steam cogeneration plant burned 2,000 tons of coal per day. Historic power house locations are identified on Figure B2-3. Exhaust gases

were directed through an economizer prior to stack exhaust to the atmosphere. The powerhouse was retrofitted with baghouse filters in October 1982 to remove 99 percent of the flyash previously discharged to the environment (Agin et al., 1984). On-site power and steam generation were shutdown in the late 1980's and when power and steam production from natural gas began at the Midland Cogeneration Venture facility south of the plant site.

Early Combustion of Liquid Waste Tars

As early as 1930, the Facility disposed of organic liquid tars by incineration. It is now understood that burning liquid tars can generate dioxins and furans. Two basic types of incineration were used: liquid tar burners (in several different configurations) and rotary kiln solid waste incineration. Improvements in burn efficiency and environmental controls have been consistently made over time. In 2003, Dow completed upgrades to its incinerator to meet USEPA Maximum Achievable Control Technology (MACT) standards for industrial incineration devices (Agin et al., 1984; Dow, 2006a).

In the mid-1930s, two tar burners were installed northwest of the present Facility waste incinerator. The locations of the tar burners and incinerators is identified on Figure B2-3. Liquid tars were burned inside vertical brick lined towers with combustion exhaust gases and particulates vented directly to the atmosphere. Fuel oil was used to assist in start-up and maintenance of the burner flame (Agin et al., 1984). In 1951, a new vertical tar burner replaced these two units. Combustion exhaust gases and particulates were vented directly to the atmosphere. This unit was removed from service in 1974 and demolished in the late 1970s (Agin et al., 1984).

In 1957, the 707 Building tar burner was constructed just east of the present Facility waste incinerator. This unit provided air exhaust scrubbing equipment to reduce hydrogen chloride emissions when burning chlorinated tars. Depending on the materials undergoing incineration, the vent emissions could be diverted directly to a 125-foot stack or to a water quench chamber prior to venting to the atmosphere. This unit was removed from service in 1975 (Agin et al., 1984).

High temperature (approximately 1,000 degrees Celsius [°C], or higher) combustion of organic liquid tars began in 1968 with construction of the 830 Building tar burner. This unit operated at a temperature of 900 to 1,000°C with a tar feed rate of 10 gallons per minute (gpm). Combustion exhaust gases and particulates (30,000 cubic feet per minute [cfm]) were directed through a water quench system, venturi scrubber, and demister before stack discharge.

In 1975, chlorinated waste tars were directed to the afterburner of the rotary kiln incinerator (discussed below). In 1981, this unit was placed in standby mode to be used only for tar inventory control. The unit was not operated after December 1982 (Agin et al., 1984).

Combustion of Solid Wastes

Prior to 1948, solid wastes were either landfilled on the Facility or stockpiled for open air burning. In 1948, a rotary kiln incinerator was placed in service to burn rubbish, waste solids, packs, and liquid tars. Solids were manually shoveled into the feed chute and various liquids were sprayed into the front of the kiln. Combustion exhaust gases and particulates were vented directly to the atmosphere (Agin et al., 1984).

In 1958, this original rotary kiln was replaced with a new dual rotary kiln system (703 Building Kiln No. 1 and Kiln No. 2) to burn paper and wood trash, solid chemical waste, chemically contaminated waste equipment, and a variety of liquid wastes. From 1958 to 1975, only Kiln No. 1 was used. Combustion exhaust gases and particulates were directed through a water-spray quench system before discharge to the atmosphere. In 1970, to reduce stack particulate emissions, a secondary combustion unit afterburner (using natural gas for supplemental fuel) was installed between the kiln and the quench chamber.

In 1975, Kiln No. 2 was placed into service and Kiln No. 1 was shut down. The Kiln No. 2 system included a rotary kiln, an improved afterburner and an air pollution control system consisting of a water quench system, venturi scrubber, and demister. Beginning in 1978, in response to research studies indicating that a higher temperature was needed to minimize formation of chlorinated dibenzo-p-dioxins and to assure their efficient destruction, natural gas was added to the afterburner to increase the temperature control point to approximately 1,000°C. Continued improvements between 1981 and 1984 made to the Kiln No. 2 system resulted in further reduction of particulate emissions to the atmosphere. Liquid wastes and tars were atomized either directly into the kiln or directed to the afterburner, with higher British thermal unit (BTU) liquid feeds and dichlorophenol distillation wastes sent directly to the afterburner and higher ash-containing feed

directed first to the kiln. Mass flow measurements of 2,3,7,8-TCDD levels in the incinerator system in 1984 showed that the incinerator ash captured about one-half of the 2,3,7,8-TCDD and the exhaust scrubber equipment captured 95 percent of the remaining half (Agin et al., 1984).

Historically, wet kiln ash was lifted from the ash trough by conveyor belt to dump trucks for transport to on-site landfill disposal. In 1982, a building was constructed around the ash transfer operation to totally enclose the conveyor and truck loading operation. Ash handling methods were also implemented to prevent drying and dusting of kiln ash at all stages of loading, transport, and landfilling (Agin et al., 1984).

Prior to 1985, liquid waste being fed to the secondary combustion chamber burner of the kiln was atomized through the use of an air fan. The type of burner nozzle was changed to employ the use of steam atomization, which was more efficient, thereby lowering the amount of 2,3,7,8-TCDD that was formed. To lessen the amount of particulates, several improvements were added to the 703 incinerator in the 1987-1988 timeframe (Dow, 2006b).

In 1988, the secondary combustion chamber of the 703 incinerator was reconfigured. A high-efficiency vortex burner was installed just after the rotary kiln. This installation increased the secondary combustion zone residence time significantly and employed a highly efficient burner. These changes yielded 99.99 to 99.999 percent destruction and removal efficiencies (Dow, 2006b). In 1990, another rotary kiln incinerator, 830, replaced the existing 830 tar burner. The air permit for this unit required 99.999 percent destruction and removal efficiency (Dow, 2006b).

Planning for the new, state-of-the-art 32 Building rotary kiln began in the late 1990s. The kiln was designed to burn both solid and liquid wastes. The kiln was outfitted with carbon seals on both ends to greatly minimize the possible occurrence of fugitive emissions. Where older kilns often had less than 0.25 inch of water vacuum on the combustion chamber, the new kiln was designed to run at greater than 1 inch of water vacuum (Dow, 2006b).

By 2003, Dow had completed upgrades to the 32 Building rotary kiln incinerator to meet the USEPA MACT standard for industrial incineration devices. After starting up the 32 Building kiln in 2003, the 703 Building and 830 Building incinerators were closed pursuant to Part 111 of NREPA. Whereas the older units were permitted to process 85 million BTU/hr and 60 million BTU/hr, the new 32 Building kiln was permitted to operate at 130 million BTU/hr (Dow, 2006b).

Comprehensive Performance Tests of the new 32 Building incinerator were completed in 2003, 2009 and again in 2014. All tests demonstrated dioxin and furan emissions from the incinerator are substantially below federal and state emission requirements.

B2.A.2 Environmental Setting

The waste management facilities are located within a 1,900 acre chemical manufacturing and research site. Hundreds of buildings and structures that make up the operating units and other manufacturing support facilities are located on-site with the highest concentration located in the north east portion of the facility. More than 40 miles of roadway and 45 miles of railroad track interlace the Facility operating units. The majority of the Facility is located on the east side of the Tittabawassee River in the southern portion of the City of Midland. Attachment XIV.B4 Environmental Assessment provides more details of the environmental setting.

B2.A.2(a) Climate

The area is characterized by a continental climate regime, with winter temperatures cold enough to sustain stable snow cover and relatively warm summer temperatures. The mean annual temperature for the area is 47.8 degrees Fahrenheit (°F). Average monthly precipitation is 2.3 inches and an annual average of 27 inches. Average seasonal snowfall is 37 inches (Michigan State Climatologist's Office, 2005). Wind direction is predominantly from the west-southwest (that is, toward the east-northeast), regardless of season. Attachment XIV.B4 Environmental Assessment provides more details on the climate in Midland, MI.

B2.A.2(b) Topography

The site is generally flat. Localized highs and lows are present with the highest ground elevations at the northern end of the site and along the Tittabawassee River where former wastewater treatment ponds that made up the 1925 Landfill and LEL II have been closed and capped. The Tittabawassee River bisects the site, and the majority of the site is northeast of the river. There are significant areas of historic fill, particularly along the north and east banks of the Tittabawassee River. As much as 15 feet of relief is present in localized areas north of the Tittabawassee River at the 1925 Landfill and the LEL II. Drainage and grading provides proper storm water management and prevents erosion. Attachment XIV.B4 Environmental Assessment describes the topography of the area.

B2.A.2(c) Hydrogeology

Groundwater occurs at the Facility within the four functional geologic units: Surface Soils and Fills; Regional Aquitard; Regional Aquifer and Bedrock. A summary of each of these units is provided in Attachment XIV.B4, Environmental Assessment. Detailed descriptions and evaluations are provided in Attachment XIV.B3 Hydrogeologic Report.

B2.A.2(d) Soil

The soils at the Facility are classified as Urban Land (Ur) which is described as nearly level area covered by streets, parking lots, and buildings underlain typically by sandy or loamy sub-stratum material (USDA, 1976). Excess soils from excavations at the Facility have been re-located to designated areas as fill and covered in compliance with Part 201 of P.A. 451, as amended. Many former industrial areas at the Facility that are currently vacant have been converted for storm water detention. These areas typically are vegetated, with the upper foot of soils composed of topsoil and grass. Some vacant gravel lots, gravel and asphalt parking areas, and gravel and asphalt roadways are also present.

Urban Land soils classification extends throughout the City of Midland. In less urbanized areas surrounding the Facility, shoreline dune structures remain as ridges extending laterally for hundreds of feet or more, and are sometimes mined for easily extracted construction sand. Attachment XIV.B4 describes the geology and soils in and around the facility.

B2.A.2(e) Surface Water

The primary natural surface water feature in the area is the Tittabawassee River, which drains approximately 2,600 square miles of land in the Saginaw River watershed (Michigan Department of Natural Resources [MDNR], 1988). Further descriptions of the surface water and sediment are presented in Attachment XIV.B4 Environmental Assessment.

B2.A.2(f) Surrounding Land Uses

The facility is in the midst of an expanding industrial complex. The majority of the property in the area is heavily industrialized. Immediately across the river to the south is a gas-fired electric generating complex. The industrial uses in the area are consistent with city and township development plans. Further details of the surrounding land uses and zoning are presented in Attachment XIV.B4 Environmental Assessment.

B2.A.2(g) Critical Habitats and Endangered Species

The Facility is an established industrial complex encompassing 1,900 acres which shows evidence of the impacts of human activities. There are no endangered plants or animal species in the area or surrounding the facility. There is no place on the Facility that provides habitat critical to the survival of the local species. The plant and animal species observed either on-site or immediately off-site are common species found in populated areas. Further discussion in Attachment XIV.B4 (Environmental Assessment) provides details of the surrounding natural habitat.

B2.A.3 Characterization of Potential or Actual Sources of Contamination [R 299.9504(c) and 40 CFR §270.14(d)]

Table B2-1 describes actual or potential sources of contamination at The Dow Chemical Company Midland Plant Operations Plant Facility that may be subject to the corrective action requirements of Part 111 of Act 451. The table includes identified waste management units at which contaminants have been placed at any time, or at which contaminants have been released, or at which there is a threat of release regardless of the intended use of such unit. The table also includes areas of concern that are those units which do not meet the definition of waste management unit, but at which contaminants may have been released to the environment on a non-routine basis, or which may present an unacceptable risk to public health, safety welfare, or the environment.

Table B2-1 summarizes the unit characteristics, waste characteristics and management, history of releases or potential to release for each of the identified waste management units and areas of concern. The location and boundaries of the waste management units are identified on Figure B2-5. The location and boundaries of areas of concern are identified on Figure B2-6.

B2.B FACILITY'S ASSESSMENT OF KNOWN NATURE AND EXTENT OF CONTAMINATION

B2.B.1 Soil

B2.B.1(a) Characterization History

A summary of the soil characterization efforts and findings are presented in Table B2-2.

B2.B.1(b) Description of Horizontal and Vertical Extent of Contamination

Surface soil (< 2 feet deep) contamination is generally present throughout the Facility as a result of historical releases from former combustion units. Subsurface soil (> 2 feet deep) contamination is

generally present throughout the Facility as a result of historical releases from manufacturing or waste management units. Where present, contamination generally extends to the underlying Regional Aquitard, and some cases into the aquitard through diffusive transport.

Soil contamination has also been identified in off-site areas within the City of Midland, Tittabawassee and Saginaw River floodplains. Within the City of Midland, surface soil (< 2 feet deep) contamination is present as a result of historical aerial releases from former combustion units. Off-site corrective action for the Midland Area Soils is being performed under the approved May 25, 2012 Interim Response Activity Plan Designed to Meet Criteria. Within the Tittabawassee and Saginaw River floodplains, surface (<2 feet deep) and subsurface (>2 feet deep) soil contamination is present as a result of historical wastewater discharges. Floodplain soil characterization, evaluation, and remedy are being performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942).

B2.B.1(c) Description of Soil and Contaminant Properties

Surface soil (< 2 feet deep) contamination generally present throughout the Facility as a result of historical releases from former combustion units largely contains persistent compounds with low solubility that are strongly sorbed to soil particles. Subsurface soil (> 2 feet deep) contamination generally present throughout the Facility as a result of historical releases from manufacturing or waste management units may also contain volatileand semi volatile organic compounds and metals, in addition to the persistent compounds also found in surface soil.

Surface soils and fills are highly heterogeneous across the Facility, but are largely granular with varying fractions of fine-grained particles. The underlying soils making up the Regional Aquitard are compact, cohesive and largely fine-grained with varying fractions of granular particles. The underlying Regional Aquitard generally provides a barrier to vertical migration. Engineering features consisting of slurry walls are similar to the makeup of the underlying Regional Aquitard, and similarly limit horizontal movement of contaminants through soils. For a more detailed description of soils, see Attachment XIV.B3 Hydrogeologic Report.

B2.B.1(d) Velocity and Direction of Contamination Movement

Surface soil (< 2 feet deep) contamination generally present throughout the Facility as a result of historical releases from former combustion units is unlikely to migrate vertically due to low solubility

and sorption to soil. Movement of contamination is limited to downwind transport as dust or via vehicle track-out. As part of the Soil and Groundwater Exposure Control Program, dust suppression activities for the facility are on-going. Soil monitoring is performed to verify that off-site transport is not occurring. For further details on soil monitoring programs, see Attachment XIV.B5 Environmental Monitoring Programs.

Subsurface soil (> 2 feet deep) contamination generally present throughout the Facility as a result of historical releases from manufacturing or waste management units may contain volatile and semi volatile organic compounds and metals, in addition to the persistent compounds found in surface soil. A number of interim measures have been completed to prevent contaminant movement in historical source areas (see Table B2-2). Vertical migration is limited by the Regional Aquitard. There is also the potential for volatile organic compounds to emanate from subsurface soils through surface soil to indoor air or ambient air.

B2.B.1(e) Extrapolation of Future Contaminant Movement

Future contaminant movement is unlikely to be significant, based on the following lines of evidence. The facility has been in operation since 1897. Releases from historic manufacturing or waste management are historic in nature. Because non-aqueous phase liquids (NAPLs) largely migrate rather rapidly in the environment, it is likely that NAPLs released have migrated to a location of relative stability. Known historical source areas where releases occurred have had engineering controls applied to prevent further migration. An on-site sewer system is present that discharges to Dow's Wastewater Treatment Plant. Movement of isolated point-source contamination is limited by the extensive nature of the sewer system. Where the potential for off-site flow of groundwater is present, groundwater monitoring is conducted to verify on-going compliance with groundwater and surface water protection standards. For further details, see Attachment XIV.B5 Environmental Monitoring Programs.

B2.B.1(f) Recommendations or Established Requirements for Additional Investigations

Attachment XIV.B2 Appendix G describes the plan for corrective action implementation and the streamlined process that Dow and MDEQ will use to cooperatively identify issues and establish goals to achieve the corrective action objectives.

During each calendar year, the proposed work will proceed to address the prioritized and specific objectives that support the Midland Plant Corrective Action Goals. Activities will be designed to

achieve the goals within the timeframe proposed in the Annual Site Corrective Action Work Plan, which will fulfill Dow's corrective action obligations. Areas of known issues (e.g., Northeast Perimeter shallow groundwater, shallow groundwater at the former Ash Pond area, Pure Oil Site, etc.) will be prioritized based on potential risk under current use, as well as their contribution towards achievement of the site corrective action goals. Refer to Section B2.D.6 and Attachment XIV.B2 Appendix G for further details regarding the schedule for the site-wide Corrective Action Program and focused oversight process.

B2.B.2 Groundwater

B2.B.2(a) Characterization History

A summary of the groundwater characterization efforts and findings are presented in Table B2-3.

B2.B.2(b) Description of Horizontal and Vertical Extent of Plume(s)

Groundwater contamination at The Dow Chemical Midland Operations Plant Facility has been identified from plant and facility operations, predating the original licensing of the regulated and closed units. Contamination is present within the shallow unconfined groundwater, and in some cases, extends to some deeper till sand units. The horizontal extent of groundwater contamination is limited by engineered controls in the form of slurry walls and groundwater collection trenches (RGIS, SSRT, LEL Slurry Walls). The internal plant sewer system also limits horizontal migration from block to block within the Facility.

Historical groundwater contamination has migrated beyond the Facility Boundary in four areas: the Monitoring Well 6178 Area (northeast of facility), Monitoring Well 6175 Area (northeast of facilty), Monitoring Well 6172 Area (west of facility near closed chemical disposal well #3), and along the western margins of No. 6 Pond. Groundwater in both the Monitoring Well 6178 and 6175 Areas discharges into a municipal storm sewer running roughly parallel to the plumes. The groundwater migrating beyond the Facility in the Monitoring 6178 Area is below the relevant Part 201 Cleanup Criterion prior to discharging to the sewer system. A Work Plan Addendum for the Monitoring Well 6175 Area was submitted December 21, 2011 for MDEQ review and approval to evaluate future contaminant transport in the area. Contaminated groundwater extends beyond the Facility Boundary in the Monitoring Well 6172 Area. Source removal was conducted in this area in 2012, and post-remedy monitoring is being performed to evaluate that action in accordance with the Interim Response Activity Work Plan, submitted March 16, 2012 for MDEQ review and approval. That contaminated groundwater plume located near the center of the western margins of No. 6

Pond and extending beneath Poseyville Road was previously investigated and is currently being controlled by three groundwater pumping wells.

Adjacent to the former Ash Pond Area of Concern (see Table B2-1 and Figure B2-6), groundwater samples from Monitoring Well 6165 have identified arsenic concentrations greater than the Generic MDEQ Groundwater Surface Water Interface (GSI) Criterion. Similarly, infrequent and seasonally dependent concentrations of fuel oil related substances have been detected in Monitoring Well 18 in the Diesel Tank Farm Area of Concern (see Table B2-1 and Figure B2-6) at concentrations greater than Generic MDEQ GSI Criterion. Additional activities will be conducted to address both the former Ash Pond and Diesel Tank Farm Areas of Concern, as described in Section B2.D.6 and Attachment XIV.B2 Appendix H.

The vertical extent of groundwater contamination is significantly retarded by the underlying Regional Aquitard. In some areas where Till Sands are in communication with the shallow unconfined groundwater, contamination extends into those Till Sands. The extent of contamination is dependent on the degree of communication with the unconfined groundwater and degree of shallow contamination present. Vertical migration of dissolved phase contaminants is limited to predominantly diffusive transport due to the compact nature of the underlying glacial sediments and the artesian nature of the underlying Regional Aquifer, resulting in upward vertical gradient across the Facility. Groundwater contamination does not extend through the Regional Aquitard, as no impacts to the Regional Aquifer have been identified.

B2.B.2(c) Horizontal and Vertical Direction of Contaminant Movement

East of the Tittabawassee River, movement of contaminated groundwater in the historic waste management units is controlled by a combination of engineering controls, such as clay dikes and slurry walls that act as barriers trapping groundwater behind them, as well as purge wells and permeable cutoff drainage systems that actively remove groundwater from these units. Infiltration into the extensive plant sewer system also limits the horizontal movement of groundwater contamination.

Historical groundwater contamination has migrated beyond the Facility Boundary in two areas east of the Tittabawassee River: the Monitoring Well 6178 and 6175 Areas. Groundwater in these areas migrates northeast towards a storm sewer in the area.

West of the Tittabawassee River, the southern portion of the area is dominated by large ponds.

Seepage from these ponds into groundwater is managed via engineering controls (Tertiary Pond RGIS, Tertiary Pond Slurry Wall, 6Pond Collection Tile). North of the ponds, contaminated

groundwater movement is prevented by engineered controls (West Side RGIS and 7th Street Purge Wells).

Historical groundwater contamination has migrated beyond the Facility Boundary in the Monitoring Well 6172 Area west of the Tittabawassee River. Source removal was conducted in this area during 2012, and post-remedy monitoring is being performed to evaluate that action in accordance with the Interim Response Activity Work Plan.

At Poseyville Landfill, movement of contaminated groundwater from the northeast corner of the Landfill is prevented by engineering controls (a slurry wall, perimeter leachate collection system and four groundwater pumping (purge) wells).

In all areas where the potential for off-site flow is present, groundwater monitoring is performed to verify on-going compliance with groundwater quality standards. For further information on groundwater monitoring programs, see Attachment XIV.B5, Environmental Monitoring Programs.

B2.B.2(d) Velocity of Groundwater Contaminant Movement

Groundwater seepage velocity is determined annually for many corrective action groundwater monitoring programs. East of the Tittabawassee River, groundwater discharges into engineered groundwater intercept systems (e.g., the Revetment Groundwater Interception System or RGIS). Groundwater elevations are measured on a quarterly basis using piezometers completed within the unconfined surface sands. These data are provided quarterly in the Facility Environmental Monitoring Reports. Historical data from wells 3668 and 3592 indicate an average hydraulic gradient of 0.006 ft/ft. Assuming a hydraulic conductivity of 6x10-3 cm/sec (a typical value for this unit (Northeast Perimeter Monitoring Program Addendum, 2005and 6178 Area Investigation Results Summary, 2007)) and an assumed porosity of 0.3, an average seepage velocity of 0.34 ft/day is determined.

Groundwater seepage velocity in the northeast corner of the closed Poseyville Landfill is determined annually and averages 0.324 ft/day. These results are provided annually in the Facility Annual Environmental Monitoring Report.

Groundwater seepage velocity for the closed Sludge Dewatering Facility is determined annually and averages 6.13x10-6 ft/day. These results are provided annually in the Facility Annual Environmental Monitoring Report.

Reporting of groundwater seepage velocity for the 6175 and 6178 Areas have not been required; however they have previously been determined and provided. The 6175 Area seepage velocity has been determined to be 0.058 ft/day (6175 Area Investigation Results Summary, 2007). The 6178 Area groundwater seepage velocity has been determined to be 0.36 ft/day (6175 Area Investigation Results Summary, 2007).

The hydraulic gradient near the Former Ash Pond Area of Concern was determined to be between 0.019 and 0.029 ft/ft. Using an estimated hydraulic conductivity of 1x10-4 cm/sec and an assumed porosity of 0.3, the seepage velocity in this area is estimated to range from 0.018 to 0.028 ft/day.

Field measurements from April 1 and 2, 2014 were used to estimate the seepage velocity near the former Fuel Oil Tank Farm Area of Concern. The hydraulic gradient is determined to be 0.0245 ft/ft. Using an estimated hydraulic conductivity of 1x10-3 cm/sec and an assumed porosity of 0.3, the seepage velocity in this area is estimated to be 0.12 ft/day.

Hydraulic conductivity of the sand till along the central western margin of No. 6 Pond has an average value of 2.99x10-3 cm/sec. Three groundwater pumping wells were installed in 1989 to control seepage of brine-impacted groundwater. The purge wells are maintained and inspected periodically, however static water levels are not currently collected to determine the hydraulic gradient.

B2.B.2(e) Factors Influencing Plume Movement

The sources of groundwater contamination are primarily in the unconfined shallow groundwater and both natural and man-made factors influence the movement of plumes. A variety of man-made engineered controls have been constructed at the site to control groundwater migration, such as slurry walls and caps over closed waste management units (e.g. landfills or wastewater treatment ponds). Along the perimeter of the facility, a number of groundwater collection systems, such as the East Side RGIS, 6 Pond Collection Tile, South Saginaw Road Tile, etc. have been installed to collect groundwater and transfer it to the WWTP. These systems are supplemented by

both vertical and horizontal groundwater pumping wells. Other man-made features include sewer systems that are present throughout the Facility. Adjacent to the Facility, the City of Midland, Midland Township and Midland County maintain storm sewers and drains which can act as preferential pathways. Natural factors that influence plume movement include both precipitation and topography. The proximitiy to the Tittabawassee River can also influence plume movement in times of flooding due to a large increase in infiltration that occurs.

B2.B.2(f) Extrapolation of Future Contaminant Movement

Contaminant transport of all groundwater contamination known to have migrated off-site is prevented by engineering controls, except in the Monitoring Well 6175 Area and Monitoring Well 6172 Area (near chemical disposal well #3).

Off-site contaminant transport in Monitoring Well 6175 Area is monitored by sentinel well MW-10. A Work Plan Addendum was submitted December 21, 2011 for MDEQ review and approval to evaluate future contaminant transport in the area.

Off-site contaminant transport in Monitoring Well 6172 Area is being evaluated in accordance with the Interim Response Activity Work Plan, submitted March 16, 2012 for MDEQ review and approval.

At the central portion of the west margins of the No. 6 Pond, three groundwater pumping wells were installed in 1989 to control seepage of brine-impacted groundwater.

Adjacent to the former Ash Pond Area of Concern (see Table B2-1 and Figure B2-6), groundwater samples from Monitoring Well 6165 have identified arsenic concentrations greater than the Generic MDEQ GSI Criterion.

Similarly, infrequent and seasonally dependent concentrations of fuel oil related substances have been detected in Monitoring Well 18 in the Diesel Tank Farm Area of Concern (see Table B2-1and Figure B2-6) at concentrations greater than Generic MDEQ GSI Criterion. Additional activities will be conducted to address both the Former Ash Pond and Diesel Tank Farm Areas of Concern, as described in Section B2.D.6 and Attachment XIV.B2 Appendix H.

B2.B.2(g) Recommendations or Established Requirements for Additional Investigations

Additional groundwater investigations are warranted in the following scenarios:

- If a statistically significant increase in primary constituent concentrations for a groundwater monitoring program is confirmed and found to represent a new release of contaminants from the Facility; or
- If site groundwater elevation data do not provide sufficient detail to determine groundwater is being maintained within the facility boundary, and the area(s) of concern is not being addressed separately as part of on-going corrective action activities, additional wells or piezometers necessary to determine if there are areas of off-site shallow groundwater flow will be added. If the existence or the potential for off-site flow is confirmed, the groundwater will be characterized for the presence of contaminants. Based on the results of the hydraulic and chemical characterization program, additional interim response activities may be necessary.

Attachment XIV.B2 Appendix G describes the plan for corrective action implementation and the streamlined process that Dow and MDEQ will use to cooperatively identify issues and establish goals to achieve the corrective action objectives.

During each calendar year, the proposed work will proceed to address the prioritized and specific objectives that support the Midland Plant Corrective Action Goals. Activities will be designed to achieve the goals within the timeframe proposed in the Annual Site Corrective Action Work Plan, which will fulfill Dow's corrective action obligations. Areas of known issues (e.g., Northeast Perimeter shallow groundwater, shallow groundwater at the former Ash Pond area, Pure Oil Site, etc.) will be prioritized based on potential risk under current use, as well as their contribution towards achievement of the site corrective action goals. Refer to Section B2.D.6 and Attachment XIV.B2 Appendix G for further details regarding the schedule for the site-wide Corrective Action Program and focused oversight process.

B2.B.3 Surface Water and Sediment

The Tittabawassee River bisects the facility. Dioxin and furan and other contamination has been found downstream from the facility due to historical waste management practices.

Surface water and sediment characterization, evaluation, and remedy adjacent to the RCRA Facility are being performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and

Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942). Future releases to surface water and sediment are prevented by existing corrective actions (e.g. RGIS) and monitoring to demonstrate compliance with environmental standards on an on-going basis. Details of on-going monitoring are described in Section B2.D, Interim Measures, and the Facility Sampling and Analysis Plan (SAP), included in Attachment XIV.B5 Environmental Monitoring Programs, specifically Surface Water Protection Monitoring Program.

Horizontal and vertical extent of contamination and contaminant movement, sediment characteristics, as well as physical, biological and chemical factors that may influence contaminant movment, and additional surface water, floodplain soil, and sediment evaluation and remedy are being performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942).

B2.B.3(a) Characterization History

Characterization of the surface water and sediment prior to the inception of the AOC is documented, in part, in the GeoMorph® Pilot Site Characterization Report, Upper Tittabawassee River and Floodplain Soils, Midland, Michigan (Ann Arbor Technical Services (ATS), Inc., February 1, 2007), GeoMorph® Site Characterization Report March 2008 Update (ATS, March 1, 2008), Final GeoMorph® Pilot Site Characterization Report, Volume I-VI (ATS, June 15, 2009), Historic Outfall Investigation Summary Report (URS, 2010) and in the Current Conditions Report for the Saginaw River, Floodplain, and Bay (Environ, September 14, 2007).

B2.B.3(b) Description of Horizontal and Vertical Extent of Any Contamination

Extent of contamination as it is known is described in the Current Conditions Report for the Saginaw River, Floodplain, and Bay (Environ, September 14, 2007), the GeoMorph® Pilot Site Characterization Report, Upper Tittabawassee River and Floodplain Soils, Midland, Michigan (Ann Arbor Technical Services, Inc., February 1, 2007); GeoMorph® Site Characterization Report March 2008 Update (ATS, March 1, 2008), Final GeoMorph® Pilot Site Characterization Report, Volume I-VI (ATS, June 15, 2009), Historic Outfall Investigation Summary Report (URS, 2010); and the Tittabawassee River Segment 1 (OU1): Response Proposal (Saginaw and Tittabawassee River Team, April 14, 2011).

B2.B.3(c) Velocity of Contaminant Movement

To the extent that it is known, horizontal and vertical direction of contaminant movement is described in the Current Conditions Report for the Saginaw River, Floodplain, and Bay (Environ, September 14, 2007), the GeoMorph® Pilot Site Characterization Report, Upper Tittabawassee River and Floodplain Soils, Midland, Michigan (ATS, Inc., February 1, 2007); GeoMorph® Site Characterization Report March 2008 Update (ATS, March 1, 2008), Final GeoMorph® Pilot Site Characterization Report, Volume I-VI (ATS, June 15, 2009), and the Tittabawassee River Segment 1 (OU1): Response Proposal (Saginaw and Tittabawassee River Team, April 14, 2011).

B2.B.3(d) Description of Sediment Characteristics

Descriptions of sediment characteristics are provided in the Current Conditions Report for the Saginaw River, Floodplain, and Bay (Environ, September 14, 2007), the GeoMorph® Pilot Site Characterization Report, Upper Tittabawassee River and Floodplain Soils, Midland, Michigan (ATS, Inc., February 1, 2007); GeoMorph® Site Characterization Report March 2008 Update (ATS, March 1, 2008), Final GeoMorph® Pilot Site Characterization Report, Volume I-VI (ATS, June 15, 2009), and the Tittabawassee River Segment 1 (OU1): Response Proposal (Saginaw and Tittabawassee River Team, April 14, 2011).

B2.B.3(e) Description of Physical, Biological, and Chemical Factors that May Influence Contaminant Movement and Their Effects

Descriptions of the physical, biological, and chemical factors influencing contaminant movement are provided in the Current Conditions Report for the Saginaw River, Floodplain, and Bay (Environ, September 14, 2007), the GeoMorph® Pilot Site Characterization Report, Upper Tittabawassee River and Floodplain Soils, Midland, Michigan (Ann Arbor Technical Services, Inc., February 1, 2007); GeoMorph® Site Characterization Report March 2008 Update (ATS, March 1, 2008), Final GeoMorph® Pilot Site Characterization Report, Volume I-VI (ATS, June 15, 2009), and the Tittabawassee River Segment 1 (OU1): Response Proposal (Saginaw and Tittabawassee River Team, April 14, 2011).

B2.B.3(f) Proposed or Final Mixing Zone Determinations for Any On-Site Contamination Venting to a Surface Water Body

The Facility utilizes engineering controls and ongoing monitoring activities to ensure and verify that there are no impacts to the surface water and sediment from the facility. RGIS is the groundwater containment system installed along the river to intercept groundwater from the Facility, and was

constructed to protect the river from groundwater discharges. The RGIS was installed along both sides of the river in phases. Operation and maintenance of RGIS is an ongoing requirement of the Operating License. Groundwater monitoring and surface water protection monitoring activities are ongoing (see Section B2.D, Interim Measures and the Facility SAP in Attachment XIV.B5 Environmental Monitoring Programs for further details).

Adjacent to the former Ash Pond Area of Concern (see Table B2-1 and Figure B2-6), groundwater samples from Monitoring Well 6165 have identified arsenic concentrations greater than the Generic MDEQ GSI Criterion. Seasonally, concentrations of fuel oil related substances have been detected in Monitoring Well 18 in the Diesel Tank Farm Area of Concern (see Table B2-1 and Figure B2-6) at concentrations greater than Generic MDEQ GSI Criterion. Additional activities will be conducted to address both the Former Ash Pond and Diesel Tank Farm Areas of Concern, as described in Section B2.D.6 and Attachment XIV.B2 Appendix G, which may include a mixing zone determination, depending on the results.

B2.B.3(g) Recommendations or Established Requirements for Additional Investigations

Future surface water, floodplain soil, and sediment evaluation and remedy are being performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942).

B2.B.4 Air

B2.B.4(a) Characterization History

Current On-Site Ambient Air Monitoring Program

The ambient air at the facility is monitored in the Ambient Air Monitoring Program (AAMP) (see Attachment XIV.B5 Environmental Monitoring Programs). Dow has been collecting ambient air data and assessing compliance. Based on current operations at the facility, the AAMP analyzes for particulate matter and select VOCs.

A study of dioxin and furan concentrations in ambient air was conducted in 1997 and 1998. The results of the study indicated that detected dioxin and furan concentrations were within the range reported for rural rather than urban or industrial areas, and that the incinerators and surface soils were not major contributors to the detected levels. The results of this study were submitted to MDEQ on November 6, 1998 (Dow, 1998).

Fugitive Dust Monitoring

Exhaust constituents from process vents, power generation, and thermal incineration processes have deposited onto plant soils. During dry periods, these soils may be disturbed by equipment or vehicles and blown by the wind, resulting in fugitive dust emissions. In addition to the dust suppression activities that are part of the Fugitive Dust Control program, fugitive dust emissions from the Facility are monitored on an ongoing basis along the plant perimeter pursuant to the "Soil Box Data Evaluation Plan," approved by MDEQ on September 23, 2011. Attachment XIV.B5 Environmental Monitoring Programs provides further details on this program. Monitoring for the site began in 2004 and continues to show the fugitive dust control program for the facility is effective.

B2.B.4(b) Description of Horizontal and Vertical Direction and Velocity of Contaminant Movement

Figure B4-1 in Attachment XIV.B4 Environmental Assessment shows the predominant wind direction for the facility and surrounding area. Based on the results of the ambient air monitoring program, no significant impacts in ambient air are shown from the facility. Under current conditions, off-site impacts are unlikely to occur; however on-going monitoring will be performed for verification purposes.

Historical aerial releases that resulted in off-site impacts are being addressed in the off-site corrective action. Off-site residents are receptors of the off-site impacts due to historical aerial releases that impacted surface soil (soil < 2ft depth). MDEQ approved a site-specific cleanup level for dioxins and furans in Midland residential soils. Concentrations of dioxins and furans in soil in excess of the agreed upon level are currently being addressed through corrective actions in progress to mitigate direct contact to surface soil in off-site residential areas. These activities are being conducted pursuant to 2003 Operating License Part XI.B and the *Interim Response Activity Plan Designed to Meet Criteria*, submitted May 25, 2012 and approved by MDEQ June 1, 2012. Once the corrective action program is complete, this exposure pathway will be within acceptable limits and incomplete.

B2.B.4(c) Rate and Amount of Release

Based on the results of the current ambient air monitoring program, no significant impacts are shown from the facility. Historical aerial releases were not quantified based on a rate or amount of

release. Off-site corrective action for residential surface soil is on-going pursuant to 2003 Operating License Part XI.B and the *Interim Response Activity Plan Designed to Meet Criteria*, submitted May 25, 2012 and approved by MDEQ June 1, 2012.

B2.B.4(d) Recommendations or Established Requirements for Additional Investigations

Based on the ongoing ambient air monitoring program, no significant impact is shown from the facility. While there are no recommendations for further investigation with regards to ambient air at this time, Dow will review ambient air as part of the Corrective Action Implementation Plan. For the proposed timeframe for reviewing ambient air, refer to the Section B2.D.6 and Attachment XIV.B2 Appendix G for further details regarding the schedule for the site-wide Corrective Action Program and focused oversight process.

B2.B.5 Subsurface Gas Contamination

B2.B.5(a) Characterization History

To date, outside of routine industrial hygiene monitoring performed at the facility, only one facility-specific indoor air study has been performed. The indoor air study was performed in the C-3 area and is described below. In addition, a soil vapor survey was conducted prior to construction of the solar building and it was determined that a vapor management system was warranted. This vapor management system is monitored and data is periodically submitted to MDEQ.

C-3 Area Summary

Based on groundwater analytical results from the C-3 area and summarized in the *Compliance Schedule Task H-4 – Deep Sand Monitoring Program Cluster C-3 Area Summary Report* dated June 1, 2010, an indoor air evaluation was conducted in coordination with the Dow Industrial Hygiene Department. The analytical results were submitted to MDEQ on May 25, 2011. In initial air sampling event was conducted on August 30, 2010 in representative areas of five buildings in the C-3 area. Multiple samples were collected in each building to determine whether chemical concentrations in air varied throughout the buildings, with air monitoring focused in occupied areas. The results of this air sampling event were submitted to the MDEQ in a letter dated November 19, 2010.

Another indoor air sampling event in the same buildings and locations was conducted on March 8, and 9, 2011. This time period was deemed representative of a worst case scenario in which doors and/or windows had been closed for a period of time, and heating of the building was occurring

due to the colder ambient temperatures. The analytical results showed a variety of contaminants present in the air samples, but all were at low concentrations (ppb levels) and more than 100 times below their applicable OSHA OELs (Occupational Exposure Limits).

Solar Shingle Plant Site – 50 MW BIPV Plant

At the future location of the 50 MW BIPV Plant (Solar Shingle Plant), five soil borings, four temporary groundwater monitoring wells, 13 soil vapor samples were collected in August 2010. Due to the soil vapor sample results, Dow presumptively installed a soil vapor mitigation system while constructing the 50 MW BIPV Plant. This soil vapor mitigation system is managed and sampled and the results are provided to MDEQ.

B2.B.5(b) Description of Horizontal and Vertical Extent of Subsurface Gas Contamination Migration

For indoor air, industrial hygiene monitoring occurs within buildings on-site in accordance with Dow and MIOSHA guidelines. To date, the absence or presence of contaminants in indoor air beyond the industrial hygiene monitoring, outside of the C-3 area indoor air study, is not known. Further evaluation of indoor air will be performed.

B2.B.5(c) Rate, Amount and Density of Gases Being Emitted

No information is available from the existing facility-specific study.

B2.B.5(d) Recommendations or Established Requirements for Additional Investigations

Based on the attached Environmental Indicators for Human Exposure, further evaluation of indoor air is necessary. Indoor air will be evaluated as part of the Corrective Action Implementation Plan. For the proposed timeframe for reviewing indoor air, refer to the Section B2.D.6 and Attachment XIV.B2 Appendix G for further details regarding the schedule for the site-wide Corrective Action Program and focused oversight process.

B2.C FACILITY'S EXPOSURE ASSESSMENT

B2.C.1 Human Exposure and Threats

The section below discusses relevant exposure pathways in surface water, groundwater, soil, air and subsurface gas and the potential human receptors for the facility.

B2.C.1(a) Exposure Pathway

Source Materials

This pathway is relevant for all land uses where free-phase liquids have not yet been dispersed in the environment. In practical terms, this can be identified visually by the presence of oil phase. Indications that free-phase liquids may be present include soil samples exceeding MDEQ Csat Cleanup Criterion, or where groundwater samples yield concentrations greater than the aqueous solubility. Historical sources have been identified for the Facility, in accordance with Compliance Schedule Activity H-8, most recently updated in 2010. Releases associated with these sources are historic in nature and no on-going releases have been identified. This exposure pathway is potentially complete for the facility; however, exposure is not reasonably expected to be significant since the exposure routes are managed by the required use of PPE specified in the Worker Exposure Control Plan, as provided in Attachment XIV.B2, Appendix C of this operating license reapplication. Additional measures to address sources are discussed in Section B2.C, Interim Measures.

It is unlikely that any new on-site sources would materialize from production areas because they operate within engineered containment areas. Any releases likely to occur (e.g., leaks, breaks or spills) would be contained and cleaned up. Should a release occur in an area that is not within containment, it is reported to Site Security (if applicable, the appropriate reporting notifications are made) and the release, along with the impacted area, is cleaned up. Therefore, there should be no additional sources.

Surface Water Exposure Pathways

As previously discussed in Section B2.A.2(e), surface water and sediment characterization, evaluation, and remedy adjacent to the RCRA Facility are being performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942). Future releases to surface water and sediment are prevented by existing corrective actions (e.g. RGIS) and monitoring to demonstrate compliance with environmental standards on an on-going basis. Details of on-going monitoring are described in the Surface Water Protection Monitoring Program (see Attachment XIV.B5 Environmental Monitoring Programs).

Surface water runoff

This pathway is relevant for all land uses, but only applicable to sites where a significant potential exists for contaminated soil to reach surface waters by direct transport or runoff. Although the Facility SWMU is proximal to surface water bodies, the extent of exposed and/or erodible soils is minimal. Further, the erosion and/or transport potential of surficial soils at the Facility is not significant due to extensive site cover consisting of vegetative cover, asphalt, pavement and buildings. Dow collects and treats a majority of its on-site storm water, minimizing the potential for contaminated soils to migrate to surface water. Management of storm water is regulated and controlled by Dow's NPDES Permit and Storm Water Pollution Prevention Plan (SWPPP).

Groundwater Exposure Pathways

Groundwater Direct Contact

The groundwater contact pathway is relevant for land uses where contaminated groundwater is or could be encountered at a depth where subsurface activities (e.g. construction or maintenance of utilities) may result in contact with groundwater. This exposure pathway is potentially complete for the facility; however, exposure is not reasonably expected to be significant since the exposure routes are managed by the required use of PPE specified in the Worker Exposure Control Plan, as provided in Attachment XIV.B2, Appendix C of this operating license reapplication.

Soils and groundwater with concentrations greater than the groundwater direct contact criterion were identified beneath Poseyville Road near CD3. This area is covered by the road and actual exposure is limited based on this surface cover. Dow provided a notice of migration to the City of Midland. An institutional control, such as a deed restriction, will be necessary to provided permanent control the exposure pathway.

Drinking Water Protection

The drinking water protection pathway is relevant for all groundwater present in an aquifer. This exposure pathway is protective of groundwater utilized as drinking water. For the current land use and potential on-site receptors, the drinking water protection pathway is incomplete. The facility does not utilize the Regional aquifer or shallower perched groundwater as drinking water. Both the facility and the City of Midland utilize piped in surface water from Lake Huron as drinking water. The reasonably anticipated future land use of the Facility remains industrial with municipal supplied water.

Groundwater Surface Water Interface

The groundwater venting to surface water pathway is relevant for all land uses if there is a hydraulic connection between the groundwater and a surface water body. RGIS was installed to intercept shallow groundwater underneath the Facility prior to venting to surface water. Shallow groundwater underneath the main portion of facility flows generally from north-northeast to south-southwest above the Glacial Till toward the Tittabawassee River. The RGIS is a combination of a French drain/perforated collection tile system and purge wells that intercepts shallow groundwater (from the surface down to the glacial till) and prevents discharge to the Tittabawassee River. RGIS is installed in areas along the river for both the east and west sides of the facility for a total of 22,710 feet (including along Bullock Creek). All collected groundwater is treated at the Michigan Operations Midland Plant Wastewater Treatment Plant. The RGIS is monitored continually to verify effective operations. Furthermore, Dow has implemented a surface water protection monitoring program that was designed to monitor the ground water in areas with the potential for off-site flow to surface water.

Seasonal off-site flow of groundwater exists in the northeast portion of the Facility. Groundwater flow direction in this area appears to be drawn toward nearby City of Midland storm water sewers and away from the natural flow toward RGIS and the Tittabawassee River. Part 201 of Michigan P.A. 451, specifically 324.20120e(6) indicates that groundwater within a storm sewer is not defined as surface water; therefore the sewer backfill is not the point of compliance. However, a transport mechanism for groundwater venting to storm sewers have the potential to eventually discharge to the Tittabawassee River in this area. Dow submitted a project work plan addendum to perform a groundwater surface water interface evaluation entitled the Northeast Perimeter Groundwater Monitoring Program: Groundwater Surface Water Interface Evaluation dated December 21, 2011.

Adjacent to the former Ash Pond Area of Concern (see Table B2-1 and Figure B2-6), groundwater samples from Monitoring Well 6165 have identified arsenic concentrations greater than the Generic MDEQ GSI Criterion. Similarly, infrequent and seasonally dependent concentrations of fuel oil related substances have been detected in Monitoring Well 18 in the Diesel Tank Farm Area of Concern (see Table B2-1 and Figure B2-6) at concentrations greater than Generic MDEQ GSI Criterion. Additional activities will be conducted to address both the Former Ash Pond and Diesel Tank Farm Areas of Concern, as described in Section B2.D.6 and Attachment XIV.B2 Appendix G, which may include a mixing zone determination, depending on the results.

Groundwater Volatilization to Indoor Air

This exposure pathway addresses vapors emanating from groundwater that could move through the soil vadose zone and migrate to indoor air at the Facility, and is only applicable to volatile compounds. This exposure pathway is potentially complete for on-site workers through the inhalation of vapors in indoor air of buildings where they work or routinely visit. On-site worker protection and compliance with MIOSHA standards is monitored through plant specific industrial hygiene monitoring programs. Based on the attached Environmental Indicators for Human Exposure, further evaluation of indoor air is necessary. Indoor air will be evaluated in a phased approach as part of the Corrective Action Implementation Plan. For the proposed timeframe for reviewing indoor air, refer to the Section B2.D.6 and Attachment XIV.B2 Appendix G for further details regarding the schedule for the Site-Wide Corrective Action Program and focused oversight process.

Soil Exposure Pathways

Soil Direct Contact

The soil direct contact pathway includes exposure via long-term dermal contact with and ingestion of soils throughout the soil column, regardless of depth. For potential on-site receptors, this exposure pathway is complete. Aerial dispersion, wind-blown dust, and operations of the facility over time have yielded some detected soil concentrations near or at the surface that are greater than the soil direct contact non-residential generic criteria. Dow has placed surface cover to prevent exposure via the direct contact pathway for surface soils. Dow continues to increase the amount of clean cover which serves as a physical barrier to prevent exposure. The covers include clean top soil and vegetation, gravel, and/or asphalt. Figure 2 in Appendix C (Worker Exposure Program) presents a map of these facility surface improvements. Existing covers are managed and maintained. As part of the Corrective Action Implementation Plan, Dow will continue to work through the remaining areas within the facility where additional surface cover may be warranted.

Exposure to soils at depth is not reasonably expected to be significant since the exposure routes are managed by the required use of PPE specified in the Worker Exposure Control Plan, as provided in Attachment XIV.B2, Appendix C of this operating license reapplication.

Off-site corrective actions are in place to address off-site impacts due to historical aerial releases that impacted surface soil (soil <2ft depth). MDEQ approved a site-specific cleanup level for dioxins and furans in Midland residential soils. Concentrations of dioxins and furans in soil in

excess of the agreed upon level are currently being addressed through corrective actions in progress to mitigate direct contact to surface soil in off-site residential areas. These activities are being conducted pursuant to 2003 Operating License Part XI.B and the *Interim Response Activity Plan Designed to Meet Criteria*, submitted May 25, 2012 and approved by MDEQ June 1, 2012. Once the corrective action program is complete, this exposure pathway will be within acceptable limits and incomplete.

Characterization, evaluation and remedy of off-site floodplain soil, in addition to surface water and sediment, adjacent to the RCRA Facility are being performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942).

Drinking Water Protection

The drinking water protection pathway applies for all soils with groundwater present in an aquifer. This exposure pathway is protective of groundwater utilized as drinking water where concentrations in soil could potentially leach to groundwater at levels higher than the drinking water standard. For the current land use and potential on-site receptors, the drinking water protection pathway is incomplete. The facility does not utilize the Regional aquifer or shallower perched groundwater as drinking water. Both the facility and the City of Midland utilize piped in surface water from Lake Huron as drinking water.

The Midland Township, located to the southwest and upgradient of the Facility, utilizes some groundwater for drinking water. No impacts to residential wells from the Dow facility have been identified. Groundwater to the southwest is monitored at the facility fenceline.

Groundwater Surface Water Interface Protection

This potential soil leaching to groundwater and subsequent venting to surface water exposure pathway is relevant for all land use where there is a hydraulic connection between groundwater and surface water. As discussed above, RGIS and the surface water protection monitoring program are utilized to manage the potential for off-site groundwater-surface water interaction, thereby limiting exposure via this pathway. Additionally, an ongoing surface water protection monitoring program verifies that there are no new impacts to the river from the facility.

Adjacent to the former Ash Pond Area of Concern (see Table B2-1and Figure B2-6), groundwater

samples from Monitoring Well 6165 have identified arsenic concentrations greater than the Generic MDEQ Groundwater Surface Water Interface (GSI) Criterion. Seasonally, concentrations of fuel oil related substances have been detected in Monitoring Well 18 in the Diesel Tank Farm Area of Concern (see Table B2-1 and Figure B2-6) at concentrations greater than Generic MDEQ GSI Criterion. Additional activities will be conducted to address both the Former Ash Pond and Diesel Tank Farm Areas of Concern, as described in Section B2.D.6 and Attachment XIV.B2 Appendix G, which may include a mixing zone determination, depending on the results.

Groundwater Direct Contact Protection

The groundwater direct contact protection exposure pathway is relevant for all land uses where soil contamination could leach to groundwater and subsurface activities may result in human receptors coming in contact with the groundwater. This exposure pathway is potentially complete for the facility; however, exposure is not reasonably expected to be significant since the exposure routes are managed by the required use of PPE specified in the Worker Exposure Control Plan, as provided in Attachment XIV.B2, Appendix C of this operating license reappliction.

Soils and groundwater with concentrations greater than the direct contact criterion were identified beneath Poseyville Road near CD3. This area is covered by the road and actual exposure is limited based on this surface cover. Dow provided a notice of migration to the City of Midland. An institutional control, such as a deed restriction, will be necessary to provide permanent control the exposure pathway.

Soil Volatilization to Indoor Air

This exposure pathway addresses vapors that could move through the soil vadose zone and migrate to indoor air in buildings at the facility. This exposure pathway is potentially complete for on-site workers via inhalation of vapors in indoor air of buildings where they work or routinely visit. On-site worker protection and compliance with MIOSHA standards is monitored through plant specific industrial hygiene monitoring programs. Based on the attached Environmental Indicators for Human Exposure, further evaluation of indoor air is necessary. Indoor air will be evaluated in a phased approach as part of the Corrective Action Implementation Plan. For the proposed timeframe for reviewing indoor air, refer to the Section B2.D.6 and Attachment XIV.B2 Appendix G for further details regarding the schedule for the Site-Wide Corrective Action Program and the focused oversight process.

Soil Volatilization to Ambient Air

The soil volatilization to ambient air exposure pathway applies to all land uses where hazardous substance vapors may emit from soils to ambient air. The outdoor air at the facility is monitored in the Ambient Air Monitoring Program (Attachment XIV.B5, Appendix 2 of this operating license reapplication) which has continued to demonstrate no significant impacts from the facility. While there are no recommendations for further investigation with regards to ambient air at this time, Dow will review ambient air as part of the Corrective Action Implementation Plan. For the proposed timeframe for reviewing ambient air, refer to the Section B2.D.6 and Attachment XIV.B2 Appendix G for further details regarding the schedule for the Site-Wide Corrective Action Program and the focused oversight process.

In addition to existing impermeable cover already present, Dow is placing additional surface cover across the facility through the Enhanced Exposure Control Program, a portion of which is impermeable cover that reduces exposure to soil volatilization to ambient air. Figure 2 in Appendix C (Worker Exposure Program) presents a map of these facility surface improvements. Existing covers are managed and maintained. Therefore, under current conditions, this pathway is not likely to be significant.

Construction workers can potentially encounter vapors when working with subsurface soils or in a trench scenario; however, exposure is not reasonably expected to be significant since the exposure routes are managed by the required use of PPE and air monitoring specified in the Worker Exposure Control Plan, as provided in Attachment XIV.B2, Appendix C of this operating license reaplication.

Particulate Soil Inhalation

The particulate soil inhalation exposure pathway addresses the emission and dispersion of contaminated soil particles into the ambient air (inhalation of fugitive dust particles). Exhaust constituents from process vents, power generation, and thermal incineration processes may have deposited onto plant soils. During dry periods, these soils may have been disturbed by equipment or vehicles and blown by the wind, resulting in fugitive dust emissions.

Fugitive dust control has been in progress at the Midland Facility since 1986. Dow is currently required by the 2003 Operating License and its Renewable Operating Permit (Section 1, IX.4) to provide and regularly update an operating program to control fugitive dust sources or emissions. The current fugitive dust control program requires semi-annual review and updates. In addition, fugitive dust emissions from the facility are monitored for dioxin emissions on an ongoing basis

along the plant perimeter pursuant to the "Soil Box Data Evaluation Plan," approved by MDEQ on September 23, 2011. Attachment XIV.B5 Environmental Monitoring Programs provides further details. Monitoring began in 2002 and continues to show the fugitive dust control program for the facility is effective.

As mentioned above, through the Enhanced Exposure Control Program, Dow has placed surface cover to prevent exposure to surface soil. The covers include clean top soil and vegetation, gravel, and/or asphalt. Existing covers are managed and maintained. Figure 2 of Appendix C presents the current surface cover map for the Facility. These surface covers limit the generation of fugitive dust and particulates. Based on current conditions this pathway is not likely to be significant.

B2.C.1(b) Actual or Potential Receptors

The Facility is currently comprised of approximately 1,900 acres. The current and reasonably anticipated future land use of the Facility is industrial. All 1,900 acres are owned by Dow. A portion of the Facility (approximately 33 acres), including process areas, tank farms, and ancillary structures or services are operated by Trinseo. In general, the following is a list of land coverage or uses on-site:

- Office Buildings
- Production and Packaging Plants including Maintenance and Fabrication Shops
- Tank Farms, Loading and off-loading terminals and Process Areas
- Laydown and material staging areas
- Warehouses
- Underground Utilities
- Laboratory Buildings
- Railroad operations
- Hazardous Waste Storage
- Hazardous Waste Treatment
- Closed Waste management Units
- Vacant land used for storm water detention
- Roadways
- Paved parking lots
- Gravel parking lots

The potential receptors for the facility are workers, which include office workers, visitors, industrial workers, and maintenance workers (including landscapers), as well as construction/utility workers. On-site worker safety programs and compliance with MIOSHA standards, ensures a safe working environment for employees.

On-site Workers

Office Worker

This worker is primarily an indoor worker in an on-site building who spends nearly the entire workday (8 hrs/day, 5 days/week for multiple years) inside the building. The potentially complete exposure pathway for this receptor is inhalation of vapors that migrate into indoor air from the soil or groundwater.

Site Visitors

In addition to the Dow workforce, visitors to the site present the potential for a short-term exposure. The site has a minimum age limit of 12 years old. Visitors are largely restricted to office and laboratory space and within vehicles. These visits are expected to be of a short duration and visitors are accompanied at all times. There is not a potential for significant exposure given the controls and practices in place at the facility. The potentially complete exposure pathway most relevant for this receptor is the inhalation of vapors in indoor air.

Outdoor Industrial Worker

This worker works outdoors at the facility, a majority of the time, 8 hrs/day, 5 days/week, for multiple years, and whose work involves incidental contact with the surface soil on a daily basis (managed by new surface cover). This worker is not involved in construction or excavation activities. The complete exposure pathways for this receptor include direct contact with surface soil, inhalation of particulates (dust) and vapors in outdoor air from surface soil, and inhalation of vapors in outdoor air from subsurface soils.

Maintenance Workers/Landscapers

This worker works both indoors/outdoors throughout the facility, 8 hrs/day, 5 days/week, for multiple years, and whose work involves incidental contact with the surface soil on a daily basis (managed by new surface cover). This worker is not involved in construction or excavation activities. The complete exposure pathways for this receptor include direct contact with surface soil, inhalation of particulates (dust) and vapors in outdoor air from surface soil, inhalation of vapors in outdoor air from subsurface soils, and the inhalation of vapors that migrate into indoor air from the soil or groundwater.

Construction/Utility Workers

Similar to the industrial worker, construction and utility workers work outdoors at the facility with more intense potential exposure to soils and groundwater depending on depth of the construction/excavation work. These workers can be Dow employees who are performing these activities for the majority of an entire workday (8 hrs/day, 5 days/week for multiple years) or contractors providing expertise for the duration of short-term contracts. Potentially relevant soil-related exposure pathways include direct contact, and inhalation of dust and vapors from soil. The construction worker is also potentially exposed to the inhalation of VOCs from groundwater and direct contact with groundwater.

Exposure Controls for Workers

Managing and controlling on-site worker exposure and safety is a priority for Dow. Exposure is managed via the following programs or methods, all of which have been discussed in more detail above.

Exposure to soils via the direct contact pathway is being managed by the Enhanced Exposure Control program in which Dow is adding clean cover over exposed potentially impacted soils (see Figure 2 of Appendix C). The clean cover includes asphalt, gravel, or clean topsoil and vegetation. The Fugitive Dust Control Program incorporates dust suppression activities that are on-going at the Facility. The outdoor air at the facility is monitoring in the Ambient Air Monitoring program. Direct contact with soils and groundwater at depth are managed by the Worker Exposure Control Plan, as provided in Attachment XIV.B2, Appendix C of this operating license reapplication, for facility-wide soil disturbance that requires the use of PPE to prevent direct contact exposure to soils or groundwater incidentally encountered at depth.

Through the industrial hygiene program, Dow monitors on-site worker protection by monitoring for compliance with MIOSHA standards.

In accordance with the attached Documentation of Environmental Indicator Determination for Human Exposure, due to the exposure controls for workers in place at the facility, the only current exposures that can be reasonably expected to be potentially unacceptable are indoor air and direct contact with soils because under current conditions the risk is unknown. Work is ongoing for indoor air to demonstrate compliance pursuant to 324.20120a(19). For surface soil, significant work has been completed related to the Enhanced Exposure Control program at the facility,

however additional work must be completed to demonstrate that all significant exposures are within acceptable limits and/or fully control all exposure routes.

Off-site Residents

There are off-site residential areas near the facility to the east, north, and southwest. The current practices at the facility include both monitoring and controls that both provide early detection and reduce the potential for off-site migration and residential exposure. These programs include groundwater monitoring, Ambient Air Monitoring, and Soil Box Monitoring programs. Refer to Attachment XIV. B5 Environmental Monitoring Programs for further details. Under current conditions, any off-site exposure is unlikely.

Off-site residents are receptors of the off-site impacts due to historical aerial releases that impacted surface soil (soil < 2ft depth). MDEQ approved a site-specific cleanup level for dioxins and furans in Midland residential soils. Concentrations of dioxins and furans in soil in excess of the agreed upon level are currently being addressed through corrective actions in progress to mitigate direct contact to surface soil in off-site residential areas. These activities are being conducted pursuant to 2003 Operating License Part XI.B and the *Interim Response Activity Plan Designed to Meet Criteria*, submitted May 25, 2012 and approved by MDEQ June 1, 2012. Once the corrective action program is complete, this exposure pathway will be within acceptable limits and incomplete.

Off-site floodplain soils, surface water and sediment characterization, evaluation, and remedy adjacent to the RCRA Facility are being performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942). Future releases to surface water and sediment are prevented by existing corrective actions (e.g. RGIS) and monitoring to demonstrate compliance with environmental standards on an on-going basis. Details of on-going monitoring are described in the Attachment XIV.B5 Environmental Monitoring Programs, specifically Surface Water Protection Monitoring Program.

B2.C.1(c) Evidence of Exposure

There is no evidence of current exposure to human receptors within the facility. Any potential off-site exposures due to historic releases are being addressed through the *Interim Response Activity Plan Designed to Meet Criteria*, submitted May 25, 2012 and approved by MDEQ June 1, 2012 for the Midland Area Soils, as well as the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and

Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942) for the Tittabawassee River.

Concentrations in soil and groundwater at the facility have demonstrated exceedances of applicable generic human health criteria. On-going and planned corrective actions are taking place to address these exceedances and are discussed further below.

Dow continues to increase the amount of clean cover which serves as a physical barrier to prevent direct contact exposure to surface soils. The covers include clean top soil and vegetation, gravel, and/or asphalt. Existing covers are managed and maintained. As part of the Corrective Action Implementation Plan, Dow will continue to work through the remaining areas within the facility where additional surface cover may be warranted.

The outdoor air at the facility is monitored in the Ambient Air Monitoring Program (Attachment XIV.B2, Appendix 2 of this operating license reapplication) which has continued to demonstrate no significant impacts from the facility. While there are no recommendations for further investigation with regards to ambient air at this time, Dow will review ambient air as part of the Corrective Action Implementation Plan.

On-site worker protection and compliance with MIOSHA standards is monitored through plant specific industrial hygiene monitoring programs. Based on the attached Environmental Indicators for Human Exposure, further evaluation of indoor air is necessary. Indoor air will be evaluated in phased approach as part of the Corrective Action Implementation Plan.

For the proposed timeframe for reviewing ambient air, indoor air and on-going surface cover efforts, refer to the Section B2.D.6 and Attachment XIV.B2 Appendix G for further details regarding the schedule for the Site-Wide Corrective Action Program and the focused oversight process.

B2.C.2 Environmental Exposure and Threats

Information regarding general habitat and common species found in the area surrounding the facility was presented in Attachment XIV.B4 Environmental Assessment. The Tittabawassee River and its Floodplain will be addressed as a part of the January 2010 Administrative Settlement

Agreement and Order on Consent (AOC). The AOC specifies the steps for the Remedial Investigation, Feasibility Study and/or Engineering Evaluation and Cost Analysis (EE/CA), and the Response Design to be taken by Dow, the U.S. EPA and the MDEQ to evaluate current conditions and assess response options for the Tittabawassee River/Saginaw River & Bay Site.

The site is an established industrial complex encompassing 1,900 acres that are in active use and does not provide valuable habitat due to extensive human disruption. The plant and animal species observed either on-site or immediately off-site are common species found in populated areas. There are no habitat areas critical to the survival of local species on or near the facility. The active licensed surface impoundment at the facility are authorized by permit and is being operated in compliance with RCRA. The presence of any wildlife on the facility property can be a nuisance and is typically not encouraged.

B2.C.2(a) Exposure Pathway

Exposure assessment studies to determine potentially complete and incomplete exposure pathways for environmental receptors are not currently available for the Facility. A significant effort was undertaken to identify potential COCs for off-site urban Midland Area Soils (MAS) for the ecological exposure pathway. The ecological screening effort focused only on the urban off-site soils. Due to the urban landscape of MAS, receptors for the evaluation were limited to avian receptors common to populated areas. At the conclusion of the screening evaluation, over 200 analytes were eliminated from further consideration and dioxins and furans were the only COCs recommended for consideration in the Natural Resources Damages Assessment (NRDA).

The vast majority of the facility is contained within contiguous land characterized by pavement, buildings, small maintained landscaped areas, functioning cap, roadways, equipment storage area, manufacturing and process areas, and otherwise disturbed ground. Furthermore, Dow has been increasing the amount of clean cover within the facility, which serves as a physical barrier to prevent exposure. The site is not within the immediate vicinity of sensitive environmental areas (e.g., rookeries, wildlife management areas, preserves) and similar but unimpacted habitat exists within a two mile radius.

The facility is frequented by several common species of birds. The facility does not serve as valuable habitat for ecological communities.

The Tertiary Pond (T-Pond) system is a licensed surface impoundment operated in compliance

under RCRA. The T-Pond system was designed to provide thermal equalization and Total Dissolved Solids (TDS) management of treated wastewater prior to discharging to the Tittabawassee River. This large cooling pond can be attractive to waterfowl. The enhanced solids removal process and sand filtration are the final polishing steps for treatment of the wastewater as required by the NPDES permit. The discharge from the pond meets NPDES permit requirements at discharge. The operation of this pond within the licensed WWTP system specifically ensures that the treated water meets discharge limits to prevent impacts to waters of the State.

The water level at this facility is continuously monitored to prevent overflows. In accordance with the T-Pond Solids Maintenance Plan (included in Attachment XIV.C5 of this operating license reapplication), regular measurements of the depth to solids in the pond are collected. The solids are removed and disposed when measurement results indicate it is necessary. In December 1992 the Tertiary Pond Revetment Groundwater Interception System (RGIS) was installed around the outside perimeter of the T-Pond dikes/dam along the Tittabawassee River, Bullock Creek, and the southwest side of the pond. The purpose of the collection system is to capture all groundwater migrating away from the unit.

Dow diligently operates this surface impoundment as described in Attachment XIV.C5 of this operating license reapplication and NPDES permit requirements. While the T-Pond may be attractive to waterfowl, it is not a valuable habitat or resource and is a key component the wastewater treatment system, and as such, should be excluded from ecological evaluation.

B2.C.2(b) Actual or Potential Receptors

Actual or potential environmental receptors for complete exposure pathways have not been identified for the Facility. Avian receptors were determined to be the primary ecological receptors of interest for the MAS off-site urban environment (specifically the Northern Cardinal and American Robin). The flora of the entire site is typical of industrial locations. Trees and brush have been removed across the majority of the facility property to discourage the presence of wildlife. Nuisance weeds are located throughout the site. Dow has been increasing the amount of clean cover across the site including asphalt, gravel and vegetation. The vegetation is maintained.

The mammalian population on-site consists primarily of rodents. Deer feed on the grounds but are not residents. The site is frequented by several common species of birds. Throughout the site, bird numbers are low as a result of extensive human disruption. The T-Pond can provide habitat

for birds, such as ducks or geese. In the winter, the Bald Eagle is known to "loaf" temporarily over open waters of the Tittabawassee River and the cooling ponds near the site; however, the eagles do not nest on-site. There are no threatened or endangered plant or animal species in the area or surrounding the facility.

B2.C.2(c) Evidence of Exposure

There are no existing facility-specific ecological studies available to date. The site is an established industrial complex encompassing 1,900 acres that are in active use and does not provide valuable habitat due to extensive human disruption. There are no habitat areas critical to the survival of local species on or near the facility. Active licensed surface impoundments at the facility are authorized and being operated in compliance with RCRA.

Adjacent to the former Ash Pond Area of Concern, groundwater samples from Monitoring Well 6165 have identified arsenic concentrations greater than the Generic MDEQ GSI Criterion. Seasonally, concentrations of fuel oil related substances have been detected in MW-18 in the Diesel Tank Farm Area of Concern at concentrations greater than the Generic MDEQ GSI Criterion. Groundwater in this area is not recovered by RGIS; however, all other groundwater from the facility is captured by RGIS. The Ash Pond area and MW-18 will be addressed as part of the Corrective Action Implementation Plan. For the proposed timeframe for this effort, refer to the Section B2.D.6 and Attachment XIV.B2 Appendix G for further details regarding the schedule for the Site-Wide Corrective Action Program and the focused oversight process.

B2.D INTERIM MEASURES

The Facility is a licensed treatment storage and disposal facility (TSDF), therefore it must institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any waste management unit, regardless of when they may have been released. The current and future Facility land use is and will remain industrial. Industrial re-development of portions of the Facility is viable. Portions of the Facility are operated by third parties subject to contracts or other legal instruments with Dow ensuring that Dow's corrective action obligations are met. This type of industrial third party land use will likely continue into the future. It is anticipated that the land and associated environmental liabilities will be owned by Dow.

Corrective actions at the Facility began in the mid to late 1970s when many of the historic waste management units were closed, progressed through environmental assessments and interim

measures to control the migration of contaminated groundwater. The Facility currently is conducting interim measures and addressing data gaps related to human exposure.

Because the Facility is large with a complicated history, including a number of historical waste management units, a holistic approach was developed for the Facility to allow a phased approach whereby focused effort is made on the highest priority projects first. The Corrective Action program necessarily evolves over time, in response to completed work and new information.

Corrective Action at the Facility is currently composed of five primary measures, being:

(1) Site-Wide Containment,
(2) Worker Exposure Control Program,
(3) Monitored Natural Attenuation,
(4) Long-term Reduction of Contaminant Mass, and
(5) Off-Site Corrective Action.

A more detailed description of the application of each of these interim measures is provided in the following sections.

B2.D.1 Site-Wide Containment

Site-Wide Containment is an important component of Corrective Action at the Facility preventing releases of contaminants to the Tittabawassee River and City of Midland. This measure applies to the Facility SWMU and the sub-units contained therein.

B2.D.1(a) Objective of the Measure

Site-Wide Containment is a comprehensive set of measures with the objective of preventing the migration of contaminated soil, storm water and groundwater above applicable criteria from migrating beyond the RCRA Facility Boundary.

B2.D.1(b) Design and Construction

The objectives are met by a combination of monitoring and engineered controls. Groundwater monitoring demonstrates control of contaminated groundwater by determining flow direction for the surface permeable zone through hydraulic monitoring. Where groundwater has the potential to migrate beyond the RCRA Facility Boundary, on-going chemical monitoring is conducted to verify compliance with relevant and applicable MDEQ cleanup criteria. Groundwater monitoring networks have been designed and installed for those areas. See Attachment XIV.B5 Environmental Monitoring Programs for further details.

The following engineered systems have been designed, constructed and maintained to prevent groundwater from migrating beyond the point of compliance, defined in Section B2.H, below:

- Revetment Groundwater Interception System (RGIS);
- South Saginaw Road Collection Tile;
- Tertiary Pond RGIS;
- Tertiary Pond Slurry Wall;
- 6 Pond collection Tile;
- 7th Street Purge Wells;
- 7th Street Horizontal Well (LS #121);
- Sandbar steel sheet piling and horizontal well;
- LEL I Slurry Wall;
- LEL II Slurry Walls;
- LEL III Slurry Walls;
- Deep Well 5964;
- Poseyville Landfill Slurry Wall;
- Poseyville Landfill Purge Wells;
- 6 Pond Purge Wells; and
- No. 8 Pond Horizontal Wells.

The majority of the Facility is not considered to have reasonable potential for contribution of significant materials to storm water runoff because the storm water is either detained in constructed storm water detention areas or collected in a series of sewers both of which empty into the Dow Wastewater Treatment Plant (WWTP) for treatment prior to discharge. A small number of isolated areas have been identified by Dow where there is sheet flow from Dow property into public conveyances. In these areas where capture and treatment are not feasible, these areas are covered with clean topsoil and vegetated. These areas are identified in the Attachment C drawings of the Facility Storm Water Pollution Prevention Plan (SWPPP). Other control measures, where applicable, are specified in the Facility SWPPP.

These systems are primarily groundwater interception and containment systems. In many instances, engineering controls have been installed as a presumptive remedy. Three individual WMUs (LEL I, II, and III) have groundwater containment systems limiting migration of contaminated groundwater and non-aqueous phase materials from those particular WMUs.

The current Fugitive Dust Control Program was implemented in February 1990, and periodically revised since that time. The Program objective is to reduce fugitive dust emissions by managing operations to reduce the generation of dust. This is accomplished by paving of unpaved roads and parking lots when deemed necessary, application of dust suppressant as necessary, and the

modification of areas to reduce dust, such as aggregate stockpiling. Operational modifications included reducing or restricting traffic, posting speed limits, routine road cleaning, and road inspections. The current Fugitive Dust Control Program is contained in Appendix C.

A Soil Exposure Monitoring Program is established to verify contaminated soil is not migrating beyond the RCRA Facility Boundary. The Monitoring Program consists of soil sampling and evaluation in dedicated soil test boxes at high traffic facility exit locations and directly adjacent to the Facility Boundary in the predominantly downwind direction. A data evaluation plan has been developed and implemented that specifies criteria for implementation of additional monitoring, evaluations and as necessary additional controls of contaminated soils. Attachment XIV.B5 Environmental Monitoring Programs provides further details.

B2.D.1(c) Operation, Monitoring, and Maintenance

Engineering controls are operated on a continuous basis. Reference Attachment XIV.A5 (Inspection Schedules) for system inspections and schedules. All groundwater collection systems are cleaned on an annual basis. Maintenance of systems occurs as required to ensure reliable operation. Maintenance activities are reported as specified in Attachment XIV.B5, Appendix 2 of this operating license reaplicatoin. Attachment XIV.B2, Appendix F of this operating license reapplication provides a copy of the Corrective Action Monitoring and Maintenance Plans and Post-Closure Monitoring and Maintenance Plans for closed waste management units within the Facility.

The details and schedule for Environmental Monitoring as well as performance monitoring for engineered corrective action systems are provided as part of Attachment XIV.B5 (Environmental Monitoring Programs). The Facility SWPPP is reviewed and updated if required on an annual basis, and the Fugitive Dust Plan is updated and submitted twice each year (once in the spring and once in the fall).

Over time, the design of the first-generation engineering controls have been upgraded, and much of the original systems have been replaced. To facilitate on-going performance of the existing groundwater collection systems, a number of key features have been put in place, including (1) a standard set of procedures for characterizing, designing and constructing an upgrade or replacement of a groundwater collection trench; (2) a corrective action Hazardous Waste Treatability Variance; and (3) a Corrective Action Management Unit (CAMU). A one-time staging pile was approved by the MDEQ in accordance with 2003 License Part XI.U, “Designation of

Staging Pile" and 2003 License Attachment 30, "Staging Pile Designation with Design Information", added September 30, 2009. Attachment XIV.B2, Appendix A includes the standard procedures for conducting a replacement of a groundwater collection system. Future upgrades will follow these and will be utilized according to these procedures to streamline corrective action process and minimize the review time.

Due to the nature of soil and groundwater contamination in the areas where groundwater collection systems are installed, management of hazardous wastes is a critical component of maintaining the systems over time. The Waste Analysis Plan, Attachment XIV.A3, Appendix 3 includes a current Hazardous Waste Treatability Variance that is utilized to facilitate Interim Measures at the Facility. As authorized by the variance, it is requested that the variance be incorporated into the license renewal and the term extended to match the term of the next license. As part of the Variance renewal process, due to the future maintenance work on the T-Pond and associated waste management considerations, Dow is specifically requesting the inclusion of "T-Pond Solids" (solids that had accumulated in an subsequently been removed from the Pentagonal, Rectangular or Main Pond) as a waste stream applicable to the Variance. Appendix B includes the Staging Pile and Corrective Action Management Unit (CAMU) design information.

2.D.1(d) Evaluation of Measure Effectiveness

The effectiveness of the measures is determined by corrective action monitoring programs, described in detail in Attachment XIV.B5 (Environmental Monitoring Programs).

B2.D.1(e) Proposed or Required Schedules for Continued Operation or Future Changes in the Measure

Engineering controls, system performance and environmental monitoring are anticipated for the active life and post-closure care period for the Facility. Maintenance of systems occurs as required on a prioritized basis in cooperation with MDEQ to ensure reliable operation. No upcoming changes in the Site-Wide Containment measures are currently proposed.

The results of groundwater chemical monitoring are evaluated pursuant to the performance criteria, established in the SAP. Each monitored period, data are compiled and reviewed to ensure objectives are being satisfied. If performance criteria are not being met, corrective measures may include additional sampling, evaluation, or response actions.

B2.D.2 Worker Exposure Control Program

A number of studies have been conducted across the Facility SWMU which indicates the presence of contaminated soil and groundwater at the Facility (Tables B2-2 and B2-3). The Worker Exposure Control Program is therefore an important component of Corrective Action at the Facility. This measure applies to the Facility SWMU and the sub-units contained therein the Worker Exposure Control Program is presented in Appendix C.

B2.D.2(a) Objective of the Measure

The Worker Exposure Control Program is a comprehensive set of measures which have been designed to control the potential exposures to workers from environmental contaminants at the facility.

B2.D.2(b) Design and Construction

The objectives are met by a combination of monitoring, administrative and engineered controls. To address exposure areas, significant areas of clean soil cover have been installed in areas where samples indicated elevated levels of dioxins and furans in site soils. To address exposure routes, on-going operations, monitoring and maintenance are performed to presumptively prevent dust and specify what PPE is necessary to presumptively prevent contact with potentially contaminated groundwater and subsurface soil.

B2.D.2(c) Operation, Monitoring, and Maintenance

This Worker Exposure Program currently addresses known potential exposures by eliminating the exposure areas for all Facility workers and interrupting exposure routes for construction workers by the following actions:

- Fugitive dust control;
- Engineering controls;
- Administrative controls; and
- Maintenance of controls.

Fugitive Dust Control Program

The current Fugitive Dust Control Program was implemented in February 1990, and periodically revised since that time. The Program objective is to reduce fugitive dust emissions by managing operations to reduce the generation of dust. This is accomplished by paving of unpaved roads and parking lots when deemed necessary, application of dust suppressant as necessary, and the modification of areas to reduce dust, such as aggregate stockpiling. Operational modifications included reducing or restricting traffic, posting speed limits, routine road cleaning, and road

inspections. The current Fugitive Dust Control Program is contained in Attachment A of Appendix C.

Engineering Controls

Exposure control at the Facility is designed to address potential exposure pathways to the on-site workers from direct contact to surface soils and inhalation of airborne particles (dust). By covering existing surface areas with a minimum of six-inches of clean topsoil and establishing vegetation, limiting access to gravel surfaces and maintaining appropriate parking areas with asphalt or other engineered surface, the exposure area is eliminated for site workers. Significant work has been completed related to the Enhanced Exposure Control at the facility, however additional work must be completed to demonstrate all significant exposures are within acceptable limits and/or fully control all exposure routes. Figure 2 in Appendix C presents the current surface cover map for the Facility.

Administrative Controls

Any activity within the Facility that includes excavation and earth penetration is currently managed through procedures designed to effectively manage any soil and/or groundwater generated by such activities, while at the same time providing adequate contaminant exposure controls to potentially affected workers during these projects. These procedures are employed during all excavation activities.

The personnel responsible for any excavation or earth penetration activity are required to prepare an Environmental Excavation Plan (EEP) and obtain review and approval of the EEP before any subsurface work can be conducted. The minimum requirements for all EEPs are:

- A Personal Protective Equipment (PPE) Plan that stipulates no dermal contact with excavated soil or groundwater by workers. In essence, this PPE Plan provision presumptively protects the worker from dermal contact exposure to soil and/or groundwater with concentrations exceeding MDEQ non-residential land use criteria. This incorporates a maximum level of conservativeness in determining appropriate levels of PPE to be used on the excavation. PPE Plans will also include air monitoring, as needed, at the project site to determine the appropriate level of respiratory PPE needed for the excavation work. Work performed within the facility fence line must have an IH Monitoring Plan in place to monitor ambient air/air within a trench during work activities.

- A Soil Staging Plan that will ensure all excavated soils are appropriately covered and/or contained at the site of generation, and do not spread or emanate from the excavation site. Any soil or groundwater generated during excavation activities that will not be replaced into the excavation but is designated for disposal will follow the requirements of Dow's Generator Waste Characterization Form (GWCF).
- For any excavated soil that will not be replaced into the excavation but is designated for relocation will follow the provisions of Section 20120c of Part 201 of Michigan Act 451. The following measures will be implemented to ensure compliance with this section of the Act:
  - Any soils relocated pursuant to 20120c will have gravel, asphalt, topsoil/vegetation, or other appropriate barrier installed over relocated soil.
  - Dust control procedures (tarps, water, etc.).
  - All excavations will follow the requirements of Dow's Fugitive Dust Control Program.
  - Soils characterized as hazardous waste will not be relocated and will be appropriately managed.

Upon completion of the excavation activities and to address future potential exposures at excavation sites, gravel, asphalt, topsoil/vegetation, or other appropriate barriers will be installed or restored after every excavation. In certain cases, specialized barriers may be present and need to be re-established (e.g. compacted clay, bentonite, flexible membrane liners).

For indoor workers, the general industrial hygiene process at Dow Facilities establishes plant-specific exposure assessments based on the process descriptions (e.g. what chemicals are used, and how they are used) and activities that take place at each facility. Based on this information, personal protective equipment requirements are determined and a monitoring plan is established. Results of monitoring are reviewed and the exposure assessment is reviewed annually at a minimum, contingent on results of monitoring.

The outdoor air at the facility is monitored in the Ambient Air Monitoring Program (Attachment XIV B5, Appendix 2 of this operating license reapplication) which has continued to demonstrate no significant impacts from the facility. While there are no recommendations for further investigation with regards to ambient air at this time, Dow will review ambient air as part of the Corrective Action Implementation Plan.

Based on the attached Environmental Indicators for Human Exposure, further evaluation of indoor air is necessary. Indoor air will be evaluated in phased approach as part of the Corrective Action Implementation Plan. For the proposed timeframe for evaluating indoor air and reviewing ambient air, refer to the Section B2.D.6 and Attachment XIV.B2 Appendix G of this operating license reapplication for further details regarding the schedule for the Site-Wide Corrective Action Program and focused oversight process.

B2.D.2(d) Evaluation of Measure Effectiveness

The effectiveness of the measures is determined by soil monitoring program, described in detail in Attachment XIV.B5 (Environmental Monitoring Programs). Industrial hygiene monitoring is performed at each plant/building based on results of their specific exposure assessments and previous monitoring.

B2.D.2(e) Proposed or Required Schedules for Continued Operation or Future Changes in the Measure

Significant work has been completed related to the Enhanced Exposure Control at the facility, however additional work must be completed to demonstrate all significant exposures are within acceptable limits and/or fully control all exposure routes.

Additional measures are necessary to demonstrate that historical contaminants present at the Facility, are fully addressed within the facilities occupational health practices and policies as required by 324.20120a. Indoor air will be evaluated in phased approach as part of the Corrective Action Implementation Plan. Attachment XIV.B2 Appendix G describes the plan for corrective action implementation and the streamlined process that Dow and MDEQ will use to cooperatively identify issues and establish goals to achieve the corrective action objectives more efficiently than thru the previously utilized prescriptive process. For the proposed timeframe for evaluating indoor air, refer to the Section B2.D.6 and Attachment XIV.B2 Appendix G for further details regarding the schedule for the Site-Wide Corrective Action Program and focused oversight process.

B2.D.3 Monitored Natural Attenuation

For the 6175 and 6178 Area, vinyl chloride has been identified in groundwater in areas of the facility that have the potential to migrate beyond the Facility Boundary. Environmental study has

concluded that natural attenuation is occurring. According to Compliance Activity Schedule, H-2 Northeast Perimeter 6175 & 6178 Areas Corrective Action Summary Report (May 23, 2005).

B2.D.3(a) Objective of the Measure

The objective of monitored natural attenuation is to demonstrate that eventual receptors are protected; the existing plumes are stable and/or receding, and new releases or sources of contamination are detected.

B2.D.3(b) Design and Construction

The monitoring well network was installed along the primary flow paths of the chlorinated contaminants. A transect perpendicular to the groundwater flow path is installed to track horizontal movement. The wells are screened at the base of the unconfined shallow groundwater zone so that groundwater samples are collected from the area of maximum concentration within the plume. Sentinel wells are installed to verify down-gradient concentrations remain below relevant criteria, as described in Attachment XIV.B5, Environmental Monitoring Programs.

B2.D.3(c) Operation, Monitoring, and Maintenance

The system of monitoring wells is inspected and sampled in accordance with the Facility Sampling and Analysis Plan (SAP), included in Attachment XIV.B5 Environmental Monitoring Programs. Monitoring wells are repaired and/or replaced, as necessary. Further evaluations and/or demonstrations are conducted as necessary, in accordance with the SAP.

B2.D.3(d) Evaluation of Measure Effectiveness

The results of groundwater chemical monitoring are evaluated pursuant to the performance criteria, established in the SAP. Each monitored period, data are compiled and reviewed to ensure objectives are being satisfied. If performance criteria are not being met, corrective measures may include additional sampling, evaluation, or response actions.

B2.D.3(e) Proposed or Required Schedules for Continued Operation or Future Changes in the Measure

Additional work plans have been submitted to MDEQ for their review and approval to conduct investigations to determine the extent of the plume of groundwater impacted with

chlorofluorocarbons (CFCs) trichlorofluoromethane (CFC-11) and dichlorofluoromethane (CFC-21) and whether the impacted groundwater is migrating beyond the facility boundary at unacceptable concentrations (September 30, 2010); as well as fate and contaminant transport evaluation of potential for vinyl chloride discharge to surface water (December 21, 2011).

B2.D.4 Contaminant Mass Reduction

A number of sources of contamination have been identified at the Facility (reference Table B2-1). Types of sources vary significantly, based on the remaining mass of the original release and the relative mobility of that source material. The presence of a NAPL in identified transmissive source zones is the focus of the contaminant mass reduction measure.

B2.D.4(a) Objective of the Measure

The current objective of this measure is to reduce the period in which mobile (recoverable) contaminants in source zones will provide persistent releases to groundwater and/or soil gas at the Facility.

B2.D.4(b) Design and Construction

Current mass reduction is opportunistic, occurring where NAPLs have been identified and are readily recoverable. In 1993, a french drain was installed at the site of a historical chlorpyrifos spill identified during an environmental investigation. Water and NAPL are collected and incinerated. Beginning in 2011, interim activities were begun in the former chemical manufacturing area to manually recovery NAPL from a number of monitoring wells where NAPLs recharge sufficiently to make recovery practical.

A NAPL recovery system located at the LEL III WMU began operations in 2014. This system consists of three six-inch diameter stainless steel wells, transfer piping and a portable storage container that has a maximum capacity of 750 gallons of NAPL per month. Future source removal actions will be identified and designed based on the individual circumstances at that location. Plans for construction or initiation of NAPL removal will be provided to MDEQ as they are developed.

B2.D.4(c) Operation, Monitoring, and Maintenance

Operation, monitoring and maintenance of the systems will continue until recovery efforts become impractical. The pumping rates and methods will necessarily adapt to the amount of recoverable NAPL present and the rate at which it can recharge.

B2.D.4(d) Evaluation of Measure Effectiveness

It is unlikely that removal of NAPL from transmissive zones alone will reduce dissolved contaminants. The measure effectiveness at this stage will be determined by the amount of NAPLs that continue to be available for recovery. Individual objectives will be updated, based on the performance at each area.

B2.D.4(e) Proposed or Required Schedules for Continued Operation or Future Changes in the Measure

There are no additional changes proposed at this time.

B2.D.5 Off-Site Corrective Action

Pursuant to 2003 Operating License Part XI.B, off-site corrective actions are in process for the City of Midland and for the Tittabawassee River, Saginaw River, their respective floodplains and Saginaw Bay.

Off-Site Corrective action for the Tittabawassee River, Saginaw River, their respective floodplains and Saginaw Bay are being performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942), and are managed under the CERCLA program. The following sections describe the off-site corrective action efforts performed under the RCRA corrective action program, in accordance with the Interim Response Activity Plan Designed to Meet Criteria, submitted May 25, 2012 and approved by MDEQ June 1, 2012.

B2.D.5(a) Characterization History

The understanding of hazardous substances in Midland Area Soils is based on a series of studies conducted over the years which are summarized in the Interim Response Activity Plan Designed to Meet Criteria, submitted May 25, 2012 and approved by MDEQ June 1, 2012.

B2.D.5(b) Description of Horizontal and Vertical Extent of Off-Site Corrective Action (Contaminant Migration)

Horizontal and vertical extent was determined based on a series of studies and assessments conducted over the years which are summarized in the Interim Response Activity Plan Designed to Meet Criteria, submitted May 25, 2012 and approved by MDEQ June 1, 2012. MDEQ approved a site-specific action level for surface soils and off-site corrective actions are in process to mitigate direct contact to soil in off-site residential areas, pursuant to 2003 Operating License Part XI.B and the approved Interim Response Activity Plan Designed to Meet Criteria.

B2.D.5(c) Rate and Amount of Release

The impacts to Midland Area Soils are due to airborne emissions from historic waste management practices at the Facility. The rate and amount of release is not known. MDEQ approved a site-specific action level for surface soils and off-site corrective actions are in process to mitigate direct contact to soil in off-site residential areas in the City of Midland, pursuant to 2003 Operating License Part XI.B and the approved Interim Response Activity Plan Designed to Meet Criteria, submitted May 25, 2012 and approved by MDEQ June 1, 2012.

B2.D.5(d) Evaluation of Measure Effectiveness

MDEQ approved a site-specific cleanup level for dioxins and furans in Midland residential soils. Concentrations of dioxins and furans in soil in excess of the agreed upon level are currently being addressed through corrective actions in progress to mitigate direct contact to surface soil in off-site residential areas. These activities are being conducted pursuant to 2003 Operating License Part XI.B and the *Interim Response Activity Plan Designed to Meet Criteria*, submitted May 25, 2012 and approved by MDEQ June 1, 2012. Once the corrective action program is complete, exposures will be within acceptable limits.

B2.D.5(e) Proposed or Established Requirements for Continued Operation or Future Changes in the Measure

Corrective actions in progress to mitigate direct contact to surface soil in off-site residential areas. These activities are being conducted pursuant to 2003 Operating License Part XI.B and the *Interim Response Activity Plan Designed to Meet Criteria*, submitted May 25, 2012 and approved by MDEQ June 1, 2012. Once the corrective action program is complete, this exposure pathway will be within acceptable limits and incomplete.

Ongoing monitoring activities that track land use or change in ownership and/or zoning for properties within the Midland Resolution Area including non-residential properties and wooded areas where land use could change to residential. Additionally, Dow will provide financial

assurance in an amount equal to the average cost of performing the presumptive remedy at residential properties multiplied by the number of properties that deferred or declined to have the remedy implemented.

B2.D.6 Plan and Schedule for the Site-Wide Corrective Action Program and Streamlined Oversight Process

Currently, the Facility manages on-going corrective action work via a prioritized compliance schedule for environmental monitoring and corrective action under Part XII of the 2003 Operating License. The compliance schedule was originally developed in 2003. As new information was generated, the schedule has been modified over time. Most of the originally anticipated work has been completed. As discussed in Section B2.C.1 Human Exposures and Threats, additional work remains with respect to indoor air and surface soil exposure for workers and construction workers at the Facility. In addition, some investigations performed under the existing Part XII of the 2003 Operating License have required further work prior to resolution. The current status of the compliance schedule activities is included in Appendix D.

On-going corrective action, including interim response actions and environmental investigations will continue to be completed in accordance with a corrective action schedule, consistent with the current prioritized compliance schedule. Work that directly addresses gaps with respect to indoor air and surface soil exposure for workers and construction workers at the Facility will be prioritized over opportunistic corrective actions or remedial investigations.

The corrective action program for the Facility will be implemented in a holistic approach, where individual measures are completed in a manner that is focused on achieving long-term site-wide objectives. Long-term site-wide corrective action guiding principles for the Facility are (1) mitigation of risk to human health and the environment, and (2) effective operation of engineering systems.

The main objectives and their alignment with site-wide principles are summarized below:

- Principle 1: Mitigate risk to human health and the environment
    - Ensure the Facility is not a source of off-site groundwater contamination
        - Groundwater monitoring
            - Northeast Perimeter
            - Monitoring Well 6172 Area
            - Overlook Park
    - Control worker exposures
        - Direct Contact to Surface Soil

        - Indoor Air
    - Reduction of volume, toxicity and mobility through opportunistic source control or remedy
- Principle 2: Comprehensive and Effective Operation and Maintenance Programs
    - Detailed performance monitoring to proactively identify performance issues early
    - On-going investment in corrective action system upgrade projects to maintain or improve functionality

B2.D.6(a) Results Based Work Process

It is recommended that future corrective action, including interim response actions and environmental investigations should be done in accordance with a results-based corrective action framework. Dow and the agency would establish appropriate remediation goals and objectives to be achieved over the next license period. These goals and objectives would be periodically reviewed and updated as appropriate based on experience and development at the Facility. Dow would be responsible to establish and implement plans and measures that achieve the desired goals and objectives. It is currently anticipated that initial work would focus on indoor air and surface soils exposure questions and the remaining open investigation activities.

To facilitate timely and efficient achievement of these objectives, the MDEQ would provide tailored oversight during the implementation of corrective action at the Facility. The amount and type of oversight would take into account the magnitude, complexity and demonstrated capability of Dow to implement the corrective action. The process may allow elimination of prior agency approval and other administrative processes where warranted.

A corrective action plan that will make progress toward the agreed upon goals and objectives will be collaboratively developed with MDEQ. Upon agreement of the high-level scheduled activities, individual work plans will be developed for completion of specific measures. The work plans will be provided to MDEQ with an individual schedule for implementation. After submittal of a work plan, Dow will continue to work collaboratively with MDEQ to implement the work plans. Upon submittal, Dow may choose to self-implement the work plan. In keeping with standard practice, all work will be transparent and notification will be provided prior to commencing any field activities to allow MDEQ an opportunity to participate.

B2.D.6(b) Documentation of Progress and Results

An Annual Plan will be submitted to notify MDEQ of the planned activities for the year. Any environmental monitoring analytical data will be submitted as described in Attachment XIV.B2,

Appednix G of this operating license reapplication to the MDEQ within 60 days of the end of the quarter in which the samples were analyzed, or upon completion of data validation. Communication throughout the year will include routine meetings with MDEQ to review the status of ongoing activities. An annual progress report will be submitted to MDEQ summarizing the findings for each year.

B2.E ENVIRONMENTAL INDICATORS

The EI forms developed by the EPA to date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater have been completed reflect the current status of the Michigan Operations, Midland Plant facility. Based on all available relevant/significant information on known or reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action, migration of contaminated groundwater is under control, and additional information is needed to make a determination for human exposures to contamination. The completed EI forms are provided as Appendix E to this Attachment.

B2.F FACILITY'S ASSESSMENT OF KNOWN OR PROPOSED CONSTITUENTS OF CONCERN

[R 299.9629(3)(a)(i) and (3)(b)(i)]

Tables B2-4 and B2-5 summarize the ranges of detected results in soil and groundwater, respectively.

B2.G ESTABLISHED OR PROPOSED CLEANUP CRITERIA

MDEQ approved a site-specific cleanup level of 250 parts per trillion (ppt) for dioxins and furans in Midland residential soils for off-site corrective action. Details for the development of the site-specific action level are provided in the *Interim Response Activity Plan Designed to Meet Criteria*, submitted May 25, 2012 and approved by MDEQ June 1, 2012.

Concentrations of dioxins and furans in soil in excess of the agreed upon level are currently being addressed through corrective actions in progress to mitigate direct contact to surface soil in off-site residential areas. These activities are being conducted pursuant to 2003 Operating License Part XI.B and the *Interim Response Activity Plan Designed to Meet Criteria*, submitted May 25, 2012 and approved by MDEQ June 1, 2012. Once the corrective action program is complete, this exposure pathway will be within acceptable limits and incomplete.

Dow is considering development of a non-residential site-specific criterion for dioxins and furans

that would be applicable to the Facility. This criterion could potentially be utilized for Midland Area Soils, as appropriate. For other constituents, under current conditions, Dow currently anticipates using the MDEQ generic non-residential criteria. However, Dow could consider proposing a site-specific criterion for any constituent in future, as appropriate.

B2.H ESTABLISHED OR PROPOSED COMPLIANCE POINTS AND PERIODS

[R 299.9629(3)(a)(iv) and (v) and R 299.9629(3)(b)(iv) and (v)]

The point of compliance for the Facility is the vertical surface located at the down-gradient limit of the imaginary line circumscribing several regulated units, which is identified as the Facility Boundary, shown on the Facility Part A Map. The specific points of compliance (monitoring locations) are established in the Facility SAP (Appendix B5-1 of Attachment XIV.B5, Environmental Monitoring Programs).

In accordance with 40 CFR 264.99, because the facility is subject to on-going corrective action, the compliance period is extended beyond the active life and closure period for the waste management areas until relevant groundwater protection standards are not exceeded for three years.

B2.I OFF-SITE ACCESS

Off-site access in order to implement corrective action investigations and remediation has been necessary for two on-going off-site corrective action programs for the Midland Area Soils and the Tittabawassee and Saginaw River and associated floodplains.

For the Midland Area Soils program, Dow uses best efforts to obtain appropriate access from property owners to conduct sampling on their property. For the purposes of this presumptive remedy, best efforts are defined as follows: an initial letter, a first and second follow-up telephone call, certified letter, and an in-person visit. A meeting is requested with the current property owner to review the proposed actions and to obtain an access agreement and permission to permit Dow to conduct sampling activities and the remedial work (if applicable) specific in this work plan. Dow and its contractors work closely with property owners to inform them of the planned process, the implementations of the field implementation, in addition to providing the results of the sample analysis.

Off-site access for the Tittabawassee and Saginaw Rivers program is gained, as needed, for implementation of activities performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942).

B2.J PUBLIC INVOLVEMENT PLAN

Pursuant to the State of Michigan Administrative Rule R 299.9511 entitled Public Participation Procedures, members of the public identified on the facility mailing list and appropriate state and local units of government are provided notice that a hazardous waste operating facility license application for renewal or major modification has been received and is available for review. The public are invited (via published notice) to provide comments to the MDEQ.

For off-site corrective action in the City of Midland, informational web pages are maintained by The Dow Chemical Company (http://www.midlandresolution.com/), and the MDEQ (http://www.michigan.gov/deq/0,4561,7-135-3307_29693_21234-271213--,00.html). Dow maintains an office that is open to the public at 1008 Jefferson Avenue. At the center, and via the internet, information flyers, bulletins and fact sheets are available. Public meeting newsletters are periodically produced and mailed to affected residents within the City of Midland. City of Midland officials are periodic briefed on progress. Further public involvement will occur as jointly developed between MDEQ and Dow.

The United States Environmental Protection Agency developed a Community Involvement Plan in preparation for community involvement activities to be conducted during the investigation and cleanup at the Tittabawassee River, Saginaw River and Bay site in the Midland/Saginaw/Bay City Region in Michigan. The Community Involvement Plan promotes two-way communication between members of the public and EPA by providing information about current community concerns and involves the public in activities and decisions related to the investigation and cleanup. EPA also maintains a web site repository of relevant project documents and information (http://www3.epa.gov/region5/superfund/npl/sas_sites/MID980994354.html).

B2.K HEALTH AND SAFETY PLAN

The Dow Chemical Company and its contractors maintain complementary corporate Health and Safety programs, policies and procedures. For on- and off-site corrective action, site- and project-specific Health and Safety Plans are prepared to define the scope of work, assign responsibilities, establish training requirements, personal protection and industrial hygiene standards, mandatory safety and emergency response procedures to address contingencies that may arise during operations. Health and safety plans comply with, but do not replace Federal Health and Safety Regulations, set forth as OSHA 29 CFR 1910 and 1926, in addition to applicable state regulations. Training records are maintained in accordance with regulatory requirements.

B2.L NOTICE REQUIREMENTS

Pursuant to the State of Michigan Administrative Rule R 299.9525 entitled Notice Requirements, The Dow Chemical Company filed a Deed Notice for the Michigan Operations, Midland Plant facility with the Registrar of Deeds for Midland County, Michigan in Liber 1356, page 916.

B2.M JUSTIFICATION FOR PROPOSED ELIMINATION OF ANY WASTE MANAGEMENT UNIT FROM THE CORRECTIVE ACTION PROGRAM OR INTENT TO PROCEED WITH CORRECTIVE ACTIONS

Not applicable at this time.

Figure B2-1. Site History, Waste Management, and Interim Measures

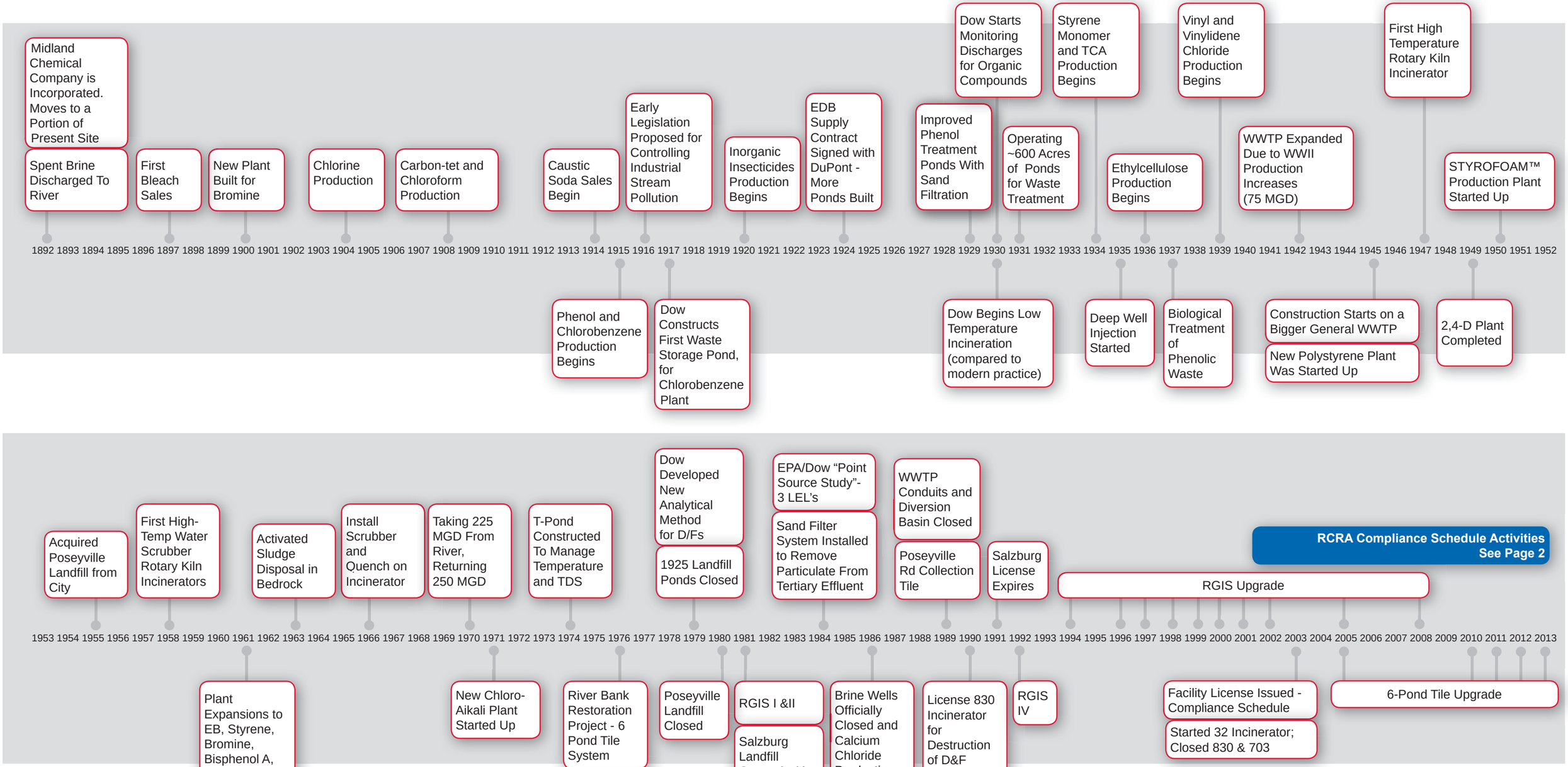
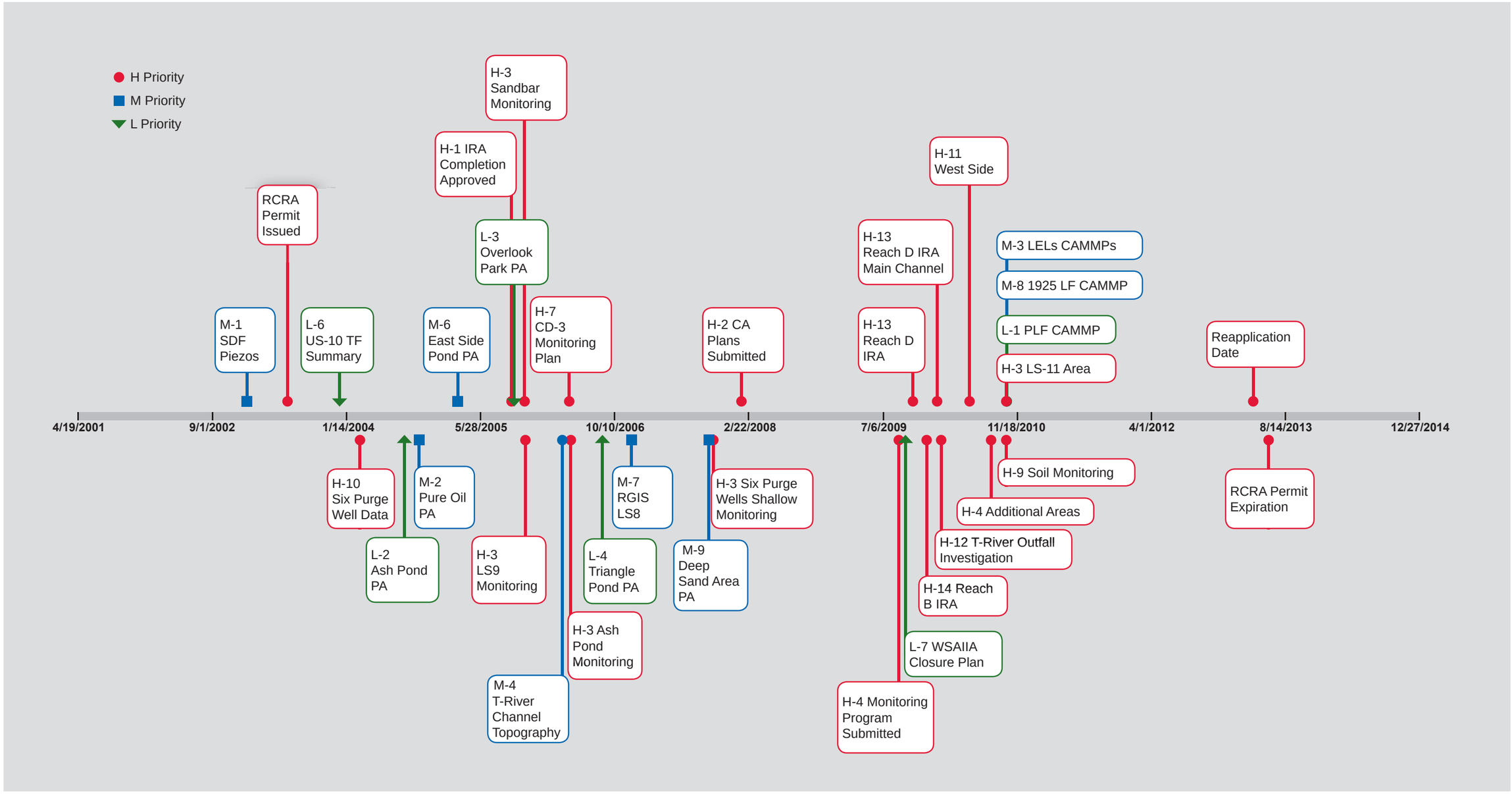
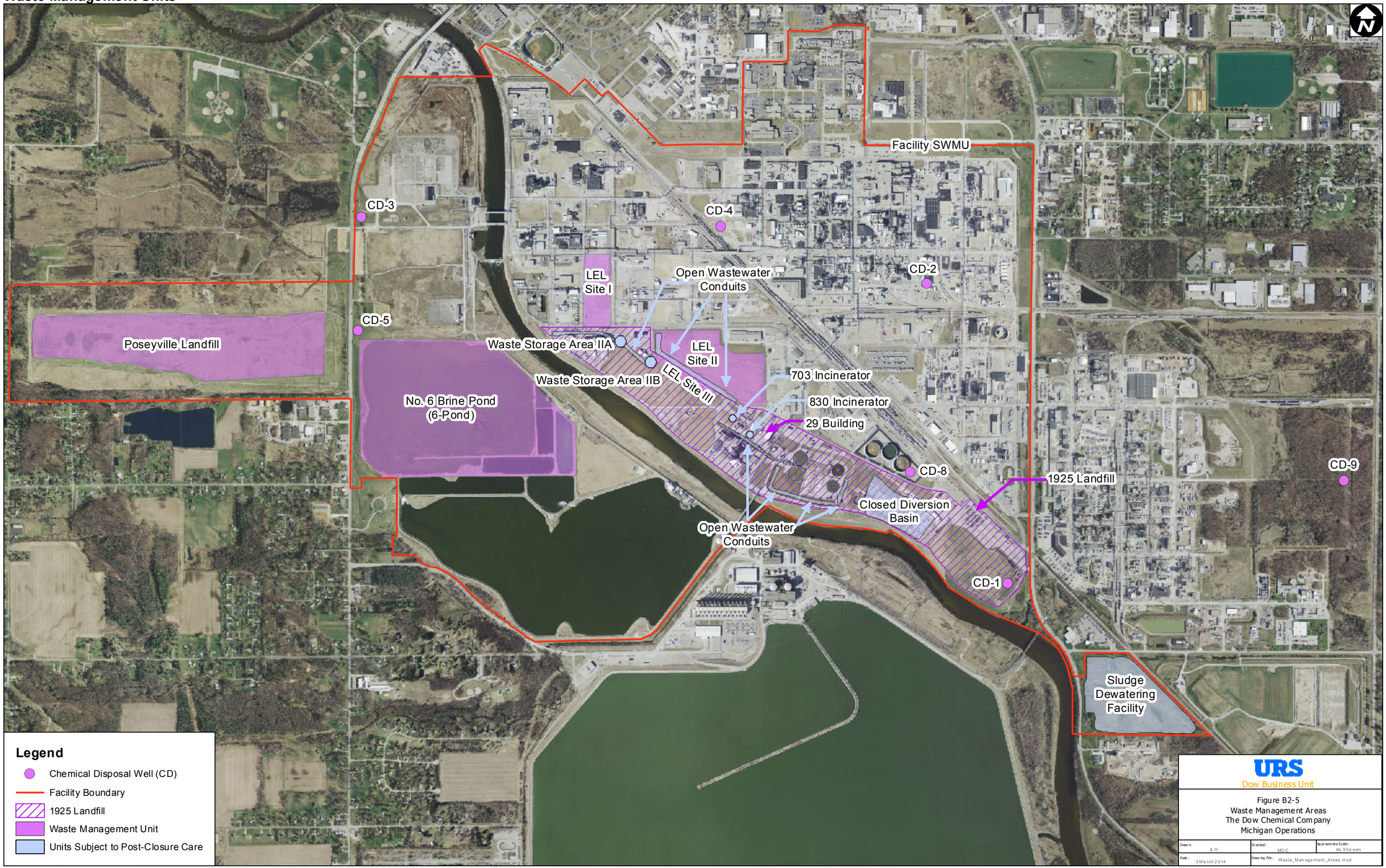


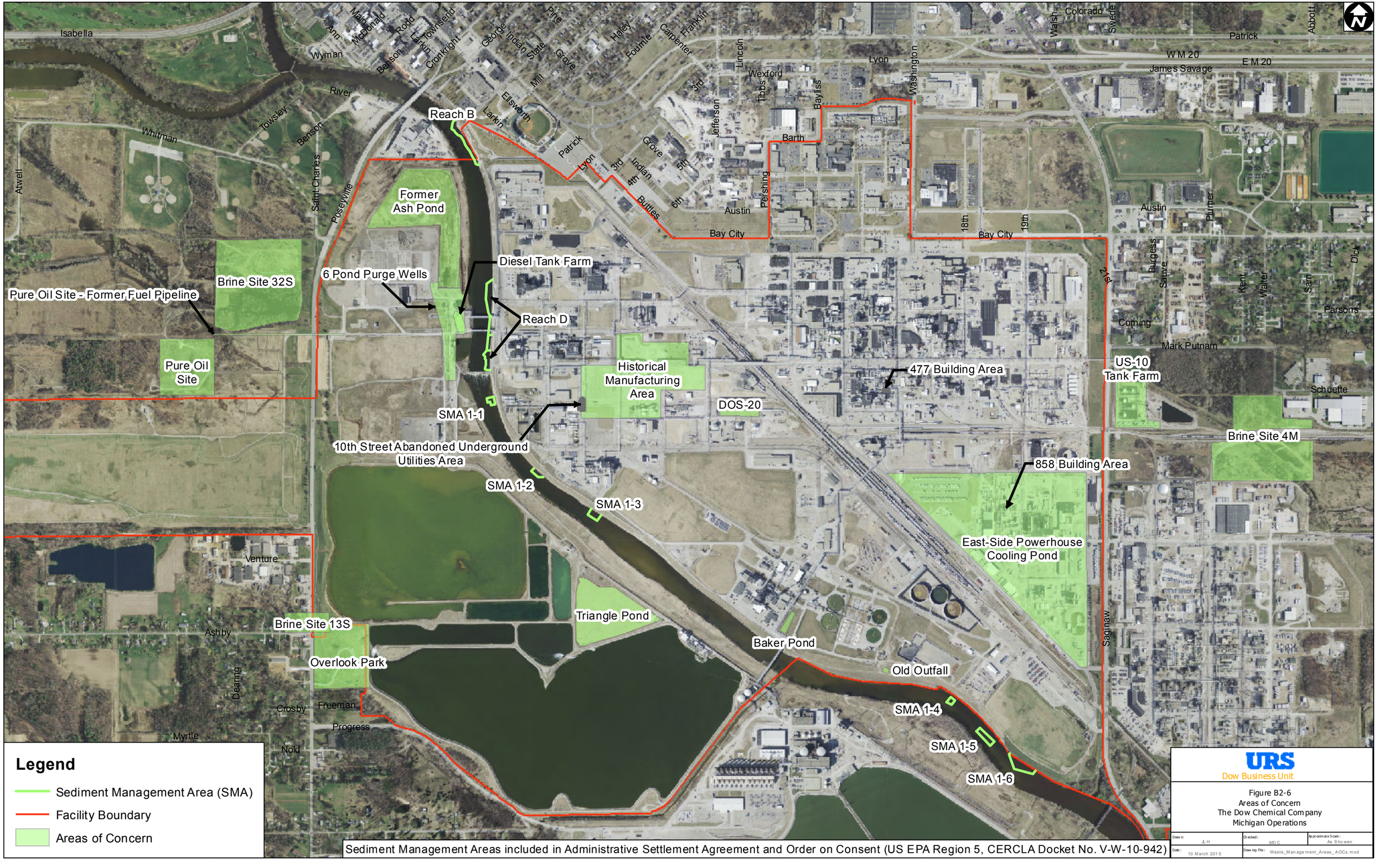
Figure B2-1. Site History, Waste Management, and Interim Measures



Waste Management Units



Areas of Concern



Legend

- Sediment Management Area (SMA)
- Facility Boundary
- Areas of Concern

Sediment Management Areas included in Administrative Settlement Agreement and Order on Consent (US EPA Region 5, CERCLA Docket No. V-W-10-942)

URS
Dow Business Unit

Figure B2-6
Areas of Concern
The Dow Chemical Company
Michigan Operations

Drawn: JLH	Checked: MDC	Approximate Scale: As Shown
Date: 10 March 2015	Drawing File: Waste_Management_Areas_AOCs.mxd	

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
1	**Facility SWMU***	WMU	The entire area within the designated facility boundary. All WMUs and AOCs with the exception of US 10 Tank Farm, Pure Oil, Overlook Park, CD-9 and the brine spill sites are contained within and are a subunit of the Facility SWMU. Each is described in detail below.	The facility has been in operation for over 100 years, involving industrial activities and associated waste management practices. Section B2.A presents a comprehensive history of the facility. Figure B2-1 presents a timeline of site history, waste management and RCRA compliance. Figure B2-2 presents a facility product history timeline. Historic aerial releases from former combustion units contributed to impacts to surface soil (<2ft deep) across the Facility SWMU. Historic waste management or manufacturing prior to licensing led to impacts to subsurface soil (> 2 ft deep) and groundwater on-site. Historical groundwater contamination has migrated beyond the Facility Boundary in three areas: the Monitoring Well 6178 Area (northeast of Facility), Monitoring Well 6175 Area (northeast of facilty) and Monitoring Well 6172 Area (west of Facility). Historic aerial releases from former combustion units impacted off-site soils and historic waste management prior to licensing led to impacts to surface water in the Tittabawassee River. Other releases are outlined below for the other WMUs and AOCs.	Interim measures have occured or are on-going as summarized below for each of the WMUs and AOCs. For the Facility SWMU, the following categories of corrective action are on-going: Site-Wide Containment, Worker Exposure Control Program, Monitoring Natural Attenuation, Long-term Reduction of Contaminant Mass, and Off-Site Corrective Actions. Site-wide containment includes the RGIS/Groundwater collection systems which collect shallow groundwater from the facility for treatment at the WWTP, preventing migration off-site. CAP's, covers and slurry walls for individual WMUs, as described below. CAMMPs as described below for individual WMUs. Extensive environmental monitoring program as described in Attachment XIV.B5 Environmental Monitoring Programs. A Soil and Groundwater Exposure Control program is in place, as described in Appendix D. Appendix C provides documentation submitted for a CAMU and approved one-time staging pile to enable effective and timely remedy. An LDR Variance is used to facilitate timely management of soils for Corrective Action projects. Corrective action by monitored natural attenuation is on-going for the Monitoring Well 6175 and 6178 areas. A Work Plan Addendum for the Monitoring Well 6175 Area was submitted December 21, 2011 for MDEQ review and approval to evaluate future contaminant transport in the area. Source removal was conducted in the Monitoring Well 6172 area in 2012, and post-remedy monitoring is being performed to evaluate that action in accordance with the Interim Response Activity Work Plan, submitted March 16, 2012 for MDEQ review and approval. For off-site corrective actions, the Midland Area Soils program is being conducted in accordance with the approved Interim Response Activity Plan Designed to Meet Criteria, submitted May 25, 2012 and approved by MDEQ June 1, 2012. Off-site floodplain soils, surface water and sediment characterization, evaluation, and remedy adjacent to the RCRA Facility are being performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942).	Operation, monitoring and maintenance activities are on-going for the facility. Implementation of approved IRDC Work Plan for the Midland Area Soils project and the AOC for off-site surface water, sediment, and floodplain soils.
2	Tertiary Pond Surface Impoundments	WMU Active Surface Impoundments	Active Surface Impoundments (Capacity) Pentagonal Pond - 7.5 acres (33,000,000 gallons) Rectangular Pond - 13 acres (50,000,000 gallons) Main Pond - 182 acres (700,000,000 gallons)	Leakage from the unit, defined as an increase above the Alternate Concentration Limits established in the 1988 Federal HSWA Permit were identified in the Spring of 1989.	Tertiary Pond Slurry Wall was installed to improve the stability of the dike between No. 6 Pond and the Rectangular and Pentagonal Ponds Tertiary Pond RGIS was installed to capture all groundwater leakage from the Tertiary Pond Surface Impoundments Tertiary Pond Shallow Purge Well (4293) was installed to capture seepage along the western margin of the Rectangular Pond Surface Impoundment	Active Surface Impoundments Operation, monitoring and maintenance activities are on-going for Tertiary Pond RGIS and Tertiary Pond Slurry wall. Shallow Purge Well 4293 has been decommissioned and on-going recovery monitoring is performed.
3	LEL Site I*	WMU	Located between 10th and 11th streets, G and J streets. A rail spur separates the site into two areas, north and south. Currently the north portion includes a truck parking lot and a vegetated storm water detention basin. The south portion is a vegetated storm water detention basin.	Former chlorinated phenolic compounds manufacturing area. Characterization of the site demonstrated elevated levels of 2,3,7,8-TCDD. In the north portion, the source is attributed to operations at the former tank farm where chlorinated phenols were historically produced (includes a shallow sump). In the southern portion, the source is attributed to demolition debris staged at the site from the former 2,4,5-trichlorophenol plant.	Based on the results of the site investigation, a slurry wall was constructed around the shallow sump on the northern portion of the site. Additionally, an asphalt cap was installed over a portion of the site (north) and the remainder of the northern portion and the entire southern portion was built into storm water detention basins. The site is located upgradient and shallow groundwater flows from northeast to southwest and is ultimately captured by RGIS.	Site was closed as a landfill and is subject to ongoing Operation, Monitoring and Maintenance. These activities include but are not limited to cap inspection, periodic hydraulic monitoring of the slurry wall, water level data, and hydraulic and chemical monitoring of the east side RGIS. See the LEL Site I CAMMP dated October 21, 2011 and the Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs for further details.
4	LEL Site II*	WMU	Site closed as a landfill in 1979 and the site is currently a vegetated cap that is mowed and maintained.	Former No. 2 Wastewater Pond for the equalization unit within the phenolic treatment process for chlorophenolic and chlorobenzene process wastewaters. A hydrogeologic study performed at the site concluded that the site may receive waters from and discharge waters to the surrounding environment (beyond existing slurry walls) which was likely related to the deeper sand lenses encountered in two areas and that significant infiltration was occurring through the existing clay cap.	Installed a slurry wall around the entire perimeter keyed into the natural, underlying clay and a vibrated beam slurry wall on two-sides where it was demonstrated that it was potentially insufficiently keyed into the clay layer, construction of a two-foot thick compacted clay cap, and the shallow groundwater is captured by RGIS.	Closed as a landfill in 1979 and is subject to ongoing Operation, Maintenance and Monitoring. These activities include but are not limited to cap and cap vegetation inspections, water level readings and routine maintenance of piezometers, and hydraulic and chemical monitoring of east side RGIS. See the LEL Site II CAMMP dated October 1, 2010 and the Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs for further details.

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
5	858 Building Area	AOC	Small area in the vicinity directly north and west of 858 Bldg and vertically confined in the surficial soils by the underlying clay between 12 and 15 feet.	Source material was discovered as a result of investigation of sewer infiltration in 1992-1993, not in response to a release. The specific source of release was not identified during the investigation.	A french drain and concrete collection sump were installed in 1994 in the area to recover free phase product.	Product recovery system - French Drain installed into the clay with a concrete collection sump. Product passively collects and a removal pump is operated manually to remove the accumulated product.
6	477 Building Area	AOC	Soil samples collected in 1983 and 1984 identified an area of high concentrations of 2,3,7,8-TCDD in the 477 Building area, which is located near 17th and G street at the Facility near the rail line.	Specific source of release is unknown. Release may be attributed to historical operations prior to licensing.	The 2,3,7,8-TCDD contaminated surface soil at the 477 Building area covered an area of approximately 800 square feet. Most of the immediately surrounding area was paved. Dow collected addditional samples of soil and then covered the 477 Building area with asphalt in October 1984.	Periodic inspections and maintenance, as needed.
7	DOS-20	AOC	2006 soil samples of site identified a location of atypically high dioxin TEQ near rail road tracks. An additional 9 soils samples were collected and used to define an area of approximately 1.5 acres in size that exhibited elevated concentrations at the surface. The area is bounded to the north by an active rail spur and formerly contained a portion of another rail spur. South of the area is bounded by an overhead pipe rack and concrete barriers.	Source of release is unknown.	The 1.5 acre area was stripped of the top approximately 6 inches of soil. It was then covered with both gravel, topsoil, and has been seeded.	Periodic inspections and re-grading, as needed.
8	Poseyville Landfill*	WMU	Currently a closed 88-acre landfill with a compacted clay cap. The cap is mowed and maintained.	Operated as a municipal landfill by the City of Midland beginning in 1940. Dow purchased the landfill and began operating it in 1955. Historical aerials indicate landfill operations proceeded from east to west. Landfill operations were discontinued January 5, 1981. Ongoing corrective action monitoring of the till sand strata has been occuring since the early 1980s.	Closure activities included the installation of a 1,500 foot long slurry wall keyed into the underlying clay and a leachate collection tile system installed around the perimeter of the landfill. The landfill has been capped, graded and a clay key placed around the site perimeter. Four purge wells were installed in the till sands to collect and prevent migration of the impacted groundwater. The impacted groundwater is piped to the WWTP for treatment and disposal.	Closed in as a landfill in 1981 and is subject to ongoing Operation, Maintenance and Monitoring. The till strata is hydraulically and chemically monitored on a periodic basis. The landfill cap and leachate system are routinely inspected. Corrective action monitoring is currently ongoing for the monitoring wells and four purge wells at the landfill. See the Poseyville Landfill CAMMP dated October 1, 2010 revised October 2011 and Attachment XIV.B5 Environmental Monitoring Programs for further details.
9	No. 6 Brine Pond (6-Pond)*	WMU	The 6-Pond is an inactive Brine Pond located on Dow property, bordered by the Tittabawassee River to the northeast, the Tertiary Pond (T-Pond) and Overlook Park to the south and Poseyville Road to the west. The pond was constructed on clayey soils of the south flood plain of the Tittabawassee River. Pond is presently used for storm water detention	Since the 1930s, the 6-Pond was used to contain accumulated spent brine until it could be re-injected back into the ground. The water level in the pond is typically above the shallow water table in the area and results in a mounding of the shallow water table directly beneath the pond. Shallow groundwater migration to the south is prevented by the presence of the T-Pond and slurry wall. This potential for "outward" shallow groundwater flow may have been responsible for historical chloride leakage from the pond. In response to the potential for 'outward' shallow groundwater flow, several corrective action measures were completed for the 6-Pond.	Installed sheet piling around the perimeter of the pond. Tiled groundwater collection system installed on the north, west and east sides of the pond and monitored for hydraulic and chemical parameters. A slurry wall was installed along the southern boundary of the 6-Pond between it and the T-Pond. Three purge wells were installed to contain or remediate the groundwater plume: two outside the western-central portion of the 6-Pond berm and one across Poseyville Road, further to the west.	The current water cap of the 6-Pond is maintained within working levels. The groundwater collection tile system is maintained and monitored routinely. Of the three purge wells, only one purge well is currently operational. One of the remaining two is dry, and the third purge well consistently demonstrated concentrations below relevant criteria. There are periodic inspections of the 6-Pond dike. 6 Pond Dike is a registered dam under Part 315 [Dam #2675]. Dam inspection and reporting by a licensed professional engineer occurs every 3 years.
10	Triangle Pond	AOC	The Triangle Pond is an approximately 10 acres located adjacent to the north/northeastern portion of the T-Pond, and is believed to have developed during construction of the T-Pond when what is believed to be an area of either magnesium salt or hydroxide deposits was visually identified and segregated where the Triangle Pond now exists. The Triangle Pond is currently capped by two feet of clay, covered with topsoil and grass.	The Triangle Pond was likely part of the T-Pond system constuction that occurred in 1974 and was designed to segregate an area of magnesium salt deposits that had been identified. The area was diked off from the larger T-Pond area using miscellaneous sand and clay fill material. There are no known releases from the Triangle Pond.	No further action at this time. Site-wide corrective actions include engineered groundwater controls preventing off-site migration. The Triangle Pond is contained within to the west-side RGIS.	Routine operation, maintenance and monitoring of the west-side RGIS is on-going.
11	Sludge Dewatering Facility	Closed WMU - Subject to Post-Closure Care	The Sludge Dewatering Facility was built in 1974 to perform treatment of plant sludge dewatering. It is located on a 37-acre site at the southeast corner of Salzburg and Saginaw Roads. The facility was comprised of seven cells, partitioned with compacted clay dikes.	No known release from the Sludge Dewatering Facility. Based on soil and groundwater sample analyses performed during the investigation prior to closure, the natural clay liner effectively served as a barrier preventing migration of hazardous contaminants from the impoundment. The July 1987 Closure Plan Submittal for the Sludge Dewatering Facility provides further details.	No interim measures have been performed at the Sludge Dewatering Facility. Closure as a landfill included a procedure to control hydraulic head and encapsulate and monitor the facility with the sludge in place. Individual french drain/collection tiles were installed for each containment cell. Each containment cell was capped with a composite system that includes vegetation, topsoil, sand drainage layer, high density polyethylene liner and compacted clay. The July 1987 Closure Plan Submittal for the Sludge Dewatering Facility provides further details.	No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements. Details regarding the current status of the Sludge Dewatering Facility are included in Attachment XIV.A11 Closure and Postclosure Care.

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
12	Chemical Disposal Well No. 2*	WMU	CD2 is located within the Facility SWMU, the chemical disposal wells were closed between 1979 and 1983. Historically, Dow used deep well injection to dispose of selected process wastes. The chemical disposal wells were closed between 1979 and 1983.	Closed Injection Well	No further actions at this time.	No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements
13	Chemical Disposal Well No. 3*	WMU	CD3 is located within the Facility SWMU on the west side of the facility along Poseyville Rd. The chemical disposal wells were closed between 1979 and 1983. Historically, Dow used deep well injection to dispose of selected process wastes. The chemical disposal wells were closed between 1979 and 1983.	Closed Injection Well. The potential for off-site flow from the area near CD3 to a storm water culvert was identified and a nearby monitor well demonstrated concentrations of chlorobenzene that exceeded MDEQ GSI criterion. Groundwater monitoring showed that the potential for off-site flow was periodic. Further characterization activites were completed and interim response activities were proposed and completed to address relevant exposure pathways.	An interim response activity was completed to eliminate risks due to groundwater and soil contamination for the on-site property (location of CD3), an adjacent Dow-owned property that is partially included within the Facility boundary and the land surrounding Poseyville Rd. These activities included the removal of storm sewers to eliminate the groundwater to surface water pathway; removal and disposal of 5,000 cubic yards of soil on the Dow East Property; and further groundwater analysis and evaluation to determine if the deep sand layer is impacted.	Additional monitoring and/or corrective action may be required.
14	Chemical Disposal Well No. 4 *	WMU	CD4is located within the Facility SWMU, the chemical disposal wells were closed between 1979 and 1983. Historically, Dow used deep well injection to dispose of selected process wastes. The chemical disposal wells were closed between 1979 and 1983.	Closed Injection Well	No further actions at this time.	No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements
15	Chemical Disposal Well No. 5*	WMU	CD5 is located within the Facility SWMU, the chemical disposal wells were closed between 1979 and 1983. Historically, Dow used deep well injection to dispose of selected process wastes. The chemical disposal wells were closed between 1979 and 1983. When this well was closed, some soils were excavated and disposed of. The excavations were backfilled with clay and covered with vegetation.	Closed Injection Well	No further actions at this time.	No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements
16	Chemical Disposal Well No. 8*	WMU	CD8 is located within the Facility SWMU, the chemical disposal wells were closed between 1979 and 1983. Historically, Dow used deep well injection to dispose of selected process wastes. The chemical disposal wells were closed between 1979 and 1983.	Closed Injection Well	No further actions at this time.	No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements
17	East-Side Powerhouse Cooling Pond	AOC	Located in the southeast quadrant of the facility, situated within a triangular area bordered approximately by the CSX railroad lines to the south/southwest, South Saginaw Road to the east, and L Street to the north. The surface of the former cooling pond footprint is covered by pavement, vacant lots, gravel parking lot or buildings, some vacant and inactive. Also includes the 858 Building Area.	Former cooling pond area was formerly utilized for a cooling or "sluice" pond, located just southeast of the former South Side Power House, as well as an ash settling pond. Both ponds were used as part of the East Side Powerhouse (a.k.a., South Side Powerhouse) operation. Prior to being used for energy production this area was developed and used late in the 1930s as part of a larger pond. Other than the area used for the powerhouse, the purpose of the rest of the AOC area is undetermined.	Site-wide corrective actions include the South Saginaw Road Tile, an engineered groundwater control preventing off-site migration; Regional Aquifer monitoring to address potential for vertical migration and impact to deep groundwater; and aerial extent of the former cooling pond footprint is almost entirely covered with asphalt or some other form of paving, gravel parking lot or buildings.	This area houses several active production or service facilities. O&M for the South Saginaw Road Tile is on-going. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides details on the on-going monitoring.

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
18	Former Ash Pond	AOC	The Ash Pond, retired in the 1980s, covers approximately 23 acres of the northwestern-most area of the facility. Bordered on the north by a county drainage ditch, on the east by the Tittabawassee River, to the south by "D" and "E" streets, and to the west by Poseyville Road. The Ash Pond area itself is essentially a large depression surrounded by an earthen berm. Since the 1980s, it has returned to a wetland state and is heavily vegetated with cattails, marsh grass, and willow, with some evidence of standing water.	The Ash Pond was likely constructed in the 1940s-1950s for use as a cooling pond for cooling water prior to discharge to the Tittabawassee River. Over time the Ash Pond accumulated coal ash and slag that accompanied the cooling water from the coal-fired boilers in the West Side Power House. Use of the Ash Pond likely ended when the Power House was closed in the early 1980s.	Groundwater samples from Monitoring Well 6165 have identified arsenic concentrations greater than the Generic MDEQ Groundwater Surface Water Interface (GSI) Criterion. Additional activities will be conducted to address the former Ash Pond.	On-going quarterly monitoring occurs along the river by the Ash Pond. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.
19	Diesel Tank Farm	AOC	This site is located on the west bank of the Tittabawassee River within the Facility, upstream of the dam.	Historically two fuel oil above-ground storage tanks were located in the area. The tanks provided fuel oil to a backup boiler located in Building 879. The historical operation of this above-ground storage tank system had the potential to have impacted the soil and groundwater. Soil and groundwater chemistry data indicated the presence of volatile and semivolatile organic compounds in the soil and shallow groundwater.	Completed further investigation of soils and shallow groundwater. Free product was found in several monitoring wells. Groundwater monitoring indicates various volatile organic hydrocarbons (including aromatic hydrocarbons), chlorinated solvents and their break down products, PNAs, chromium and lead are present in the shallow perched groundwater in low to trace concentrations. Concentrations of some constituents of concern exceed GSI criterion but not in wells at the GSI. The area is included in the Environmental Monitoring Program.	Controls have been installed to minimize potential migration. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.
20	Old Outfall	AOC	The Old Outfall Area is located to the southeast of the Dow WWTP along the Tittabawassee River, adjacent to the Sand Bar.	A small area of elevated chlorinated benzenes (Soil Boring 5625) were discovered during the 1997 RGIS Upgrade adjacent to the Old Outfall.	Interim measures for the area of Soil Boring 5625 included the construction of a new steel sheet piling wall along the edge of the existing sand bar and the river. The wall is approximately 1,750 feet long with the sheet piling positioned 5-15' inland of the river's edge. The sand bar was reshaped to eliminate ponding and allow water to drain over the top of the new sheet piling. No new fill material was brough in and no excavated material was removed from the site. Additionally, a groundwater removal system (horizontal well) was installed to the depth of the clay till in the Sand Bar and connected to RGIS Lift Station #7, which has adequate capacity to allow for the addition of the water.	Controls have been installed to minimize potential migration. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.
21	10th Street Abandoned Underground Utilities Area	AOC	This area is located along 10th Street in a small section of abandoned underground utilities.	Source of release is unknown. Small area discovered during underground utility abandonment in the early 1980s. Observations indicate greater than 1/8" thickness of product which is described in a manner consistent with chlorinated phenol tar.	Excavated soils were disposed of at the time of excavation. This area is located upgradient of RGIS.	This area is addressed through the ongoing hydraulic and chemical monitoring of the east side RGIS. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.
22	Historical Manufacturing Areas	AOC	Historic chemical manufacturing areas are located on the G and H street blocks of 10th, 11th and 12th streets. This includes former manufacturing sites of chlorinated benzenes, oxides and phenols.	The specific source of release is unknown, however, it is likely related to manufacturing practices prior to licensing. Evidence of NAPL in an area of the surface fill observed from a test pit area east of the 11th Street and south of G Street, just north of the railroad tracks. An investigation was completed that included the advancement of 18 soil borings and the completion of 32 monitoring wells. The investigation identified several areas of elevated concentrations. Various chlorinated benzenes were identified as the constituents of concern.	As an interim measure, source control activities are ongoing to remove free product.	These areas are addressed through the ongoing hydraulic and chemical monitoring of the east side RGIS. Source control activities are ongoing with the manual removal of free product from roughly 6 wells in the area. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
23	**1925 Landfill***	WMU	The 1925 Landfill is included within the Facility SWMU. The Closed Diversion Basin and Open Wastewater Conduits, 703 Incinerator, 830 Incinerator, Waste Storage Area IIA, Waste Storage Area IIB, and LEL Site III all fall within the footprint of the 1925 Landfill.	Area of Closed Landfills and Surface Impoundments Closed with Waste in Place.	Clay cap, RGIS, and leachate removal system (8-Pond) (refer to the CAMMP).	Post-closure maintenance is performed in accordance with the October 1, 2012 CAMMP for the 1925 Landfill. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.
24	Waste Storage Area I (1143 Building)	WMU Active Container Storage	Active Storage Area for Packs, Tanker Trucks, Isotainers, Roll-on/Roll-off Transport Boxes, etc. with a total storage design capacity of 443, 685 gallons	No known releases.	Not Applicable.	Active Container Storage Area No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements
25	32 Pack Room	WMU Active Container Storage	Active Storage Area for Packs and Drums, with design capacity of 133,250 gallons	No known releases.	Not Applicable.	Active Container Storage Area
26	830 Pack Room (Overflow from 32 Pack Room)	WMU Active Container Storage	Active Storage Area for Packs and Drums with design capacity of 125,000 gallons, of which no more than 100,000 gallons may be liquid waste	No known releases.	Not Applicable.	Active Container Storage Area
27	32 Incinerator Offload/Storage Spots	WMU Active Container Storage	Active Container Storage with Design Capacity listed below <u>Dempsters Offload/Storage</u> LS-2010 (Spot 1) - 750 gallons LS-2020 (Spot 2) - 750 gallons <u>Dinos Offload/Storage</u> LS-2030 (Spot 3) - 2,500 gallons LS-2040 (Spot 4) - 2,500 gallons <u>Tanker Trucks/Isotainers Offload/Storage</u> LS-2050 (Spot 5) - 7,000 gallons LS-2060 (Spot 6) - 7,000 gallons LS-2070 (Spot 7) - 7,000 gallons LS-2080 (Spot 8) - 7,000 gallons LS-2090 (Spot 9) - 7,000 gallons LS-2100 (Spot 10) - 7,000 gallons	No known releases.	Not Applicable.	Active Container Storage Area
28	703 Tank Farm Offload/Storage Spots	WMU Active Container Storage	Active Container Storage with Design Capacity listed below <u>Dempsters Offload/Storage</u> LS-1202/2E (703 Spot 2) - 750 gallons <u>Dinos Offload/Storage</u> LS-1203/3E (703 Spot 3) - 2,500 gallons <u>Tanker Trucks/Isotainers Offload/Storage</u> SS-5E# (703 Spot 5) - 7,000 gallons SS-6E# (703 Spot 6) - 7,000 gallons SS-7E# (703 Spot 7) - 6,000 gallons SS-8E# (703 Spot 8) - 6,000 gallons LS-1213# (703 Spot 13) - 7,000 gallons LS-1214# (703 Spot 14) - 7,000 gallons LS-101/4E# (703 Spot 4) - 7,000 gallons	No known releases.	Not Applicable.	Active Container Storage Area
29	Rail Car Offloading to 32 Incinerator and Transferring Materials to/from Containers in 703 Tank Farm Spots Marked with a (#)	WMU Active Container Storage	<u>Rail Cars</u> LS-1215 (703 Spot 15) LS-1216 (703 Spot 16) Total Storage Design Capacity of 38,000 gallons	No known releases.	Not Applicable.	Active Container Storage Area
30	1163 Building	WMU Active Storage / Treatment Tank	Active Tank with Storage/Treatment Design Capacity: 1,800 cubic yards or 360,000 gallons 1,950 cubic yards/day or 400,000 gallons/day	No known releases.	Not Applicable.	Active Storage/Treatment Tank

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
31	33 Building	WMU Active Storage / Treatment Tank	Active Tank with Storage/Treatment Design Capacity: 900 cubic yards or 181,800 gallons 1,950 cubic yards/day or 400,000 gallons/day	No known releases.	Not Applicable.	Active Storage/Treatment Tank
32	703 Tank Farm Storage Tank Systems	WMU Active Storage Tanks	Active Storage Tanks (Storage Design Capacity): V-101 (10,150 gallons) V-301 (18,700 gallons) V-302 (18,700 gallons) V-303 (18,700 gallons) V-401 (18,700 gallons) V-402 (15,900 gallons) V-403 (18,700 gallons) V-404 (18,700 gallons) V-601 (7,000 gallons) V-701 (7,000 gallons)	No known releases.	Not Applicable.	Active Storage/Treatment Tank
33	Chemical Disposal Well No. 1	WMU	CD4is located within the Facility SWMU, the chemical disposal wells were closed between 1979 and 1983. Historically, Dow used deep well injection to dispose of selected process wastes. The chemical disposal wells were closed between 1979 and 1983.	Closed Injection Well	No further actions at this time.	No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements
34	Closed Diversion Basin and Open Wastewater Conduits	Closed WMU (Includes Diversion Basin (closed March 8, 1989), Open Wastewater Conduits (closed December 27, 1988), including Conduits A, B, C-1, C-2, C-3.	The Closed Diversion Basin and Open Wastewater Conduits were the former primary wastewater conveyance of the Facility waste water to the WWTP. The The Closed Diversion Basin managed untreated wastewater, which was temporarily diverted from the wastewater treatment plant. It also functioned as a surge pond, holding surface runoff collected from the manufacturing complex, and as an equialization pond. The closure of the diversion basin and the open wastewater conduits was certified by an independent registered professional engineer on December 27, 1988 and March 8, 1989, respectively.	Any releases to the Closed Diversion Basin and Open Wastewater Conduits would have occurred during the active live of the units by carrying facility untreated wastewater to the WWTP.	During closure activities, removed and disposed of waste, created vegetative cover and stone asphalt cover, and constructed drainage swales to divert stormwater. Attachment XIV.A11 provides the Closure and Postclosure Plans for this WMU. This area has been the location of the Reach D Containment area has been an authorized staging pile. Most recently, in accordance with R 299.9635, Dow has requested approval under Operating Permit Condition IX.C.5 for the post-closure use of the former Diversion Basin hazardous waste management unit for operation of a storage and treatment CAMU. The CAMU is proposed in addition to the Staging Pile that was previously approved by the MDEQ in accordance with License Part XI.U "Designation of Staging Pile" and Attachment 30 "Staging Pile Designation with Design Information", added September 30, 2009.	Post-closure maintenance is performed in accordance with the October 1, 2012 CAMMP for the 1925 Landfill. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details. Attachment XIV.A11 Closure and Postclosure Plans provides further information on this WMU.
35	Corrective Action Management Units (CAMUs)	WMU Designated CAMU	Designated CAMUs (Associated Storage Design Capacity) CAMU #1 and #2 - (26,500 cubic yards CAMU-eligible waste) CAMU #3 - (1,000,000 gallons CAMU-eligible waste liquids or other contaminated or noncontaminated runoff)	No releasess from the CAMUs.	Not Applicable.	Designated CAMU
36	703 Incinerator	Closed WMU - Closed as a Landfill, with 1925 Landfill CAMMP fulfilling Postclosure Care	703 Incinerator has been closed since 2003. It was demolished and the former location of the incinerator is now currently a vacant vegetated slope. It is located within the footprint of the former 1925 Landfill.	The 703 Incinerator operated until 2003 when it was replaced by the new 32 Building rotary kiln incinerator. There are no known releases from 830 Incinerator.	No further action at this time.	No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements. Post-closure maintenance is performed in accordance with the October 1, 2012 CAMMP for the 1925 Landfill. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
37	830 Incinerator	Closed WMU - Closed as a Landfill, with 1925 Landfill CAMMP fulfilling Postclosure Care	830 Incinerator has been closed since 2003. It was decommissioned and the former location of the incinerator is now currently a vacant paved area. It is located within the footprint of the former 1925 Landfill.	The 830 Incinerator was operating from 1990 until 2003 when it was replaced by the new 32 Building rotary kiln incinerator. There are no known releases from 830 Incinerator.	No further action at this time.	No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements. Post-closure maintenance is performed in accordance with the October 1, 2012 CAMMP for the 1925 Landfill. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.
37	Waste Storage Area IIA	Closed WMU - Closed as a Landfill, with 1925 Landfill CAMMP fulfilling Postclosure Care	Closed former waste storage area (closure date is September 9, 2009). Located at the northwest end of former 1925 Landfill, south of J Street. As part of closure process, the three plastic, 3,000-gallon leachate storage tanks were decontaminated and prepared for reuse. The area was brought to grade and was covered with clean fill and gravel.	No known releases from Waste Storage Area IIA.	No further actions at this time.	No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements. Post-closure maintenance is performed in accordance with the October 1, 2012 CAMMP for the 1925 Landfill. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.
39	Waste Storage Area IIB	Closed WMU - Closed as a Landfill, with 1925 Landfill CAMMP fulfilling Postclosure Care	The former waste storage area was closed on September 30, 2011. It is located at the northwest end of former 1925 Landfill, south of J Street.	No known releases from Waste Storage Area IIA.	No further actions at this time.	No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements. Post-closure maintenance is performed in accordance with the October 1, 2012 CAMMP for the 1925 Landfill. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.
40	29 Building	WMU Active Waste Water Treatment Unit Exempt Tank	Hazardous waste tank built to manage pressed T-Pond biosolids that were dredged. Solids were loaded in this building and transported to the landfill. Tank was licensed in 2003, but was never used as a licensed Hazardous Waste Storage Tank. The status was changed to Waste Water Treatment Unit Exempt on March 20, 2012.	No releases from the 29 Building.	No further actions at this time.	Active Tank used for waste water management only and is Waste Water Treatment Unit Exempt under RCRA pursuant to 40 CFR §264.1(g)(6) and 265.1(c)(10). Post-closure maintenance is performed in accordance with the October 1, 2012 CAMMP for the 1925 Landfill. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details. No required corrective action at this time, other than ongoing site-wide environmental monitoring requirements.
41	NPDES Permitted Waste Water Treatment Plant	Active Waste Water Treatment Unit Exempt Units	Dow Michigan Operations Wastewater Treatment Plant (WWTP) consists of sumps, clarifiers, sewers, bio reactors, tanks, piping, fittings, flanges, valves, and pumps to pre-treat, treat, convey, distribute, meter, or control wastewater using the following unit operations: • Pretreatment • Equalization • Primary Treatment • Secondary Treatment • Digestion • Solids Dewatering • Tertiary Treatment • Diversion Storage	No releases from the Michigan Operations WWTP	No further actions at this time.	Active units of the Michigan Operations WWTP (other than the tertiary pond system) are considered wastewater treatment units, as defined in 40 CFR 260.10 and are exempt from Parts 264, 265 and 270 of the Resource Conservation and Recovery Act (RCRA). Therefore, wastewater treatment units are exempt from tank standards (Parts 264 and 265, Subpart J), fugitive emissions regulations (Parts 264 and 265, Subparts BB and CC) and permitting (Part 270), as given in 40 CFR 264.1(g)(6), 40 CFR 265.1(c)(10) and 40 CFR 270.1(a)(2)(v). This exemption includes all sumps, clarifiers, sewers, bio reactors, tanks, piping, fittings, flanges, valves, and pumps between the production facilities and the WWTP used to pre-treat, convey, distribute, meter, or control wastewater. Also included in the RCRA exemption are any on site storm water collection tanks, which are used to capture and store storm water that will be discharged to the WWTP in a controlled manner with no pre-treatment occurring in the collection tank.

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
42	Baker's Pond	AOC	Vacant grassy area with a chain link fence surrounding the site. Former wastewater pond that was filled in.	Area of former wastwater treatment pond closed with waste in place. Waste includes research waste containing radioactive isotopes: C-14, Sr-90 and uranium.	Former pond was filled, graded and a 14" clay cap was constructed over the area. A chain link fence was installed to minimize use of the area. Area has been released for unresetricted use under Title 10, Part 20, Subpart E.	Site is mowed and inspected as part of the 1925 Landfill CAMMP.
43	LEL Site III	WMU - Closed as a Landfill	After 1986, the general sewer, including LEL III, was converted from an open conduit to a closed 48-inch polyethylene pipe system. In 2012, the in-ground sewer system was replaced with an above-ground sewer system. Construction of on-site storm water detention areas including some cap enhancements to some areas of LEL III has been completed and approved by MDEQ.	Site was part of the general sewer which, prior to 1986, was an open conduit that served as a collection conduit for all the individual sewers for the on-site WWTP. Investigation identified LEL III as the source of organic material composed primarily of dipheyl oxide and lower chlorinated benzenes entering the WWTP. Prior to the corrective actions completed for LEL III, materials were observed to be seeping into the general open conduit sewer. As recently as 2010 (Dow, 2010) evidence has suggested on-going seepage into the 48-inch polyethylene pipe system replacing the former conduit. Additional corrective actions have been completed to address these findings.	Corrective actions completed for LEL III include the installation of a slurry wall system which was connected to existing containment features and keyed into underlying clay, construction of detention basins, localized enhancements to portions of the LEL III cap and surrounding areas through installation of HDPE liners where detention ponds were constructed. The open conduit system was converted to a 48-inch polyethylene pipe system. In 2012, the ground sewer system was replaced with an above-ground sewer system. Additionally, the site is located upgradient of the east side RGIS. A multi-well DNAPL recovery system began operations in 2014.	Closed as a landfill in 1988 and is subject to ongoing Operation, Maintenance and Monitoring in accordance with the LEL Site III CAMMP dated October 1, 2010. As a source control measure, a NAPL recovery system is planned to begin operations in 2013 at this site. Attachment XIV.A11 Closure and Postclosure Plans provides further details on this WMU. Attachment XIV.B5 Environmental Monitoring Programs provides information on the monitoring for this area.

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
	Other AOCs		Not included in the Facility SWMU			
44	US 10 Tank Farm**	AOC	The US-10 Tank Farm is an active tank farm that stores styrene. The tank farm is located directly to the east of and outside of the Dow's Michigan Operations facility.	In July 1986, a styrene storage tank (T-3) overflowed and spilled a total of 13,000 gallons of styrene monomer into a diked area that, at that time, had an earthen bottom. Immediate spill response activities included covering the spill with foam to minimize the potential for fire and reduce the level of fumes; water was added to float the styrene and minimize contact with the soil. All free liquid in the dike was pumped into tank trailers within 15 hours of the spill. Several days after the spill, styrene-impacted soils were identified and a temporary French drain was installed around tank T-3, which further recovered styrene.	A tiled groundwater collection system was installed around the property. Additionally, a permanent French drain was installed to replace the temporary French drain initially installed around T-3 immediately following the spill.	Perimeter tiled groundwater collection system and French drain tile system is operated and maintained to remove groundwater. Quarterly monitoring of the forwarding sump is ongoing. The Facility Sampling and Analysis Plan in Attachment XIV.B5 Environmental Monitoring Programs provides further details.
45	Chemical Disposal Well No. 9	WMU	CD9, closed in 1979, is not located within the Facility boundary, nor is it contiguous to the Facility.	Closed Injection Well	No further actions at this time.	No further action is required.
46	Pure Oil Site**	AOC	Located in the south half of Section 20 in Midland County between Poseyville and Patterson roads north of Dow's closed Poseyville Landfill, and covers approximately 8 acres. The site is now a flat vacant lot.	The site was formerly owned and operated as a refinery by the Pure Oil Company from 1936-1955, when the property was purchased by Dow. Upon acquisition, Dow used the site as a storage facility for hydrocarbons and Dow products, including crude oil (used in manufacturing processes), fuel oil, glycol ether (Dowanol TEH), propylene dichloride (PDC), and calcium chloride. The former tank farm was closed in the late 1970s and the tanks were removed. Also in the 1970s, visual observations of soil obtained from borings indicated migration of petroleum hydrocarbons through the shallow sand beneath the diked area. Various activities in the 1980s and 1990s revealed additional impacts to soils leading to the excavation, removal and disposal of impacted soils.	Corrective actions conducted at the Pure Oil Site include excavation and disposal of impacted soils. In 1986, a total of 12,021 cubic yards of material was removed and disposed of at Salzburg Landfill. In 1989, landfarming was initiated for an additional 117,200 cubic yards of hydrocarbon-impacted soils. In 1991, Dow excavated and disposed of approximately 5,000 cubic yards of PDC-impacted soils. Clean overburden was stripped back and stockpiled, impacted soils were excavated and clean soils were replaced in and over the excavaion and regraded. Contaminated soil was transported to the Salzburg Landfill.	There are no on-going corrective actions, monitoring or maintenance performed at the Pure Oil site.
47	Pure Oil Site - Former Fuel Pipeline**	AOC	Located between the former Pure Oil Refinery, extending eastward into the Midland Plant, running north of F street.	Excavation adjacent to the former pipeline was performed in 2012. Contamination adjacent to the pipeline was detected from soil samples collected adjacent to the pipeline in 2011. The release occured as a result of failure of pipeline integrity. Residual product was observed in the line during a partial removal in 2012 within the Poseyville Road right-of-way.	Corrective action included excavation and removal of the portion of the pipeline and surrounding soils within the Poseyville Road right-of-way in 2012.	There are no on-going corrective actions, monitoring or maintenance performed at the Pure Oil site.
48	Overlook Park**	AOC	Overlook Park is an observation hill constructed between 1973 and 1975. Located on the east side of Poseyville Road between East Miller Road and East Venture Drive. The park is privately owned and is situated on a 15.4-acre parcel.	Soils excavated during the construction of the Dow tertiary wastewater treatment pond (T-Pond) were deposited on the site to construct the observation hill, raising the grade to over 30 feet above natural elevation. A brine spill of 10,000 to 15,000 gallons was reported on April 8, 1980 from well 13S. A geophysical investigation indicated that brine-impacted soils appear to be present throughout a major portion of the Park. The investigation also indicated impacted soils are present in both native soils and the soils used to construct the observation hill and estimates concentrations as high as 10,000 ppm chloride may be present in a sand lens at the base of the observation hill. Additionally, groundwater concentrations exceeding the Generic Residential Drinking Water Criteria for iron, zinc, calcium, manganese, and chloride were detected in the 6158 cluster well located at Overlook Park. Groundwater samples collected downgradient of the 6158 cluster were below the Generic Residential Drinking Water Criteria; however, iron and manganese were detected above the Aesthetic Drinking Water Criteria.	Tiled groundwater collection systems are in place on and adjacent to the park. The groundwater from these systems is pumped to the Dow wastewater treatment facility for management. As part of the H-1 Till Sand investigation, Dow collected groundwater samples from the residential wells screened in the Till Sand along Freeman Drive. The analytical data were comparable to water quality found in the regional aquifer. Dow has also initiated a groundwater monitoring program for the till Sand in the vicinity of the Park.	On-going operation, maintenance and monitoring of the tiled groundwater collection system and the Till Sand groundwater monitoring program will be continued. A groundwater monitoring program and point of compliance for Overlook Park need to be established.

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
49	Brine Site 4M (MDEQ Site GIII-26)**	AOC	Brine Site 4M is located on Dow property to the southeast of the intersection of Bay City and Saginaw Roads. The site is divided into three sections, 4M is located to the west of the Lingle drain, 4M East is located to the east of Lingle drain, and 4M North is located north of 4M and 4M East on the north side of the railroad tracks. The surrounding property is industrial to the south, west and east and residential to the north. The surface water bodies proximal to the site include the Lingle Drain running through the site from the northwest to the southeast and a drainage ditch coming from the north which drains into the Lingle Drain.	A 1986 report documents the results of a EM31 electromagnetic (EM) conductivity survey performed of the 4M Brine Site and the results revealed a chloride plume at the 4M site with the majority of the chloride located below the 5-ft depth near the former 4M brine well. Six purge wells were installed and upon approval of the proposed remediation plan, a tile system ws installed and documented in a September 12, 1988 report. In 2011, an additional investigation was performed of the site including another EM survey, and soil and groundwater sampling. Based on the results, the site was added to the Brine System Quarterly Groundwater Monitoring Program.	Added to Brine System Quarterly Groundwater Monitoring Program.	Ongoing Groundwater Monitoring is being performed.
50	Brine Site 32S (MDEQ Site GIV-17)**	AOC	Brine Site 32S is located on Dow property to the west of Poseyville road, north of the intersection of Poseyville and Gordonville Roads. The surrounding property is industrial to the south, and east; woodland and residential to the east; a park to the northwest; and baseball fields to the north. A few small ponds are located in the area surrounding the 32S well.	A 1988 report documents the findings of an EM survey conducted at the site that revealed a chloride plume having a vertical extent with the highest chloride values from 0 to 10 feet and decreasing chloride concentrations below 10 feet. Horizontally, the chloride plume consisted of two major lobes. The southern lobe originated at the 32S well site and trended to the east where it terminated and to the north where it turns into the norther lobe which centered immediately to the west of two brine storage tanks. In 2011, an additional investigation was performed of the site including another EM survey, and soil and groundwater sampling. Based on the results, the site was added to the Brine System Quarterly Groundwater Monitoring Program.	Added to Brine System Quarterly Groundwater Monitoring Program.	Ongoing Groundwater Monitoring is being performed.
51	Brine Site 13S (MDEQ Site GIII-27)**	AOC	Brine Site 13S is located on both Dow property and private property. The 13S brine well was located directly east of the intersection of Poseyville and Ashby road. The 13S remediation area includes the 13S well site, a section of property slightly north of the 13S well site and property to the east and west of Poseyville Road to the north. The surrounding property is industrial to the east; a park to the southeast; commercial and residential to the west; and industrial to the northwest. The surface water bodies near the site are the industrial ponds to the east.	A 1988 report documents the findings of an EM survey conducted at the site that revealed strong chloride anomalies at Overlook Park, near the 13S wells site and to the west across Poseyville Road in a low swampy area. A strong linear anomaly exists to the north along Poseyville Road spanning the area between the No. 6 Brine Pond and Poseyville Road. The 1988 report states that it is likely that most of the brine impact originated from three likely sources, the No. 6 Brine Pond, the soils used to construct Overlook Park, and partially from the operation of the 13S brine well. A deep tiling system was installed leading from Overlook Park and along Poseyville Road to intercept brine impacted water from the Overlook Park soils, the 13S well site, and the No. 6 Brine Pond. In 2011, an additional investigation was performed of the site including another EM survey, and soil and groundwater sampling. Due to the fact that the 13S well site lies between the No. 6 Brine Pond and Overlook Park it is believed that Brine Site 13S contributed little to the overall brine impact in the area. Soil conductivity values, groundwater chloride concentrations, and soil chloride concentrations are highest at Overlook Park and adjacent to the No. 6 Brine Pond. Based on the results, the site was added to the Brine System Quarterly Groundwater Monitoring Program.	Collection tiles were installed in 1988. Added to Brine System Quarterly Groundwater Monitoring Program.	Ongoing Groundwater Monitoring is being performed.
52	6 Pond Purge Wells**	AOC	This is a sand lends that extends from the Facility to a property West of Poseyville road.	Seepage of groundwater with diluted brines is suspected to have seeped from No. 6 Brine Pond into the groundwater adjacent to the WMU.	3 purge wells were installed to contain or remediate the groundwater plume. The purge water discharges to No. 6 Brine Pond.	Of the three purge wells, one runs continuously. One of the remaining two is dry and the other consistently demonstrated concentrations that were below relevent criteria.

Table B2-1
Summary of Potential or Actual Sources of Contamination

WMU / AOC Number	Unit	WMU or AOC	Unit Characteristics (What unit is like today)	History of Release (includes brief site history & release/source description)	Interim Measures	Status
	River Corrective Action Areas included in Administrative Settlement Agreement and Order on Consent (US EPA Region 5, CERCLA Docket no. V-W-10-942)					
53	Reach B Area	AOC	Area consists of both an upland area (Former 47 Building) and a sediment area within the Tittabawassee River adjacent to the Main Plant with elevated dioxin and furan concentrations with co-located organic compounds. (Reach B).	Area was initially identified during river segment characterization in Reach B. Additional work was performed based on identification of contaminated debris during bank restoration.	In 2007 work as an IRA under the License was conducted at Reach B to remove about 19,260 cubic yards (cy) of soil and debris from the river bank where demolition material was identified and the bank was rebuilt. The debris was composed ofconcrete chlorine cell debris that was found to contain high concentrations of dioxins and furans. In 2009, additional removal was conducted in the Reach B river channel and an engineered sub-aqueous cap was constructed to contain any remaining debris and associated contaminated sediment.	Corrective actions are being performed in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigations, Feasibility Study and/or Engineering Evaluation and Cost Analysis and Response Design (US EPA Region 5, CERCLA Docket no. V-W-10-942)
54	Reach D Area	AOC	Sediment area within the Tittabawassee River adjacent to the Main Plant with elevated dioxin and furan concentrations with co-located organic compounds.	Area was discovered during river segment characterization in Reach D.	On July 12,2007 U.S. EPA and Dow entered into an AOC under the authority of Sections 104, 106(a), 107, and 122 ofCERCLAto conduct a time-critical removal action within the Reach D ofthe Tittabawassee River. Reach D was the location ofa historic water discharge flume that was once connected to an outfall at the Dow plant. Reach D sampling identified elevated concentrations of dioxins, furans and other contaminants. The work required under the AOC resulted in about 19,000 cy of impacted river sediment to be removed by dredging and properly disposed. In 2008, work at Reach D continued as an IRA under the License to construct an engineered subaqueous cap within the removal area over residual contamination. In 2009, an area ofdisturbed sediment was identified within the river channel caused by the temporary sheet piling installed during the sediment removal work. Monitored natural recovery was implemented and continues to be monitored for this area.	
55	Sediment Management Area (SMA) 1-1	AOC	Sediment area within the Tittabawassee River adjacent to the Main Plant	Area was discovered during river segment characterization.	Additional characterization completed. Based on results of sampling, no additional actions needed.	
56	SMA 1-2	AOC	Sediment area within the Tittabawassee River adjacent to the Main Plant	Area was discovered during river segment characterization.	An in-situ containment system consisting of a low permeability cap and sheet pile around sediments was constructed. Recoverable DNAPL was treated.	
57	SMA 1-3	AOC	Sediment area within the Tittabawassee River adjacent to the Main Plant	Area was discovered during river segment characterization.	An in-situ containment system consisting ofa low penneability cap and sheet pile around sediments was constructed. Recoverable DNAPL was treated.	
58	SMA 1-4	AOC	Sediment area within the Tittabawassee River adjacent to the Main Plant	Area was discovered during river segment characterization.	An in-situ geo-web was constructed over the sediments placed to facilitate accumulation of natural capping material to provide long term isolation and/or stabilization of underlying sediments.	
59	SMA 1-5	AOC	Sediment area within the Tittabawassee River adjacent to the Main Plant	Area was discovered during river segment characterization.	An in-situ containment cap composed of clean material was constructed over the sediments placed to provide long term isolation and/or stabilization of underlying sediments.	
60	SMA 1-6	AOC	Sediment area within the Tittabawassee River adjacent to the Main Plant	Area was discovered during river segment characterization.	Sub-divided into three sections, SMA 1-6U, SMA 1-6M, SMA 1-6L. For SMAs 1-6U and L, an in-situ containment system consisting of a low penneability cap and sheet pile around sediments was constructed. DNAPL recovered and treated from SMA 1-6U and L. For SMA 1-6M, an in-situ containment cap composed of clean material was constructed over the sediments placed to provide long tenn isolation and/or stabilization of underlying sediments.	

NOTES:
Those WMUs that were identified as SWMUs in the September 30, 1988 U.S. EPA, Region 5, Hazardous and Solid Waste Amendments (HSWA) Permit are marked with an asterisk (*)
Those AOCs that are not located within the Facility SWMU are marked with a double asterisk (**)

Table B2-1
Summary of Potential or Actual Sources of Contamination

Facility SWMU		
Irregularly shaped 1,900-acre site-wide waste management unit, with maximum dimensions of 11,000 ft x 18,500 ft; also contains the sub-units listed below:		
Unit	**Description**	**Dimensions**
LEL Site I (northern area)	source area vibrated beam slurry wall	470 ft x 24 ft
	LLDPE liner over source area	490 ft x 44 ft
	LLDPE-lined stormwater detension area	350 ft x 100 ft
	asphalt paved parking	330 ft x 300 ft
	irregularly shaped area of clean topsoil and vegegative cover	290 ft x 400 ft
LEL Site I (southern area)	clean topsoil and vegetative cover used as a stormwater detention area	530 ft x 430 ft
	L- shaped area in the southwest corner beneath the topsoil where asphalt cap remains in place	675 ft x 200 ft
LEL Site II	Irregularly shaped HDPE liner with clean soil and vegetative cover	1,880 ft x 550 ft
	bentonite slurry wall	4,580 ft
	southwest vibrated beam slurry wall	790 ft
	northeast vibrated beam slurry wall	325 ft
477 Building Area	asphalt pavement cap	20 ft x 60 ft
DOS-20	clean topsoil and vegetative cover	540 ft x 100 ft
Poseyville Landfill	compacted clay cap, clean topsoil and vegetative cover with leachate collection tile and three pumping stations	4,700 ft x 850 ft
	northeast corner slurry wall	1,780 ft
No. 6 Brine Pond	pond formerly used for brine storage consisting of one main pond and four ancillary ponds, surrounded by french drain, groundwater collection tile and three pumping stations	2,050 ft x 3,050 ft
Triangle Pond	Triangularly-shaped former pond capped by compacted clay cap, clean topsoil and vegetative cover	1,100 ft x 1,200 ft
Sludge Dewatering Facility	Irregularly shaped unit consisting of eight closed cells, capped with HDPE geomembrane, sand drainage layer, clean topsoil and vegetative cover. Each cell has an independent leachate collection system gravity draining to a central pumping station	1,200 ft x 1,200 ft
Chemical Disposal Well 2	closed chemical disposal well	Not Applicable
Chemical Disposal Well 3	closed chemical disposal well	Not Applicable
	northern source removal excavation with clean backfill	70 ft x 130 ft
	southern source removal excavation with clean backfill	55 ft x 60 ft
	pipeline corridor source removal excavation with clean backfill	20 ft x 380 ft
Chemical Disposal Well 4 CD	closed chemical disposal well	Not Applicable
Chemical Disposal Well No. 5	closed chemical disposal well	Not Applicable
Chemical Disposal Well No. 8	closed chemical disposal well	Not Applicable
East-Side Powerhouse Cooling Pond	Irregularly shaped, reclaimed unit formerly consisting of a number of sub-ponds	2,000 ft x 2,000 ft
	french drain, groundwater collection tile and pumping station (SSRT)	2,240 ft
Ash Pond	Irregularly shaped, partially reclaimed unit	1,500 ft x 2,100 ft
Diesel Tank Farm	Demolished fuel tanks, secondary containment and ancillary piping to package boiler	70 ft x 140 ft
Old Outfall	lateral containment steel sheet piling wall	3,575 ft
	horizontal well and pumping station	850 ft
Historical Manufacturing Areas	portion of the main plant facility containing a number of former chemical manufacturing plants and storage tank farms	1,560 ft x 1,650 ft

1925 Landfill		
Irregularly shaped closed waste management unit, with maximum dimensions of 1,200 ft x 8,100 ft; also contains the sub-units listed below:		
Unit	**Description**	**Dimensions**
Diversion Basin	compacted clay cap, with clean topsoil and vegetative cover	1,050 ft x 475 ft
	Asphalt CAMU Containment Unit 1 (CU-1)	250 ft x 550 ft
	Asphalt CAMU Containment Unit 2 (CU-2)	140 ft x 150 ft
	Asphalt CAMU Containment Unit 3 (CU-3)	225 ft x 225 ft
Open Wastewater Conduit A Upper General Influent Conduit	compacted clay cap, with clean topsoil and vegetative cover	60 ft x 450 ft (east) 60 ft x 1,470 ft (west)
Open Wastewater Conduit B Phenolic Treatment System Influent Wastewater Conduit	compacted clay cap, with clean topsoil and vegetative cover	60 ft x 1,800 ft
Open Wastewater Conduit C-1 Lower General Influent Wastewater Conduit	compacted clay cap, with clean topsoil and vegetative cover	30 ft x 175 ft 30 ft x 1,030 ft
Open Wastewater Conduit C-2 Primary Wastewater Diversion Conduit	compacted clay cap, with clean topsoil and vegetative cover	60 ft x 1,500 ft
Open Wastewater Conduit C-3 Secondary Treated Wastewater Conduit	compacted clay cap, with clean topsoil and vegetative cover	60 ft x 420 ft
703 Incinerator	Somewhat irregular area covered with clean topsoil and vegetative cover	260 ft x 170 ft
830 Incinerator	irregularly shaped area with concrete and asphalt pavement	170 ft x 80 ft
Waste Storage Area IIA	demolished storage tanks and secondary containment	200 ft x 90 ft
Waste Storage Area IIB	demolished storage tanks and secondary containment	175 ft x 90 ft
29 Building	Steel building and concrete slab	70 ft x 70 ft
LEL Site III	Irregularly shaped area of compacted clay cap, clean topsoil and vegetative cover	1,300 ft x 450 ft
	Northwest slurry wall (discrete heights vary along the routing)	370 ft x 24 ft
	Southeast slurry wall (discrete heights vary along the routing)	520 ft x 24 ft
Other AOCs		
Unit	**Description**	**Dimensions**
US-10 Tank Farm	perimeter groundwater collection trench for hydraulic containment	450 ft x 250 ft
Chemical Disposal Well No. 9	closed chemical disposal well	Not Applicable
Pure Oil Site	demolished former refinery and tank farm	700 ft x 750 ft
Overlook Park	former brine pond sediments capped with clean topsoil and vegetative cover	680 ft x 860 ft
Brine Site 4M (MDEQ Site GIII-26)	historical brine spill	Not Applicable
Brine Site 32S (MDEQ Site GIV-17)	historical brine spill	Not Applicable
Brine Site 13S (MDEQ Site GIII-27)	historical brine spill	Not Applicable
6 Pond Purge Wells	three groundwater pumping wells	Not Applicable

Table B2-1A
Summary of WMUs / AOCs with On-Going Corrective Action Investigation Obligations

WMU / AOC Number	Unit	WMU or AOC	Description
1	Facility SWMU*	WMU	The Area Within the Designated Facility Boundary, Including Separately Identified WMUs
43	LEL Site III (Dioxin Point Source)	WMU	Former Conduits to Wastewater Treatment Plant with Historic Organic Deposit Closed as a Landfill
8	Poseyville Landfill	WMU	Closed Landfill
9	No. 6 Brine Pond (6-Pond) and Brine Injection Wells Within the Facility Boundary	WMU	Inactive Brine Pond and Closed Brine Injection Wells
13	Chemical Disposal Well No. 3	WMU	Closed Injection Well
18	Former Ash Pond	AOC	Former Powerhouse Ash Pond
44	US-10 Tank Farm	AOC	Active Product Storage Tank Farm with historic release
46	Pure Oil Site	AOC	Former Storage Tank Farm
47	Pure Oil Site - Former Fuel Pipeline		Former Fuel Pipeline
48	Overlook Park	AOC	Relocated Soils from Construction of Tertiary Pond
19	Diesel Tank Farm	AOC	Former Fuel Oil Storage Tanks and Associated Piping
22	Historic Manufacturing Areas	AOC	Historic chemical manufacturing and product storage areas including former manufacturing sites of chlorinated benzenes, oxides and phenols
23	1925 Landfill	WMU	Area of Closed Landfills and Surface Impoundments Closed with Waste in Place

Table B2-2
Soil Characterization History

Area	Compliance Schedule Reference	General Description	Report Citation	Report Submittal Date
East Side RGIS	N/A	1994 RGIS Upgrade (LS-4 to LS-5)	RGIS soils waste Characterization data MID 000 724 724	September 1, 1994
		1994 RGIS Upgrade (LS-4 to LS-5)	Results of Riverbank Soil Sampling from RGIS 1994 Project	August 3, 1995
		1996 RGIS Upgrade (LS-6 to MH-6B)	Preliminary Construction Package for 1996 RGIS Upgrade Lift Station 6 to 7	March 18, 1996
		1996 RGIS Upgrade (LS-6 to MH-6B)	Analytical Results of soil boring 5625 Taken Between Lift Stations 6 - 7	May 13, 1996
		1997 RGIS Upgrade (MH-6B to LS-7)	Preliminary Construction Package for 1996 RGIS Upgrade Lift Station 6 to 7	March 18, 1996
		1998 RGIS Upgrade (STA 112+13 (High Point) to LS-8)	Specificatoin Package for 1998 RGIS Upgrade	February 17, 1998
		1999 RGIS Upgrade (LS-7 to STA 112+13 (High Point))	Specificatoin Package for 1999 RGIS Upgrade	March 8, 1999
		2000 RGIS Upgrade (LS-6 to STA 69+25 (High Point))	Final Project Specification Package for Midland Plant Revetment Groundwater Interception System (RGIS); 2000 and 2001 RGIS Upgrade Project - Lift Station 5 to Lift Station 6; EPA ID # MID 000 724 724	March 1, 2000
		2001 RGIS Upgrade (STA 69+25 (High Point) to LS-5)	Midland Plant Revetment Groundwater Interception System (RGIS); 2000 and 2001 RGIS Upgrade Project - Lift Station 5 to Lift Station 6; EPA ID # MID 000 724 724	June 13, 2000
		2001 RGIS Upgrade (STA 69+25 (High Point) to LS-5)	Final Project Specification Package for Midland Plant Revetment Groundwater Interception System (RGIS); 2000 and 2001 RGIS Upgrade Project - Lift Station 5 to Lift Station 6; EPA ID # MID 000 724 724	March 2, 2000
		2002 RGIS Upgrade (LS-13 to LS-4)	Final Project Specification Package for Midland Plant Revetment Groundwater Interception System (RGIS); 2002 RGIS Upgrade Project - Lift Station 13 to Lift Station 4; EPA ID # MID 000 724 724	March 15, 2001
	M-7	2005 RGIS Upgrade	Compliance Activity Schedule, Task M-7 RGIS Lift Station 8 to Manhole 8E Upgrade Design Package Submittal	February 23, 2005
	N/A	2008 RGIS Upgrade (LS-2 to MH-3A)	2008 RGIS Upgrade Project Lift Station #2 to Cleanout #11 EPA Facility ID Number MID 000 724 724	April 28, 2008
Regional Aquitard and Till Sands	H-4	Soil sampling results from deep soil borings between historic outfall and 8-Pond	H-4 Data Submittal Deep Sand Groundwater Monitoring Program Dow Michigan Operations Facility	January 6, 2012

Table B2-2
Soil Characterization History

Area	Compliance Schedule Reference	General Description	Report Citation	Report Submittal Date
South Saginaw Road Tile (SSRT)	N/A	Installation of LS-S9 Section (MH-S1 to MH-S7)	Supplemental Environmental Projects (SEPs) - WMD Order No. 111-31-02/AQD Order No. 13-2002. MID 000 724 724	April 24, 2002
6 Pond Tile	H-3	6 Pond Tile Upgrade of LS11 Section (MH 11E - MH 11G)	The Dow Chemical Company Lift Station 11/ 6 Pond Tile Project Interim Response Activity Progress Report	March 24, 2005
	N/A	6 Pond Tile of LS-12 Section (MH-11E to MH-12D)	Work Plan - Revetment Groundwater Interception System Lift Station #12 Tile Upgrade Project	January 6, 2010
	N/A	Poseyville Road Tile of LS-14 Section (MH-12D to MH-14H)	Work Plan - Poseyville Road Tile Upgrade Project	March 16, 2012
West Side RGIS	N/A	2013 RGIS Upgrade Project (MH 9A to MH-9D)	Work Plan- Lift Station #9 Tile Upgrade Project	December 21, 2012
		2011 RGIS Upgrade Project (LS-10 to MH-11G)	Work Plan - Revetment Groundwater Interception System Lift Station #10 Tile Upgrade Project	November 15, 2010
Chemical Disposal Well #3 Site	H-11	Soil characterization data to delineate source removal action	Interim Response Activity Work Plan MW-6172 Area The Dow Chemical Company Michigan Operations	March 16, 2012
Former 47 Building	H-14	Results of soil sampling at the site	IRA Completion and Summary Report - Former 47 Bldg. Area H-14 Compliance	August 17, 2009
Facility Surface Soils	H-6	Soil data collected as part of an Interim Measure	The Dow Chemical Company Notice of Interim Response Activity H-6 Enhanced Exposure control to soils in DOS-20 Area	December 18, 2006
	H-6	2005/2006 Surface Soil Characterization Summary	Compliance Activity Schedule, H-6 Enhanced Exposure Control 2005 and 2006 Surface Soil Sampling and Testing Results summary EPA Facility Number MID 000 724 724	September 7, 2007
	N/A	2009 Midland Area Soils Pilot Study	Submittal of Updated Un-Blinded Soil Samples	June 1, 2010
		2010 Midland Area Soils Pilot Study	Field Pilot Characterization Summary Report Midland Area Soils MID 000 724 724	August 29, 2011
		2011 Midland Area Soils Leachability Study Results	Midland Area Soils Composite Soil Sampling Pilot Study Work Plan	January 18, 2012
Soil & Groundwater Exposure Control Program Data	N/A	Additional environmental monitoring data generated in advance of excavations or other site projects	submitted in applicable quarterly Environmental Monitoring Reports	2003 to current

Table B2-3
Groundwater Characterization History

Area	Compliance Schedule Reference	General Description	Report Citation	Report Submittal Date
Northeast Perimeter	H-2	Summary of groundwater data generated during site investigation	Compliance Activity Schedule, H-2 Northeast Perimter Groundwater Monitoring Program- summary report assessment of well 6175 area	September 14, 2007
	H-2	Summary of groundwater data generated during site investigation	Compliance Activity Schedule, H-2 Northeast Perimter Groundwater Monitoring Program- summary report assessment of well 6178 area	September 14, 2007
	H-2	Summary of groundwater data generated during site investigation and natural attentuation evaluation	Compliance Activity Schedule, H-2 Northeast Perimeter 6175 & 6178 Areas Corrective Action Summary Report EPA Facility Number MID 000 724 724	January 18, 2008
Regional Aquitard and Till Sands	H-4	Summary of previous deep sand groundwater sampling data	Compliance Activity Schedule H-4 2006 Deep Sand Study work plan	November 21, 2006
		Summary of previous deep sand groundwater sampling data	Compliance Activity Schedule, H-4 RIGS Deep Sands study preliminary assessment of Deep Sand Area 2 West EPA facility no. MID 000 724 724	September 28, 2007
		Provides summary of extensive groundwater testing in aquifer and aquitard across the site	H-4 Compliance Activity Schedule - Deep Sand Monitoring Program Summary Report and Monitoring Program	September 1, 2009
Former Chemical Manufacturing Areas	H-4	Provides summary of extensive groundwater characterization from study in the subject area	H-4 Compliance Schedule - Deep Sand Monitoring Program Cluster C-3 Area Summary Report	June 1, 2010
LEL I	N/A	LEL 1 Groundwater study results	Site Stormwater Management Report	September 17, 2010
Former 47 Building	H-14	Summary of groundwater data generated during site investigation	IRA Completion and Summary Report - Former 47 Bldg. Area H-14 Compliance	August 17, 2009

Table B2-3
Groundwater Characterization History

Area	Compliance Schedule Reference	General Description	Report Citation	Report Submittal Date
West Side Shallow Groundwater	H-11	Summary of broad groundwater characterization in areas of potential off-site flow on west side of main plant in the shallow groundwater	H-11 Compliance Schedule Activity Investigation Summary Report West Side Shallow Groundwater Hydraulic Assessment EPA Facility Number MID 000 724 724	August 7, 2009
Chemical Disposal 3 Area	H-11	Results of groundwater monitoring well sampling as part of investigation	Monitoring Well 6172 Summary Report West Side Shallow Groundwater Hydraulic Assessment EPA Facility Number MID 000 724 724	February 1, 2010
		Results of groundwater monitoring well sampling as part of investigation	Monitoring Well 6172 Area Amended Summary Report EPA Facility Number MID 000 724 724	June 1, 2010
		Summary of groundwater data used for source delineation	Final MW-6172 Area Summary Report EPA Facility Number MID 000 724 724	March 1, 2011
7th Street Purge Wells	H-10	Summary of Purge Well sampling	Compliance Activity Schedule H-10 Six Purge Wells Sampling Analytical Results	November 28, 2003
7th Street Purge Wells	H-3	Summary of Shallow Groundwater Investigation	Compliance Activity Schedule H-3 Surface Water protection monitoring Six Wells Shallow Water Table IRA investigation results summary EPA facility no. MID 000 724 724	September 29, 2007
Overlook Park & Till Sand West of Teriary Pond	H-1	Results of Monitoring Well Sampling	Compliance Activity Schedule, H-1 Overlook Park Monitoring Well Sampling Analytical Results	March 19, 2004
		Final Report	Summary Report - Investigation of Till Sand West of Tertiary Pond	September 22, 2004
Lift Station 11 Area	H-3	Data from plugged drain tile system cleanouts and LS # 11	The Dow Chemical Company, Lift Station #11/6 Pond Tile Interim response activity Progress Report MID 000 724 724	February 11, 2005
Ash Pond Area	H-3	Results of groundwater screening in subject area	Facility Surface Water Monitoring Program	November 15, 2004
Soil & Groundwater Exposure Control Program Data	N/A	Additional environmental monitoring data generated in advance of excavations or other site projects	submitted in applicable quarterly Environmental Monitoring Reports	2003 to current
US-10 Tank Farm	L-6	Summary of Historical Monitoring Data	Compliance Activity Schedule, Task L-6 US-10 Tank Farm Report EPA Facility ID Number MID 000 724 724	December 26, 2003

Table B2-4. Ranges of Detected Compounds in Soils

	RGIS Upgrades Soil Characterization Borings			Dow On-Site Surface Soil Sampling			Dow On-Site Test Pit Soil Sampling			Chemical Disposal Well 3 (prior to source control in 2012)			Worker Exposure Control Program Data			LEL III			Former Chemical Manufacturing Area		
Constituent	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**
1,1,1,2-Tetrachloroethane	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	9.2E+02	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
1,1,1-Trichloroethane	6.6E+01	6.6E+01	ug/Kg	ND	ND	ug/Kg	ND	1.0E+02	ug/kg	ND	ND	ug/Kg	ND	7.3E+01	ug/Kg	ND	1.0E+04	ug/Kg	ND	4.8E+02	ug/Kg
1,1,2,2-tetrachloroethane	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	5.5E+01	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	--	--	--	--	ND	ND	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	6.1E+01	1.0E+04	ug/Kg	ND	ND	ug/Kg	ND	7.9E+01	ug/kg	ND	ND	ug/Kg	ND	3.1E+02	ug/Kg	ND	3.6E+04	ug/Kg	ND	ND	ug/Kg
1,1,2-Trichlorotrifluoroethane	--	--	--	--	--	--	ND	9.5E+02	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,1'-Biphenyl	--	--	--	--	--	--	ND	3.1E+05	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
1,1'-Biphenyl, 2-phenoxy-	4.1E+02	2.5E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ND	1.2E+00	ug/Kg	ND	ND	ug/Kg	ND	7.0E+01	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	9.6E+03	ug/Kg	ND	ND	ug/Kg
1,1-Dichloroethene	5.1E+01	1.1E+02	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	2.5E+03	ug/Kg	ND	3.0E+05	ug/Kg	ND	ND	ug/Kg
1,1-Dichloropropene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDD	--	--	--	8.8E+01	2.9E+05	ppt	--	--	--	--	--	--	--	--	--	4.4E+01	1.6E+05	ppt	--	--	--
1,2,3,4,6,7,8-HpCDF	--	--	--	4.3E+01	1.2E+05	ppt	--	--	--	--	--	--	--	--	--	1.2E+02	2.2E+06	ppt	--	--	--
1,2,3,4,7,8,9-HpCDF	--	--	--	3.1E+00	1.7E+04	ppt	--	--	--	--	--	--	--	--	--	3.5E+00	2.2E+04	ppt	--	--	--
1,2,3,4,7,8-HxCDD	--	--	--	2.0E+00	3.6E+03	ppt	--	--	--	--	--	--	--	--	--	1.7E+00	3.2E+03	ppt	--	--	--
1,2,3,4,7,8-HxCDF	--	--	--	1.1E+01	3.1E+04	ppt	--	--	--	--	--	--	--	--	--	6.6E+00	4.2E+04	ppt	--	--	--
1,2,3,4-Tetrachlorobenzene	5.8E+01	3.2E+04	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	3.4E+03	ug/Kg
1,2,3,6,7,8-HxCDD	--	--	--	4.5E+00	1.0E+04	ppt	--	--	--	--	--	--	--	--	--	3.5E+00	1.9E+04	ppt	--	--	--
1,2,3,6,7,8-HxCDF	--	--	--	2.8E+00	6.5E+03	ppt	--	--	--	--	--	--	--	--	--	1.9E+00	1.0E+04	ppt	--	--	--
1,2,3,7,8,9-HxCDD	--	--	--	3.6E+00	5.6E+03	ppt	--	--	--	--	--	--	--	--	--	8.5E-01	7.0E+03	ppt	--	--	--
1,2,3,7,8,9-HxCDF	--	--	--	1.7E+00	5.0E+03	ppt	--	--	--	--	--	--	--	--	--	8.8E-01	6.8E+02	ppt	--	--	--
1,2,3,7,8-PCDD	--	--	--	1.3E+00	7.0E+03	ppt	--	--	--	--	--	--	--	--	--	5.5E-01	5.2E+03	ppt	--	--	--
1,2,3,7,8-PCDF	--	--	--	3.7E+00	4.0E+03	ppt	--	--	--	--	--	--	--	--	--	7.7E-01	4.5E+03	ppt	--	--	--
1,2,3-Trichlorobenzene	6.0E+01	2.5E+03	ug/Kg	--	--	--	--	--	--	--	--	--	ND	2.1E+01	ug/Kg	--	--	--	ND	2.7E+02	ug/Kg
1,2,3-Trichloropropane	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	5.8E+04	ug/Kg	ND	ND	ug/Kg
1,2,3-Trimethylbenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
1,2,3-Trithiolane	2.8E+02	2.8E+02	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4,5-Tetrachlorobenzene	ND	2.3E+05	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	ND	1.4E+04	ug/Kg	ND	ND	ug/Kg
1,2,4-Trichlorobenzene	1.7E+01	6.5E+05	ug/Kg	ND	4.2E+03	ug/Kg	ND	2.1E+06	ug/kg	ND	5.1E+02	ug/Kg	ND	1.2E+06	ug/Kg	ND	1.4E+07	ug/Kg	ND	6.5E+03	ug/Kg
1,2,4-Trimethylbenzene	--	--	--	ND	3.0E+02	ug/Kg	ND	7.8E+03	ug/kg	ND	2.0E+02	ug/Kg	ND	2.3E+04	ug/Kg	ND	1.8E+04	ug/Kg	ND	2.4E+02	ug/Kg
1,2,5-Trimethylbenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	ND	1.6E+03	ug/Kg	ND	ND	ug/Kg	ND	1.2E+02	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
1,2-Dibromoethane	3.4E+00	1.7E+02	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
1,2-Dichlorobenzene	1.0E+00	5.0E+06	ug/Kg	ND	3.7E+02	ug/Kg	ND	4.3E+05	ug/kg	ND	1.1E+04	ug/Kg	ND	2.0E+06	ug/Kg	ND	1.7E+07	ug/Kg	ND	4.5E+03	ug/Kg
1,2-Dichloroethane	ND	ND	ug/Kg	ND	4.0E+01	ug/Kg	ND	4.6E+03	ug/kg	ND	3.6E+02	ug/Kg	ND	1.0E+03	ug/Kg	ND	8.5E+04	ug/Kg	ND	ND	ug/Kg
1,2-Dichloroethene	ND	ND	ug/Kg	--	--	--	ND	ND	ug/kg	ND	ND	ug/Kg	ND	1.0E+03	ug/Kg	ND	2.2E+04	ug/Kg	ND	ND	ug/Kg
1,2-Dichloropropane	7.6E+01	7.6E+01	ug/Kg	ND	ND	ug/Kg	ND	5.7E+02	ug/kg	ND	ND	ug/Kg	ND	1.4E+04	ug/Kg	ND	4.7E+04	ug/Kg	ND	ND	ug/Kg
1,2-Diphenylhydrazine	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
1,3,4,5-Tetrachlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg
1,3,5-Trichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	4.5E+02	ug/Kg
1,3,5-Trimethylbenzene	--	--	--	ND	8.1E+01	ug/Kg	ND	7.3E+03	ug/kg	ND	1.3E+02	ug/Kg	ND	5.5E+03	ug/Kg	ND	5.5E+03	ug/Kg	ND	1.5E+02	ug/Kg
1,3-Dichlorobenzene	2.2E+00	9.9E+04	ug/Kg	ND	3.8E+02	ug/Kg	ND	2.1E+04	ug/kg	ND	8.2E+02	ug/Kg	ND	8.3E+04	ug/Kg	ND	8.2E+05	ug/Kg	ND	1.1E+03	ug/Kg
1,3-Dichloropropane	--	--	--	--	--	--	ND	ND	ug/kg	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
1,3-Dichloropropene, Total	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
1,4-Dichlorobenzene	1.8E+01	5.0E+06	ug/Kg	ND	1.3E+03	ug/Kg	ND	7.0E+05	ug/kg	ND	1.4E+04	ug/Kg	ND	1.9E+06	ug/Kg	ND	1.8E+07	ug/Kg	ND	6.3E+03	ug/Kg
1,4-Dioxane	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
2,2'-oxybis(1-Chloropropane)	--	--	--	--	--	--	ND	ND	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	--	--	--	1.4E+00	1.2E+04	ppt	--	--	--	--	--	--	--	--	--	1.8E+00	1.4E+04	ppt	--	--	--
2,3,4,6-Tetrachlorophenol	3.6E+01	6.4E+04	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,3,4,7,8-PCDF	--	--	--	2.8E+00	6.0E+03	ppt	--	--	--	--	--	--	--	--	--	3.0E+00	1.7E+04	ppt	--	--	--
2,3,7,8-TCDD	--	--	--	8.0E-01	2.9E+05	ppt	--	--	--	--	--	--	--	--	--	9.4E-01	2.6E+03	ppt	--	--	--
2,3,7,8-TCDF	--	--	--	5.0E+00	6.6E+03	ppt	--	--	--	--	--	--	--	--	--	7.8E-01	4.1E+03	ppt	--	--	--
2,4,5-T	ND	ND	ug/Kg	--	--	--	--	--	--	ND	7.1E+01	ug/Kg	ND	ND	ug/Kg	--	--	--	--	--	--
2,4,5-TP (Silvex)	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--	--	--	--
2,4,5-Trichlorophenol	ND	3.1E+03	ug/Kg	ND	1.4E+02	ug/Kg	ND	3.2E+04	ug/kg	ND	2.0E+05	ug/Kg	ND	1.7E+04	ug/Kg	ND	6.0E+05	ug/Kg	ND	ND	ug/Kg

Table B2-4. Ranges of Detected Compounds in Soils

	RGIS Upgrades Soil Characterization Borings			Dow On-Site Surface Soil Sampling			Dow On-Site Test Pit Soil Sampling			Chemical Disposal Well 3 (prior to source control in 2012)			Worker Exposure Control Program Data			LEL III			Former Chemical Manufacturing Area		
Constituent	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**
2,4,6-Trichlorophenol	ND	1.9E+03	ug/Kg	ND	ND	ug/Kg	ND	1.7E+04	ug/kg	ND	9.3E+03	ug/Kg	ND	2.1E+03	ug/Kg	ND	4.4E+05	ug/Kg	ND	ND	ug/Kg
2,4-D	ND	1.7E+03	ug/Kg	--	--	--	--	--	--	--	--	--	ND	2.4E+02	ug/Kg	--	--	--	--	--	--
2,4-Dichlorobenzene	8.0E+01	3.0E+04	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	1.0E+01	3.1E+03	ug/Kg	ND	ND	ug/Kg	ND	7.5E+03	ug/kg	ND	1.4E+05	ug/Kg	ND	ND	ug/Kg	ND	6.0E+05	ug/Kg	ND	ND	ug/Kg
2,4-Dimethylphenol	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.1E+03	ug/Kg	ND	ND	ug/Kg
2,4-Dinitrophenol	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
2,4-Dinitrotoluene	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
2,6-Dichlorophenol	5.1E+01	5.2E+02	ug/Kg	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	ND	3.2E+02	ug/Kg	--	--	--
2,6-Dinitrotoluene	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.3E+03	ug/Kg	ND	ND	ug/Kg
2,6-Diphenyl phenol	2.2E+02	3.0E+02	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone (MEK)	2.6E+02	3.5E+02	ug/Kg	ND	3.9E+01	ug/Kg	ND	3.1E+04	ug/kg	ND	6.4E+02	ug/Kg	ND	ND	ug/Kg	ND	5.8E+02	ug/Kg	ND	ND	ug/Kg
2-Chloroethylvinyl ether	--	--	--	--	--	--	ND	ND	ug/kg	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
2-Chloronaphthalene	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	4.3E+02	ug/Kg	ND	ND	ug/Kg	ND	7.8E+04	ug/Kg	ND	ND	ug/Kg
2-Chlorophenol	ND	6.4E+01	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	1.2E+04	ug/Kg	ND	ND	ug/Kg	ND	3.4E+04	ug/Kg	ND	ND	ug/Kg
2-Chlorotoluene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
2-Hexanone	--	--	--	ND	4.7E+02	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
2-Methylnaphthalene	--	--	--	ND	1.2E+03	ug/Kg	ND	4.4E+05	ug/kg	ND	2.2E+03	ug/Kg	ND	3.1E+05	ug/Kg	ND	8.2E+05	ug/Kg	ND	6.4E+04	ug/Kg
2-Methylphenol	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
2-Nitroaniline	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.3E+03	ug/Kg	ND	ND	ug/Kg
2-Nitrophenol	--	--	--	--	--	--	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
2-Phenylnaphthalene	4.2E+03	4.2E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Picoline	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3&4-Methylphenol	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ND	ND	ug/Kg	--	--	--	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
3-Nitroaniline	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.5E+03	ug/Kg	ND	ND	ug/Kg
4,4'-DDD	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
4,4'-DDE	--	--	--	ND	7.4E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
4,4'-DDT	--	--	--	ND	9.2E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
4,6-Dinitro-2-methylphenol	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.8E+04	ug/Kg	ND	5.2E+03	ug/Kg
4-Bromophenyl phenyl ether	--	--	--	ND	4.5E+01	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
4-Chloro-3-methylphenol	--	--	--	--	--	--	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.3E+03	ug/Kg	ND	ND	ug/Kg
4-Chloroaniline	--	--	--	--	--	--	ND	ND	ug/kg	ND	2.1E+02	ug/Kg	ND	ND	ug/Kg	ND	1.3E+06	ug/Kg	ND	ND	ug/Kg
4-Chlorophenol	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	--	--	--	ND	6.2E+01	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	1.7E+04	ug/Kg	ND	1.0E+04	ug/Kg	ND	ND	ug/Kg
4-Chlorotoluene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
4H-Cyclopenta[def]phenanthrene	2.1E+02	9.9E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Isopropyltoluene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
4-Methyl-2-pentanone(MIBK)	ND	ND	ug/Kg	ND	7.5E+02	ug/Kg	ND	1.9E+01	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.8E+03	ug/Kg	ND	ND	ug/Kg
4-Methylphenol	--	--	--	--	--	--	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.7E+05	ug/Kg	ND	3.4E+03	ug/Kg
4-Nitroaniline	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.4E+03	ug/Kg	ND	ND	ug/Kg
4-Nitrophenol	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.1E+03	ug/Kg	ND	ND	ug/Kg
4-Nitrosodimethylamine	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
4-Nitrosodi-n-propylamine	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
4-Nitrosodiphenylamine	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Acenaphthene	2.9E+01	4.0E+03	ug/Kg	ND	2.9E+02	ug/Kg	ND	8.3E+04	ug/kg	ND	1.1E+02	ug/Kg	ND	1.5E+04	ug/Kg	ND	2.4E+05	ug/Kg	ND	ND	ug/Kg
Acenaphthylene	3.9E+01	2.6E+02	ug/Kg	ND	6.1E+02	ug/Kg	ND	1.4E+05	ug/kg	ND	1.3E+02	ug/Kg	ND	7.9E+04	ug/Kg	ND	3.7E+05	ug/Kg	ND	ND	ug/Kg
Acetone	ND	ND	ug/Kg	ND	1.0E+03	ug/Kg	ND	8.0E+02	ug/kg	ND	6.0E+02	ug/Kg	ND	2.6E+02	ug/Kg	ND	9.6E+03	ug/Kg	ND	ND	ug/Kg
Acetonitrile	ND	ND	ug/Kg	--	--	--	ND	4.3E+03	ug/kg	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Acrolein	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--
Acrylonitrile	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg
Aldrin	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Allyl chloride	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
alpha-BHC	ND	4.0E+02	ug/Kg	ND	1.5E+02	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
alpha-Chlordane	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Aluminum	--	--	--	1.4E+06	1.4E+07	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table B2-4. Ranges of Detected Compounds in Soils

	RGIS Upgrades Soil Characterization Borings			Dow On-Site Surface Soil Sampling			Dow On-Site Test Pit Soil Sampling			Chemical Disposal Well 3 (prior to source control in 2012)			Worker Exposure Control Program Data			LEL III			Former Chemical Manufacturing Area		
Constituent	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**
Aniline	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Anthracene	1.1E+01	2.6E+03	ug/Kg	ND	8.1E+02	ug/Kg	ND	6.2E+04	ug/kg	ND	4.6E+02	ug/Kg	ND	3.1E+04	ug/Kg	ND	2.2E+05	ug/Kg	ND	2.2E+03	ug/Kg
Anthracene, 2-methyl-	4.3E+03	4.3E+03	ug/Kg	--	--	--	ND	ND	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1016	--	--	--	ND	1.6E+02	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1221	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	--	--	--	ND	7.2E+02	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1262	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1268	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	--	--	--	4.3E+02	5.9E+04	ug/Kg	--	--	--	--	--	--	ND	4.7E+05	ug/Kg	--	--	--	--	--	--
Azobenzene	--	--	--	ND	8.6E+02	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Barium	--	--	--	7.3E+03	1.4E+05	ug/Kg	--	--	--	--	--	--	ND	1.8E+05	ug/Kg	--	--	--	--	--	--
Benzaldehyde	--	--	--	--	--	--	ND	ND	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	2.0E+00	2.9E+03	ug/Kg	ND	2.0E+02	ug/Kg	ND	2.0E+04	ug/kg	ND	4.2E+03	ug/Kg	ND	3.3E+04	ug/Kg	ND	2.4E+06	ug/Kg	ND	1.9E+03	ug/Kg
Benzo(a)anthracene	3.8E+01	2.1E+04	ug/Kg	ND	1.9E+03	ug/Kg	ND	6.1E+04	ug/kg	ND	2.4E+03	ug/Kg	ND	3.3E+04	ug/Kg	ND	1.6E+05	ug/Kg	ND	4.2E+03	ug/Kg
Benzo(a)pyrene	ND	ND	ug/Kg	ND	2.3E+03	ug/Kg	ND	2.9E+04	ug/kg	ND	1.6E+03	ug/Kg	ND	9.3E+03	ug/Kg	ND	1.0E+05	ug/Kg	ND	3.0E+03	ug/Kg
Benzo(b)fluoranthene	1.0E+01	1.2E+04	ug/Kg	ND	2.6E+03	ug/Kg	ND	2.8E+04	ug/kg	ND	9.5E+02	ug/Kg	ND	7.3E+03	ug/Kg	ND	1.1E+05	ug/Kg	ND	3.7E+03	ug/Kg
Benzo(e)pyrene	2.4E+02	8.8E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	--	--	--	ND	1.3E+03	ug/Kg	ND	1.1E+04	ug/kg	ND	2.4E+02	ug/Kg	ND	3.9E+03	ug/Kg	ND	4.1E+04	ug/Kg	ND	1.3E+03	ug/Kg
Benzo(k)fluoranthene	5.0E+01	1.8E+04	ug/Kg	ND	2.6E+03	ug/Kg	ND	8.1E+03	ug/kg	ND	4.0E+02	ug/Kg	ND	3.8E+03	ug/Kg	ND	4.7E+04	ug/Kg	ND	2.6E+03	ug/Kg
Benzoic acid	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Benzyl Alcohol	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Beryllium	--	--	--	ND	1.2E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
beta-BHC	1.7E+01	1.3E+03	ug/Kg	ND	2.0E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
bis(2-Chloroethoxy)methane	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.1E+03	ug/Kg	ND	ND	ug/Kg
bis(2-Chloroethyl)ether	ND	5.9E+02	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.3E+03	ug/Kg	ND	ND	ug/Kg
bis(2-Chloroisopropyl)ether	ND	2.3E+02	ug/Kg	ND	ND	ug/Kg	ND	4.7E+02	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.0E+03	ug/Kg	ND	ND	ug/Kg
bis(2-Ethylhexyl)phthalate	--	--	--	ND	1.1E+04	ug/Kg	ND	7.5E+03	ug/kg	ND	5.2E+02	ug/Kg	ND	2.1E+03	ug/Kg	ND	3.2E+04	ug/Kg	ND	ND	ug/Kg
Boron	--	--	--	8.3E+02	1.1E+04	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Bromochloromethane	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.5E+04	ug/Kg	ND	ND	ug/Kg
Bromodichloromethane	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Bromoform	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Bromomethane	--	--	--	ND	ND	ug/Kg	ND	8.9E+01	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Butyl benzyl phthalate	--	--	--	ND	5.3E+02	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.4E+03	ug/Kg	ND	ND	ug/Kg
Cadmium	--	--	--	ND	1.6E+03	ug/Kg	--	--	--	--	--	--	ND	1.9E+02	ug/Kg	--	--	--	--	--	--
Calcium	--	--	--	4.1E+06	2.7E+08	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Caprolactam	--	--	--	--	--	--	ND	ND	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	--	--	--	--	--	--	ND	6.2E+02	ug/kg	ND	ND	ug/Kg	ND	8.1E+03	ug/Kg	ND	1.6E+03	ug/Kg	ND	ND	ug/Kg
Carbon Disulfide	ND	1.1E+01	ug/Kg	ND	ND	ug/Kg	ND	1.9E+02	ug/kg	ND	6.2E+02	ug/Kg	ND	ND	ug/Kg	ND	4.1E+02	ug/Kg	ND	ND	ug/Kg
Carbon Tetrachloride	ND	ND	ug/Kg	ND	7.1E+01	ug/Kg	ND	3.6E+01	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
CHLORDANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	3.6E+02	ug/Kg	--	--	--	--	--	--
Chlorobenzene	ND	6.9E+04	ug/Kg	ND	2.1E+03	ug/Kg	ND	8.5E+05	ug/kg	ND	2.3E+04	ug/Kg	ND	4.3E+05	ug/Kg	ND	2.5E+07	ug/Kg	ND	9.5E+05	ug/Kg
Chlorodibromomethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Chloroethane	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Chloroform	8.1E+01	4.2E+02	ug/Kg	ND	8.8E+01	ug/Kg	ND	9.2E+02	ug/kg	ND	1.9E+03	ug/Kg	ND	ND	ug/Kg	ND	1.7E+04	ug/Kg	ND	ND	ug/Kg
Chloromethane	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	1.4E+02	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Chlorophenol	ND	ND	ug/Kg	--	--	--	ND	ND	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	--	--	--	3.7E+03	6.1E+04	ug/Kg	--	--	--	--	--	--	2.3E+03	4.4E+04	ug/Kg	--	--	--	--	--	--
Chromium VI	--	--	--	ND	4.6E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	1.0E+01	1.0E+01	ug/Kg	ND	2.1E+03	ug/Kg	ND	7.4E+04	ug/kg	ND	2.3E+03	ug/Kg	ND	2.2E+04	ug/Kg	ND	2.3E+05	ug/Kg	ND	5.7E+03	ug/Kg
cis-1,2-Dichloroethene	ND	1.7E+03	ug/Kg	ND	ND	ug/Kg	ND	1.1E+03	ug/kg	ND	ND	ug/Kg	ND	1.0E+03	ug/Kg	ND	1.7E+04	ug/Kg	ND	ND	ug/Kg

Table B2-4. Ranges of Detected Compounds in Soils

	RGIS Upgrades Soil Characterization Borings			Dow On-Site Surface Soil Sampling			Dow On-Site Test Pit Soil Sampling			Chemical Disposal Well 3 (prior to source control in 2012)			Worker Exposure Control Program Data			LEL III			Former Chemical Manufacturing Area		
Constituent	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**
cis-1,3-Dichloropropene	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Cobalt	--	--	--	1.1E+03	6.0E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	--	--	--	4.2E+03	1.8E+05	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide, Total	--	--	--	ND	2.4E+02	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Cyclic octaatomic sulfur	7.8E+03	7.8E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyclohexane	--	--	--	--	--	--	ND	6.7E+02	ug/kg	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
CYMENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Dalapon	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
delta-BHC	ND	ND	ug/Kg	ND	1.9E+02	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Dibenz(a,h)anthracene	--	--	--	ND	4.6E+01	ug/Kg	ND	7.8E+02	ug/kg	ND	9.9E+01	ug/Kg	ND	1.9E+03	ug/Kg	ND	7.8E+04	ug/Kg	ND	5.5E+02	ug/Kg
Dibenzofuran	--	--	--	ND	1.8E+03	ug/Kg	ND	7.3E+03	ug/kg	ND	1.9E+02	ug/Kg	ND	3.3E+04	ug/Kg	ND	1.6E+05	ug/Kg	ND	2.2E+04	ug/Kg
Dibromochloromethane	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Dibromofluoromethane	--	--	--	--	--	--	4.9E+01	8.8E+01	ug/kg	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Dibromomethane	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Dicamba	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Dichlorodifluoromethane	--	--	--	ND	ND	ug/Kg	ND	4.9E+01	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Dieldrin	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Diethyl ether	--	--	--	--	--	--	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Diethyl phthalate	ND	ND	ug/Kg	ND	2.5E+02	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
Diisopropyl ether	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Dimethyl phthalate	--	--	--	ND	6.6E+01	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
Di-n-butyl phthalate	--	--	--	ND	7.5E+02	ug/Kg	ND	5.9E+01	ug/kg	ND	9.6E+02	ug/Kg	ND	4.0E+01	ug/Kg	ND	1.3E+05	ug/Kg	ND	ND	ug/Kg
Di-n-octyl phthalate	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
Dinoseb	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Diphenyl oxide	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.8E+03	1.4E+07	ug/Kg
Diphenylamine	4.8E+01	7.1E+03	ug/Kg	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Eicosane	2.8E+02	2.8E+02	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endosulfan I	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Endosulfan II	ND	3.2E+00	ug/Kg	ND	4.2E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Endosulfan sulfate	--	--	--	ND	4.5E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Endrin	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Endrin aldehyde	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Endrin ketone	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Ethyl acetate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--
Ethyl chloride	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Ethyl ether	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethyl methacrylate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--
Ethylbenzene	4.2E+01	1.1E+07	ug/Kg	ND	2.2E+02	ug/Kg	ND	1.1E+05	ug/kg	ND	1.4E+02	ug/Kg	ND	2.3E+04	ug/Kg	ND	3.3E+06	ug/Kg	ND	2.0E+04	ug/Kg
Ethyl tertiary butyl ether	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Fluoranthene	--	--	--	ND	3.4E+03	ug/Kg	ND	9.6E+04	ug/kg	ND	1.3E+03	ug/Kg	ND	2.7E+04	ug/Kg	ND	2.9E+05	ug/Kg	ND	5.9E+03	ug/Kg
Fluoranthene, 2-methyl-	3.1E+03	3.1E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	3.2E+01	2.2E+03	ug/Kg	ND	3.1E+02	ug/Kg	ND	1.4E+05	ug/kg	ND	7.7E+02	ug/Kg	ND	4.2E+04	ug/Kg	ND	3.4E+05	ug/Kg	ND	ND	ug/Kg
gamma-BHC/Lindane	2.8E+01	2.1E+02	ug/Kg	ND	3.3E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
gamma-Chlordane	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Heptachlor	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	6.4E+01	ug/Kg	ND	ND	ug/Kg	--	--	--
Heptachlor epoxide	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Heptadecane	3.1E+02	3.4E+02	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexabromobenzene	--	--	--	ND	ND	ug/Kg	--	--	--	ND	ND	ug/Kg	ND	1.4E+05	ug/Kg	--	--	--	--	--	--
Hexabromobiphenyl	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	6.0E+00	1.2E+05	ug/Kg	ND	3.2E+04	ug/Kg	ND	1.7E+05	ug/kg	--	--	--	--	--	--	ND	3.9E+05	ug/Kg	ND	ND	ug/Kg
Hexachlorobutadiene	ND	3.8E+03	ug/Kg	ND	6.4E+02	ug/Kg	ND	3.8E+03	ug/kg	ND	ND	ug/Kg	ND	9.7E+04	ug/Kg	ND	8.8E+05	ug/Kg	ND	ND	ug/Kg
Hexachlorocyclopentadiene	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	8.5E+02	ug/Kg	ND	ND	ug/Kg
Hexachloroethane	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
Hexadecane, 2,6,10,14-tetramethyl-	2.3E+02	2.3E+02	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ND	1.5E+03	ug/Kg	ND	1.5E+03	ug/Kg	ND	1.5E+04	ug/kg	ND	2.1E+02	ug/Kg	ND	ND	ug/Kg	ND	1.3E+03	ug/Kg	ND	1.3E+03	ug/Kg

Table B2-4. Ranges of Detected Compounds in Soils

	RGIS Upgrades Soil Characterization Borings			Dow On-Site Surface Soil Sampling			Dow On-Site Test Pit Soil Sampling			Chemical Disposal Well 3 (prior to source control in 2012)			Worker Exposure Control Program Data			LEL III			Former Chemical Manufacturing Area		
Constituent	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**
Iodomethane	--	--	--	--	--	--	ND	ND	ug/kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--
Iron	--	--	--	2.5E+06	3.0E+07	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isophorone	--	--	--	ND	1.2E+02	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
IsopropylBenzene	1.1E+01	6.3E+02	ug/Kg	ND	1.1E+02	ug/Kg	ND	7.0E+06	ug/kg	ND	1.3E+02	ug/Kg	ND	6.6E+03	ug/Kg	ND	2.0E+05	ug/Kg	ND	ND	ug/Kg
Lead	--	--	--	3.4E+03	1.8E+05	ug/Kg	--	--	--	--	--	--	7.9E+02	2.5E+05	ug/Kg	--	--	--	--	--	--
Lithium	--	--	--	1.1E+03	1.6E+04	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
m/p- Xylene	ND	ND	ug/Kg	ND	6.5E+02	ug/Kg	ND	9.4E+03	ug/kg	ND	3.1E+02	ug/Kg	ND	3.9E+04	ug/Kg	ND	1.8E+05	ug/Kg	ND	6.5E+02	ug/Kg
m/p-Cresol	ND	2.5E+02	ug/Kg	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Magnesium	--	--	--	7.9E+05	1.5E+07	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	--	--	--	5.1E+04	4.0E+05	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	--	--	--	ND	3.4E+03	ug/Kg	--	--	--	--	--	--	ND	1.7E+04	ug/Kg	--	--	--	--	--	--
Methacrylonitrile	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--
Methoxychlor	--	--	--	ND	4.8E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
Methyl acetate	--	--	--	--	--	--	ND	6.1E+02	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Methyl iodide	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Methyl tert-butyl ether	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
methylbenzene	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylcyclohexane	--	--	--	--	--	--	ND	1.8E+03	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	ND	1.7E+03	ug/Kg	ND	ND	ug/Kg	ND	1.8E+02	ug/kg	ND	1.6E+03	ug/Kg	ND	1.9E+00	ug/Kg	ND	8.7E+04	ug/Kg	ND	ND	ug/Kg
Mirex	--	--	--	ND	5.3E+01	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	--	--	--	ND	3.9E+02	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Napthalene	7.0E+00	9.8E+05	ug/Kg	ND	7.2E+03	ug/Kg	ND	2.8E+05	ug/kg	ND	7.0E+03	ug/Kg	ND	3.2E+05	ug/Kg	ND	2.8E+06	ug/Kg	ND	9.2E+05	ug/Kg
n-Butylbenzene	--	--	--	ND	9.9E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Nickel	--	--	--	2.6E+03	2.1E+05	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.1E+03	ug/Kg	ND	ND	ug/Kg
Nitrosodiphenylamine	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
N-Nitrosodi-n-propylamine	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	1.2E+03	ug/Kg	ND	ND	ug/Kg
N-Nitrosodiphenylamine	4.8E+01	7.1E+03	ug/Kg	ND	1.6E+02	ug/Kg	ND	5.4E+03	ug/kg	ND	ND	ug/Kg	ND	4.2E+05	ug/Kg	ND	1.3E+06	ug/Kg	ND	ND	ug/Kg
N-Nitrosodipropylamine	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
n-Propylbenzene	--	--	--	ND	1.7E+02	ug/Kg	ND	1.5E+04	ug/kg	ND	2.8E+02	ug/Kg	ND	4.6E+03	ug/Kg	ND	6.4E+04	ug/Kg	ND	ND	ug/Kg
OCDD	6.0E-04	7.1E+00	ppt	8.9E+02	2.9E+06	ppt	--	--	--	--	--	--	--	--	--	3.7E+02	1.9E+06	ppt	--	--	--
OCDF	3.0E-04	1.1E+00	ppt	7.5E+01	3.9E+05	ppt	--	--	--	--	--	--	--	--	--	1.6E+02	1.2E+06	ppt	--	--	--
o-Cresol	ND	ND	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Octadecane	2.5E+02	2.8E+02	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Hydroxybiphenyl	3.0E+02	1.5E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Phenylphenol	4.1E+01	2.0E+05	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	ND	ND	ug/Kg	ND	5.0E+02	ug/Kg	ND	7.8E+03	ug/kg	ND	1.7E+02	ug/Kg	ND	2.1E+04	ug/Kg	ND	4.3E+04	ug/Kg	ND	3.6E+02	ug/Kg
Pentachlorobenzene	4.0E+01	3.9E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg
Pentachloroethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Pentachlorophenol	ND	2.8E+04	ug/Kg	ND	2.6E+03	ug/Kg	ND	ND	ug/kg	ND	5.6E+04	ug/Kg	ND	9.1E+04	ug/Kg	ND	4.9E+06	ug/Kg	ND	2.0E+03	ug/Kg
Phenanthrene	--	--	--	ND	7.6E+03	ug/Kg	ND	3.6E+05	ug/kg	ND	8.0E+03	ug/Kg	ND	1.1E+05	ug/Kg	ND	1.5E+06	ug/Kg	ND	5.1E+03	ug/Kg
Phenanthrene, 2-methyl-	4.5E+03	4.5E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	ND	1.1E+03	ug/Kg	ND	1.2E+03	ug/Kg	ND	4.8E+03	ug/kg	ND	9.1E+03	ug/Kg	ND	2.0E+03	ug/Kg	ND	7.7E+04	ug/Kg	ND	2.1E+05	ug/Kg
p-Hydroxybiphenyl	3.8E+02	2.7E+03	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
p-Isopropyltoluene	--	--	--	ND	5.3E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Potassium	--	--	--	ND	1.8E+06	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	4.3E+01	5.0E+04	ug/Kg	ND	2.7E+03	ug/Kg	ND	1.6E+05	ug/kg	ND	1.9E+03	ug/Kg	ND	3.8E+04	ug/Kg	ND	5.5E+05	ug/Kg	ND	4.7E+03	ug/Kg
Pyridine	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
sec-Butylbenzene	--	--	--	ND	5.8E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Selenium	--	--	--	1.6E+02	9.5E+02	ug/Kg	--	--	--	--	--	--	ND	1.3E+03	ug/Kg	--	--	--	--	--	--
Silver	--	--	--	ND	7.5E+02	ug/Kg	--	--	--	--	--	--	ND	2.4E+02	ug/Kg	--	--	--	--	--	--
Silvex	1.3E+01	2.9E+02	ug/Kg	--	--	--	--	--	--	--	--	--	ND	1.1E+02	ug/Kg	--	--	--	--	--	--
Sodium	--	--	--	ND	1.9E+06	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	--	--	--	2.2E+03	2.2E+05	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table B2-4. Ranges of Detected Compounds in Soils

	RGIS Upgrades Soil Characterization Borings			Dow On-Site Surface Soil Sampling			Dow On-Site Test Pit Soil Sampling			Chemical Disposal Well 3 (prior to source control in 2012)			Worker Exposure Control Program Data			LEL III			Former Chemical Manufacturing Area		
Constituent	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**
Styrene	ND	ND	ug/Kg	ND	7.4E+01	ug/Kg	ND	1.7E+03	ug/kg	ND	1.3E+02	ug/Kg	ND	5.1E+04	ug/Kg	ND	7.6E+04	ug/Kg	ND	ND	ug/Kg
t-Butylbenzene	--	--	--	ND	3.7E+01	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Tertbutyl phenol	4.2E+01	1.4E+04	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
tertiary amyl methyl ether(TAME)	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Tertiary Butyl Alcohol (TBA)	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Tetrachloroethene	2.3E+02	2.5E+04	ug/Kg	ND	2.1E+03	ug/Kg	ND	1.4E+04	ug/kg	ND	7.7E+02	ug/Kg	ND	2.6E+05	ug/Kg	ND	6.9E+05	ug/Kg	ND	5.0E+02	ug/Kg
Tetrahydrofuran	--	--	--	ND	1.8E+02	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--
Thallium	--	--	--	ND	2.3E+02	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	--	--	--	4.9E+04	4.3E+05	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	7.0E+01	9.5E+02	ug/Kg	ND	8.9E+02	ug/Kg	ND	2.8E+04	ug/kg	ND	1.7E+02	ug/Kg	ND	1.1E+05	ug/Kg	ND	6.1E+05	ug/Kg	ND	1.1E+04	ug/Kg
Total CDD Tetra-Hexa Congeners	ND	1.8E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total CDDs + CDFs Congeners	ND	2.3E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total CDF Tetra-Hexa Congeners	ND	8.1E-02	ppt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total H7CDDs	2.0E-04	6.5E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	7.3E+01	3.0E+05	ppt	--	--	--
Total H7CDFs	1.0E-04	7.9E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	2.4E+02	3.5E+06	ppt	--	--	--
Total HCDD Isomers	1.0E-03	5.3E-02	ppt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HCDDs	3.0E-05	4.8E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	1.9E+01	1.6E+05	ppt	--	--	--
Total HCDF Isomers	1.0E-03	2.1E-02	ppt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total HCDFs	4.7E-05	7.7E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	6.3E+01	8.2E+05	ppt	--	--	--
Total PCCDDs	2.2E-05	2.8E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCDD Isomers	1.0E-03	5.0E-02	ppt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCDDs	1.0E-04	2.0E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	1.3E+01	7.2E+04	ppt	--	--	--
Total PCDF Isomers	1.0E-03	1.8E-02	ppt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCDFs	4.0E-05	1.8E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	1.5E+01	9.3E+04	ppt	--	--	--
Total TCDD Isomers	1.0E-03	9.0E-02	ppt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDDs	1.9E-05	3.6E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	1.8E+01	6.6E+04	ppt	--	--	--
Total TCDF Isomers	1.0E-03	4.2E-02	ppt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total TCDFs	1.9E-05	1.2E-01	ppt	--	--	--	--	--	--	--	--	--	--	--	--	9.7E+00	5.1E+04	ppt	--	--	--
Toxaphene	--	--	--	ND	ND	ug/Kg	--	--	--	--	--	--	ND	ND	ug/Kg	ND	ND	ug/Kg	--	--	--
trans-1,2-Dichloroethene	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	3.2E+02	ug/Kg	ND	4.6E+03	ug/Kg	ND	ND	ug/Kg
trans-1,3-Dichloropropene	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
trans-1,4-Dichloro-2-butene	--	--	--	ND	ND	ug/Kg	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Trichloroethene	ND	4.0E+02	ug/Kg	ND	5.1E+01	ug/Kg	ND	5.0E+03	ug/kg	ND	ND	ug/Kg	ND	5.2E+03	ug/Kg	ND	4.7E+04	ug/Kg	ND	ND	ug/Kg
Trichlorofluoromethane	--	--	--	ND	ND	ug/Kg	ND	1.0E+03	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Vanadium	--	--	--	4.7E+03	2.3E+04	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Acetate	--	--	--	--	--	--	ND	ND	ug/kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/Kg
Vinyl Chloride	ND	3.2E+02	ug/Kg	ND	ND	ug/Kg	ND	ND	ug/kg	ND	1.2E+02	ug/Kg	ND	ND	ug/Kg	ND	8.4E+03	ug/Kg	ND	ND	ug/Kg
WHO-TEQ_2005	--	--	--	7.9E+00	3.0E+05	ppt	--	--	--	--	--	--	--	--	--	5.9E+00	4.7E+04	ppt	--	--	--
Xylenes (Total)	1.0E+01	1.0E+02	ug/Kg	ND	1.1E+02	ug/Kg	ND	8.8E+04	ug/kg	ND	4.8E+02	ug/Kg	ND	6.0E+04	ug/Kg	ND	2.3E+05	ug/Kg	ND	1.0E+03	ug/Kg
Zinc	--	--	--	4.8E+03	7.8E+05	ug/Kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TCLP Data																					
1,1,1,2-Tetrachloroethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,1,1-TRICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,1,2-TRICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,1-DICHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,1-DICHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	ND	6.6E+01	ug/L - TCLP	--	--	--	--	--	--
1,1-Dichloropropene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,2,3-Trichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,2,3-Trichloropropane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,2,4,5-TETRACHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,2,4-TRICHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	5.4E+01	ug/L - TCLP	--	--	--	--	--	--
1,2,4-Trimethylbenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--

Table B2-4. Ranges of Detected Compounds in Soils

	RGIS Upgrades Soil Characterization Borings			Dow On-Site Surface Soil Sampling			Dow On-Site Test Pit Soil Sampling			Chemical Disposal Well 3 (prior to source control in 2012)			Worker Exposure Control Program Data			LEL III			Former Chemical Manufacturing Area		
Constituent	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**
1,2-Dibromo-3-chloropropane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,2-DICHLOROBENZENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	5.3E+02	ug/L - TCLP	--	--	--	--	--	--
1,2-Dichloroethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,2-DICHLOROPROPANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,3,5-Trimethylbenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,3-Dichloropropane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	1.2E+03	ug/L - TCLP	--	--	--	--	--	--
1-CHLORONAPHTHALENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
1-METHYLNAPHTHALENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2,2-Dichloropropane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2,4,5-TP (Silvex)	--	--	--	--	--	--	--	--	--	--	--	--	ND	8.2E+00	ug/L - TCLP	--	--	--	--	--	--
2,4,5-Trichlorophenol	--	--	--	--	--	--	--	--	--	--	--	--	ND	5.5E+02	ug/L - TCLP	--	--	--	--	--	--
2,4,6-Trichlorophenol	--	--	--	--	--	--	--	--	--	--	--	--	ND	7.4E+01	ug/L - TCLP	--	--	--	--	--	--
2,4-D	--	--	--	--	--	--	--	--	--	--	--	--	ND	1.1E+01	ug/L - TCLP	--	--	--	--	--	--
2,4-DICHLOROPHENOL	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2,4-DIMETHYLPHENOL	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2,4-Dinitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2,4-Dinitrotoluene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2,6-DICHLOROPHENOL	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2,6-DINITROTOLUENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2-Butanone	--	--	--	--	--	--	--	--	--	--	--	--	ND	5.2E+01	ug/L - TCLP	--	--	--	--	--	--
2-Chloronaphthalene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2-Chlorophenol	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2-Chlorotoluene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2-HEXANONE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2-METHYLNAPHTHALENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2-Nitroaniline	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
2-Nitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
3,3'-DICHLOROBENZIDINE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
3-METHYLCHOLANTHRENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
3-Nitroaniline	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
4,6-DINITRO-2-METHYLPHENOL	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
4-Bromophenyl phenyl ether	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
4-CHLORO-3-METHYLPHENOL	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
4-Chloroaniline	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
4-CHLOROPHENYL PHENYL ETHER	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
4-Chlorotoluene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
4-Nitroaniline	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
4-NITROPHENOL	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
7,12-DIMETHYLBENZ(A)ANTHRACENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
ACENAPHTHENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
ACETONE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
ACETOPHENONE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
ANTHRACENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Antimony	ND	ND	ug/L - TCLP	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	ND	1.1E+05	ug/L - TCLP	--	--	--	--	--	--	--	--	--	ND	1.2E+02	ug/L - TCLP	--	--	--	--	--	--
Barium	ND	1.1E+05	ug/L - TCLP	--	--	--	--	--	--	--	--	--	6.0E+02	1.5E+03	ug/L - TCLP	--	--	--	--	--	--
Benzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	1.0E+03	ug/L - TCLP	--	--	--	--	--	--
BENZO(A)ANTHRACENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
BENZO(A)PYRENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Benzo(b)fluoranthene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--

Table B2-4. Ranges of Detected Compounds in Soils

	RGIS Upgrades Soil Characterization Borings			Dow On-Site Surface Soil Sampling			Dow On-Site Test Pit Soil Sampling			Chemical Disposal Well 3 (prior to source control in 2012)			Worker Exposure Control Program Data			LEL III			Former Chemical Manufacturing Area		
Constituent	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**
Benzo(ghi)perylene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Benzo(k)fluoranthene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
BENZYL BUTYL PHTHALATE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
bis(2-Chloroethoxy)methane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
bis(2-Chloroethyl) ether	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
BIS(2-CHLOROISOPROPYL) ETHER	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
bis(2-Ethylhexyl) phthalate	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
BROMOBENZENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Bromochloromethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Bromodichloromethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
BROMOFORM	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Bromomethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Butyl benzyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Cadmium	ND	1.0E+05	ug/L - TCLP	--	--	--	--	--	--	--	--	--	ND	1.6E+00	ug/L - TCLP	--	--	--	--	--	--
CARBON DISULFIDE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Carbon tetrachloride	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Chlordane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	7.0E+03	ug/L - TCLP	--	--	--	--	--	--
Chlorodibromomethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Chloroethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Chloroform	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Chloromethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Chromium	ND	1.0E+05	ug/L - TCLP	--	--	--	--	--	--	--	--	--	ND	2.0E+01	ug/L - TCLP	--	--	--	--	--	--
CHRYSENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
cis-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
CIS-1,3-DICHLOROPROPENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Cobalt	1.0E+01	1.0E+05	ug/L - TCLP	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	4.0E+00	1.1E+05	ug/L - TCLP	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Cresol	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
CYCLOHEXANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
CYMENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Decachlorobiphenyl	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Dibenz(a,h)anthracene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
DIBROMOCHLOROMETHANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
DIBROMOFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Dibromomethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
DICHLORODIFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
DIETHYL PHTHALATE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Dimethyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
DI-N-BUTYL PHTHALATE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Di-n-octyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Endrin	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
ETHYLBENZENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
FLUORANTHENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Fluorene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
gamma-BHC (Lindane)	--	--	--	--	--	--	--	--	--	--	--	--	ND	1.9E+00	ug/L - TCLP	--	--	--	--	--	--
Heptachlor	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Heptachlor Epoxide	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Hexachloro-1,3-butadiene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Hexachlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Hexachlorobutadiene	--	--	--	--	--	--	--	--	--	--	--	--	ND	1.7E-05	ug/L - TCLP	--	--	--	--	--	--
Hexachlorocyclopentadiene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Hexachloroethane	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--

Table B2-4. Ranges of Detected Compounds in Soils

	RGIS Upgrades Soil Characterization Borings			Dow On-Site Surface Soil Sampling			Dow On-Site Test Pit Soil Sampling			Chemical Disposal Well 3 (prior to source control in 2012)			Worker Exposure Control Program Data			LEL III			Former Chemical Manufacturing Area		
Constituent	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**	**Min**	**Max**	**units**
Isophorone	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Isopropylbenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Lead	ND	1.0E+02	ug/L - TCLP	--	--	--	--	--	--	--	--	--	ND	1.3E+01	ug/L - TCLP	--	--	--	--	--	--
Lindane(g-BHC)	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Lithium	1.0E+01	1.0E+02	ug/L - TCLP	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
m-Cresol	--	--	--	--	--	--	--	--	--	--	--	--	ND	9.2E+00	ug/L - TCLP	--	--	--	--	--	--
m-Cresol & p-Cresol	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Mercury	ND	1.9E+00	ug/L - TCLP	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Methoxychlor	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
METHYL ACETATE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Methyl tert-butyl ether	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
METHYLCYCLOHEXANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
METHYLENE CHLORIDE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
NAPHTHALENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
n-Butylbenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Nickel	1.1E+01	7.1E+01	ug/L - TCLP	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrobenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
N-NITROSODIMETHYLAMINE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
N-NITROSO-DI-N-BUTYLAMINE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
N-NITROSODI-N-PROPYLAMINE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
N-Nitrosodiphenylamine	--	--	--	--	--	--	--	--	--	--	--	--	ND	1.6E+02	ug/L - TCLP	--	--	--	--	--	--
N-PROPYLBENZENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
o-Cresol	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
p-Cresol	--	--	--	--	--	--	--	--	--	--	--	--	ND	9.2E+00	ug/L - TCLP	--	--	--	--	--	--
PENTACHLOROETHANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Pentachlorophenol	--	--	--	--	--	--	--	--	--	--	--	--	ND	3.7E+03	ug/L - TCLP	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
PHENOL	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
p-Isopropyltoluene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Pyridine	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
sec-Butylbenzene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Selenium	ND	9.9E+01	ug/L - TCLP	--	--	--	--	--	--	--	--	--	ND	2.0E+01	ug/L - TCLP	--	--	--	--	--	--
Silver	ND	9.0E+01	ug/L - TCLP	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
STYRENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
T-BUTYLBENZENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Tetrachloroethene	--	--	--	--	--	--	--	--	--	--	--	--	ND	3.2E+03	ug/L - TCLP	--	--	--	--	--	--
Tin	ND	ND	ug/L - TCLP	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Toxaphene	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
TRANS-1,2-DICHLOROETHENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
TRANS-1,3-DICHLOROPROPENE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	ND	1.3E+02	ug/L - TCLP	--	--	--	--	--	--
TRICHLOROFLUOROMETHANE	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Vanadium	ND	ND	ug/L - TCLP	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Xylenes (total)	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ug/L - TCLP	--	--	--	--	--	--
Zinc	2.4E+01	1.1E+05	ug/L - TCLP	--	--	--	--	--	--	--	--	--	2.4E+02	2.3E+03	ug/L - TCLP	--	--	--	--	--	--

ND = Not detected

B2-5.1A Ranges of Confirmed Detections of Compounds in Groundwater
Glacial Till and Regional Aquifer Monitoring Program Wells

Constituent	Minimum	Maximum	Units
1,1-Dichloroethane	ND	ND	ug/L
1,2,3,4-Tetrachlorobenzene	ND	ND	ug/L
1,2,3,5-Tetrachlorobenzene	ND	ND	ug/L
1,2,3-Trichlorobenzene	ND	ND	ug/L
1,2,4,5-Tetrachlorobenzene	ND	ND	ug/L
1,2,4-Trichlorobenzene	ND	ND	ug/L
1,2-Dibromo-3-Chloropropane	ND	ND	ug/L
1,2-Dibromoethane	ND	ND	ug/L
1,2-Dichlorobenzene	ND	ND	ug/L
1,2-Dichloroethane	ND	ND	ug/L
1,3,5-Trichlorobenzene	ND	ND	ug/L
1,3-Dichlorobenzene	ND	ND	ug/L
1,4-Dichlorobenzene	ND	ND	ug/L
1,4-Dioxane	ND	ND	ug/L
2,4,5-T	ND	ND	ug/L
2,4,5-TP (Silvex)	ND	ND	ug/L
2,4,5-Trichlorophenol	ND	ND	ug/L
2,4-D	ND	ND	ug/L
2,4-Dichlorophenol	ND	ND	ug/L
2-Chlorophenol	ND	ND	ug/L
2-Methlyphenol	ND	ND	ug/L
4-Methyl-2-pentanone (MIBK)	ND	ND	ug/L
Acetone	ND	ND	ug/L
Alkalinity	1.7E+05	2.4E+05	ug/L
Alkalinity, Bicarbonate (CaCO3)	2.5E+04	2.8E+05	ug/L
Alkalinity, Carbonate (CaCO3)	ND	1.4E+04	ug/L
Alkalinity, Carbonate/Bicarbonates	2.6E+05	2.7E+05	ug/L
Alkalinity, Total	2.3E+05	2.3E+05	ug/L
Barium	4.6E+01	1.7E+02	ug/L
Barium, Dissolved	4.6E+01	1.7E+02	ug/L
Benzene	ND	ND	ug/L
Benzoic acid	ND	ND	ug/L
Benzoic acid, Methyl Ester	ND	ND	ug/L
Bromoform	ND	ND	ug/L
Calcium	1.8E+04	7.8E+04	ug/L
Calcium, Dissolved	3.2E+04	6.5E+04	ug/L
Chloride	3.0E+04	9.1E+05	ug/L
Chlorobenzene	ND	ND	ug/L
Chloroform	ND	ND	ug/L
Copper	ND	1.9E+00	ug/L
Copper, Dissolved	ND	7.1E+00	ug/L
Dibromomethane	ND	ND	ug/L
Dichlorodifluoromethane	ND	ND	ug/L
Diphenyl ether	ND	ND	ug/L
Ethylene Dibromide	ND	ND	ug/L
Hexachlorobenzene	ND	ND	ug/L

B2-5.1A Ranges of Confirmed Detections of Compounds in Groundwater
Glacial Till and Regional Aquifer Monitoring Program Wells

Constituent	Minimum	Maximum	Units
Iron	ND	1.1E+04	ug/L
Iron, Dissolved	ND	1.0E+03	ug/L
Isophorone	2.4E+02	2.4E+02	ug/L
Magnesium	8.2E+03	2.6E+04	ug/L
Magnesium, Dissolved	1.2E+04	2.3E+04	ug/L
Methyl ethyl ketone (MEK)	ND	ND	ug/L
Methyl isobutyl ketone	ND	ND	ug/L
Methylene Chloride	ND	ND	ug/L
Nickel	ND	ND	ug/L
Nickel, Dissolved	ND	ND	ug/L
o-Chlorophenol	ND	ND	ug/L
Pentachlorobenzene	ND	ND	ug/L
Pentachlorophenol	ND	ND	ug/L
Phenol	ND	ND	ug/L
Potassium	5.7E+02	6.1E+03	ug/L
Potassium, Dissolved	2.3E+03	5.3E+03	ug/L
Silvex	ND	ND	ug/L
Sodium	6.3E+04	6.1E+05	ug/L
Sodium, Dissolved	1.8E+05	4.9E+05	ug/L
Sulfate	ND	1.3E+05	ug/L
Trichlorofluoromethane (Freon-11)	ND	ND	ug/L
Zinc	ND	5.8E+01	ug/L
Zinc, Dissolved	ND	9.6E+00	ug/L

Abbreviations:
ND - Not Detected at Reporting Limit
ug/L - micrograms per liter

B2-5.1B Ranges of Detected Compounds in Groundwater
Deep Sands Investigation Wells

Constituent	Minimum	Maximum	Units
1,1-Dichloroethane	ND	1.1E+02	ug/L
1,2,4-Trichlorobenzene	ND	1.2E+02	ug/L
1,2-Dibromo-3-Chloropropane	ND	1.2E+02	ug/L
1,2-Dibromoethane (EDB)	ND	1.1E+02	ug/L
1,2-Dichlorobenzene	ND	1.1E+02	ug/L
1,2-Dichloroethane	ND	1.2E+02	ug/L
1,4-Dichlorobenzene	ND	1.0E+02	ug/L
1,4-Dioxane	ND	3.7E+02	ug/L
2,4,5-T	ND	1.2E+02	ug/L
2,4,5-TP (Silvex)	ND	1.4E+02	ug/L
2,4,5-Trichlorophenol	ND	8.7E+01	ug/L
2,4-D	ND	1.3E+02	ug/L
2,4-Dichlorophenol	ND	8.3E+01	ug/L
2-Chlorophenol	ND	8.1E+01	ug/L
4-Methyl-2-pentanone (MIBK)	ND	1.2E+02	ug/L
Acetone	ND	1.7E+03	ug/L
Alkalinity, Bicarbonate (CaCO3)	1.7E+02	4.8E+05	ug/L
Alkalinity, Carbonate (CaCO3)	ND	9.1E+00	ug/L
Barium, Dissolved	7.5E+01	2.2E+03	ug/L
Benzene	ND	1.2E+03	ug/L
Benzoic acid	ND	1.0E+02	ug/L
Bromoform	ND	1.0E+02	ug/L
Calcium	3.8E+04	3.2E+05	ug/L
Calcium, Dissolved	3.6E+04	1.3E+05	ug/L
Chloride	1.6E+02	8.9E+05	ug/L
Chlorobenzene	ND	1.3E+03	ug/L
Chloroform	ND	1.1E+02	ug/L
Copper, Dissolved	ND	2.7E+02	ug/L
Dichlorodifluoromethane	ND	2.1E+01	ug/L
Dibromomethane	ND	ND	ug/L
Iron	ND	2.9E+03	ug/L
Iron, Dissolved	1.5E+02	1.8E+03	ug/L
Magnesium	1.4E+04	1.8E+05	ug/L
Magnesium, Dissolved	1.4E+04	4.8E+04	ug/L
Methyl ethyl ketone (MEK)	ND	5.6E+02	ug/L
Methylene Chloride	ND	1.1E+02	ug/L
Nickel, Dissolved	ND	5.6E+02	ug/L
Pentachlorophenol	ND	1.3E+02	ug/L
Phenol	ND	8.0E+01	ug/L
Potassium	1.2E+03	6.1E+04	ug/L
Potassium, Dissolved	1.2E+03	3.2E+03	ug/L
Sodium	1.6E+05	5.0E+08	ug/L
Sodium, Dissolved	1.2E+05	2.1E+05	ug/L
Sulfate	ND	1.3E+05	ug/L
Trichlorofluoromethane (Freon-11)	ND	1.2E+02	ug/L
Zinc	ND	5.8E+02	ug/L

Abbreviations:
ND - Not Detected at Reporting Limit
ug/L - micrograms per liter

B2-5.2A Ranges of Confirmed Detections of Compounds in Groundwater
Sludge Dewatering Facility Monitoring Program Wells

Constituent	Minimum	Maximum	Units
1,2-Dichlorobenzene	ND	ND	ug/L
1,3-Dichlorobenzene	ND	ND	ug/L
1,4-Dichlorobenzene	ND	ND	ug/L
Alkalinity, Bicarbonate	1.3E+02	5.0E+05	ug/L
Alkalinity, Carbonate	ND	ND	ug/L
Benzene	ND	ND	ug/L
Bis(2-chloroisopropyl) ether	ND	ND	ug/L
Calcium	5.7E+03	8.7E+06	ug/L
Chloride	1.4E+04	2.8E+07	ug/L
Chlorobenzene	ND	ND	ug/L
Ethylbenzene	ND	ND	ug/L
Iron	ND	1.6E+04	ug/L
Magnesium	2.0E+03	2.6E+06	ug/L
Methylene chloride	ND	ND	ug/L
Methyl ethyl ketone (MEK)	ND	ND	ug/L
Potassium	4.3E+02	6.9E+04	ug/L
Silver	ND	ND	ug/L
Sodium	1.2E+04	2.6E+06	ug/L
Sulfate	3.6E+03	9.8E+05	ug/L
Toluene	ND	ND	ug/L

Abbreviations:
ND - Not Detected at Reporting Limit
ug/L - micrograms per liter

B2-5.2B Ranges of Confirmed Detections of Compounds in Groundwater
Sludge Dewatering Facility Monitoring Program Wells

Constituent	Minimum	Maximum	Units
1,1,1,2-Tetrachloroethane	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ug/L
1,1,2-Trichlorofluoromethane	ND	ND	ug/L
1,1-Dichloroethane	1.4E+00	4.0E+00	ug/L
1,1-Dichloroethene	ND	ND	ug/L
1,2,3,4-Tetrachlorobenzene	2.8E+01	2.8E+01	ug/L
1,2,3,5-Tetrachlorobenzene	ND	ND	ug/L
1,2,3-Trichlorobenzene	ND	ND	ug/L
1,2,3-Trichloropropane	ND	ND	ug/L
1,2,4,5-Tetrachlorobenzene	ND	ND	ug/L
1,2,4-Trichlorobenzene	ND	6.0E+00	ug/L
1,2-Dibromo-3-Chloropropane	ND	ND	ug/L
1,2-Dibromoethane	ND	ND	ug/L
1,2-Dichlorobenzene	4.6E+01	8.9E+01	ug/L
1,2-Dichloroethane	ND	1.5E+00	ug/L
1,2-Dichloropropane	ND	1.1E+00	ug/L
1,3,5-Trichlorobenzene	ND	ND	ug/L
1,3,5-Trinitrobenzene	ND	ND	ug/L
1,3-Butadiene	ND	ND	ug/L
1,3-Dichlorobenzene	5.5E+01	8.4E+01	ug/L
1,4-Dichlorobenzene	1.4E+02	2.6E+02	ug/L
1,4-Dioxane	ND	ND	ug/L
1,4-Naphthoquinone	ND	ND	ug/L
1234678-H7CDD	1.9E+02	3.9E+03	ppt
1234678-H7CDF	4.8E+02	9.3E+03	ppt
1234789-H7CDF	ND	1.6E+02	ppt
123478-HCDD	ND	2.3E+01	ppt
123478-HCDF	1.1E+01	2.5E+02	ppt
123678-HCDD	8.6E+00	1.7E+02	ppt
123678-HCDF	ND	8.2E+01	ppt
123789-HCDD	ND	5.1E+01	ppt
123789-HCDF	ND	4.5E+01	ppt
12378-PCDF	ND	1.2E+01	ppt
12378-PeCDD	2.4E+00	4.0E+01	ppt
1-Chloroaphthalene	ND	ND	ug/L
1-Naphthylamine	ND	ND	ug/L
2,2',4,4',5,5'-Hexabromobiphenyl	ND	ND	ug/L
2,3,4,6-Tetrachlorophenol	ND	ND	ug/L
2,4,5-T	ND	ND	ug/L

B2-5.2B Ranges of Confirmed Detections of Compounds in Groundwater
Sludge Dewatering Facility Monitoring Program Wells

Constituent	Minimum	Maximum	Units
2,4,5-Trichlorophenol	ND	ND	ug/L
2,4,6-Trichlorophenol	ND	ND	ug/L
2,4-D	ND	ND	ug/L
2,4-Dichlorophenol	ND	ND	ug/L
2,4-Dimethylphenol	ND	ND	ug/L
2,4-Dinitrophenol	ND	ND	ug/L
2,4-Dinitrotoluene	ND	ND	ug/L
2,6-Dichlorophenol	ND	ND	ug/L
2,6-Dinitrotoluene	ND	ND	ug/L
2,6-Diphenyl phenol	ND	ND	ug/L
234678-HCDF	4.4E+00	8.7E+01	ppt
23478-PCDF	9.0E+00	1.4E+02	ppt
2378-TCDD	ND	3.9E+01	ppt
2378-TCDF	ND	1.4E+01	ppt
2-Acetylaminofluorene	ND	ND	ug/L
2-Chloronaphthalene	ND	ND	ug/L
2-Chlorophenol	ND	ND	ug/L
2-Ethyltoluene	3.9E+01	3.9E+01	ug/L
2-Hexanone	ND	ND	ug/L
2-Methylnaphthalene	ND	ND	ug/L
2-Methylphenol	ND	ND	ug/L
2-Naphthylamine	ND	ND	ug/L
2-Nitroaniline	ND	ND	ug/L
2-Nitrophenol	ND	ND	ug/L
2-Picoline	ND	ND	ug/L
3,3'-Dichlorobenzidine	ND	ND	ug/L
3,3'-Dimethylbenzidine	ND	ND	ug/L
3/4-Methylphenol	ND	2.0E+01	ug/L
3-Ethyltoluene	6.5E+01	6.5E+01	ug/L
3-Methylcholanthrene	ND	ND	ug/L
3-Nitroaniline	ND	ND	ug/L
3-Vinyl Toluene	ND	ND	ug/L
4,4'-DDD	ND	ND	ug/L
4,4'-DDE	ND	ND	ug/L
4,4'-DDT	ND	ND	ug/L
4,6-Dinitro-2-methylphenol	ND	ND	ug/L
4-Aminobiphenyl	ND	ND	ug/L
4-Bromophenyl phenyl ether	ND	ND	ug/L
4-Chloro-3-methylphenol	ND	ND	ug/L
4-Chloroaniline	ND	ND	ug/L
4-Chlorophenyl phenyl ether	ND	ND	ug/L
4-Nitroaniline	ND	ND	ug/L

B2-5.2B Ranges of Confirmed Detections of Compounds in Groundwater
Sludge Dewatering Facility Monitoring Program Wells

Constituent	Minimum	Maximum	Units
4-Nitrophenol	ND	ND	ug/L
4-Nitroquinoline-1-oxide	ND	ND	ug/L
4-Vinyl Toluene	ND	ND	ug/L
5-Nitro-o-toluidine	ND	ND	ug/L
7,12-Dimethylbenz(a)anthracene	ND	ND	ug/L
a,a-Dimethylphenethylamine	ND	ND	ug/L
Acenaphthene	ND	ND	ug/L
Acenaphthylene	ND	ND	ug/L
Acetone	ND	ND	ug/L
Acetonitrile	ND	1.6E+01	ug/L
Acetophenone	ND	ND	ug/L
Acrolein	ND	ND	ug/L
Acrylitrile	ND	ND	ug/L
Acrylonitrile	ND	ND	ug/L
Aldrin	ND	ND	ug/L
Alkalinity, Bicarbonate	5.0E+05	5.0E+05	ug/L
Alkalinity, Carbonate	ND	ND	ug/L
Alkalinity, Carbonate/Bicarbonates	6.9E+05	6.9E+05	ug/L
Allyl chloride	ND	1.0E+00	ug/L
alpha-BHC	ND	9.4E-02	ug/L
Alpha-Chlordane	ND	ND	ug/L
Aniline	ND	ND	ug/L
Anthracene	ND	ND	ug/L
Antimony	ND	2.9E+00	ug/L
Aramite	ND	ND	ug/L
Aroclor 1016	ND	ND	ug/L
Aroclor 1221	ND	ND	ug/L
Aroclor 1232	ND	ND	ug/L
Aroclor 1242	ND	ND	ug/L
Aroclor 1248	ND	ND	ug/L
Aroclor 1254	ND	ND	ug/L
Aroclor 1260	ND	ND	ug/L
Arsenic	3.0E+00	7.8E+00	ug/L
Azobenzene	ND	ND	ug/L
Barium	4.3E+02	6.0E+02	ug/L
Benzene	2.4E+02	3.9E+02	ug/L
Benzidine	ND	ND	ug/L
Benzo(a)anthracene	ND	ND	ug/L
Benzo(a)pyrene	ND	ND	ug/L
Benzo(b)fluoranthene	ND	ND	ug/L
Benzo(ghi)perylene	ND	ND	ug/L
Benzo(k)fluoranthene	ND	ND	ug/L

B2-5.2B Ranges of Confirmed Detections of Compounds in Groundwater
Sludge Dewatering Facility Monitoring Program Wells

Constituent	Minimum	Maximum	Units
Benzyl alcohol	ND	ND	ug/L
Beryllium	ND	ND	ug/L
beta-BHC	ND	ND	ug/L
Bis(2-chloroethoxy) methane	ND	ND	ug/L
Bis(2-chloroethyl) ether	ND	ND	ug/L
Bis(2-chloroisopropyl) ether	ND	4.1E+01	ug/L
Bis(2-ethylhexyl)phthalate	ND	ND	ug/L
Bromobenzene	1.5E+00	1.5E+00	ug/L
Bromochloromethane	ND	ND	ug/L
Bromodichloromethane	ND	ND	ug/L
Bromoform	ND	ND	ug/L
Bromomethane	ND	ND	ug/L
Butyl benzyl phthalate	ND	ND	ug/L
Cadmium	ND	ND	ug/L
Calcium	4.8E+05	4.8E+05	ug/L
Carbon disulfide	ND	ND	ug/L
Carbon tetrachloride	ND	ND	ug/L
Chlordane (cis)	ND	ND	ug/L
Chloride	2.7E+06	2.8E+06	ug/L
Chlorobenzene	7.7E+02	8.3E+02	ug/L
Chlorobenzilate	ND	ND	ug/L
Chlorodane (trans)	ND	ND	ug/L
Chlorodibromomethane	ND	ND	ug/L
Chloroethane	ND	ND	ug/L
Chloroform	ND	ND	ug/L
Chloromethane	ND	ND	ug/L
Chloroprene	ND	ND	ug/L
Chlorpyrifos	ND	ND	ug/L
Chromium	ND	4.1E+00	ug/L
Chrysene	ND	ND	ug/L
cis-1,2-Dichloroethene	ND	ND	ug/L
cis-1,3-Dichloropropene	ND	ND	ug/L
cis-1,4-dichloro-2-butene	1.1E+00	1.1E+00	ug/L
Cobalt	ND	5.5E+00	ug/L
Copper	1.7E+00	1.4E+01	ug/L
Cyanide, Total	ND	ND	ug/L
delta-BHC	ND	ND	ug/L
Diallate	ND	ND	ug/L
Dibenz[a,j]acridine	ND	ND	ug/L
Dibenzo(a,h)anthracene	ND	ND	ug/L
Dibenzofuran	ND	ND	ug/L
Dibromochloromethane	ND	ND	ug/L

B2-5.2B Ranges of Confirmed Detections of Compounds in Groundwater
Sludge Dewatering Facility Monitoring Program Wells

Constituent	Minimum	Maximum	Units
Dibromomethane	ND	ND	ug/L
Dichlorodifluoromethane	ND	ND	ug/L
Dieldrin	ND	ND	ug/L
Diethyl phthalate	ND	ND	ug/L
Dimethoate	ND	ND	ug/L
Dimethyl phthalate	ND	ND	ug/L
Di-n-butyl phthalate	ND	ND	ug/L
Di-n-octyl phthalate	ND	ND	ug/L
Dinoseb	ND	ND	ug/L
Diphenylamine	ND	ND	ug/L
Disulfoton	ND	ND	ug/L
Diethyl phthalate	ND	ND	ug/L
Endosulfan I	ND	ND	ug/L
Endosulfan II	ND	ND	ug/L
Endosulfan sulfate	ND	ND	ug/L
Endrin	ND	ND	ug/L
Endrin aldehyde	ND	ND	ug/L
Endrin Ketone	ND	ND	ug/L
Ethyl Acetate	ND	ND	ug/L
Ethyl chloride	ND	ND	ug/L
Ethyl Ether	ND	ND	ug/L
Ethyl methacrylate	ND	ND	ug/L
Ethyl methanesulfonate	ND	ND	ug/L
Ethylbenzene	1.1E+02	1.4E+02	ug/L
Ethylene Oxide	5.0E+00	5.0E+00	ug/L
Famphur	ND	ND	ug/L
Fluoranthene	ND	ND	ug/L
Fluorene	ND	ND	ug/L
Fluorobenzene	ND	ND	ug/L
gamma-BHC (Lindane)	ND	ND	ug/L
gamma-chlordane	ND	ND	ug/L
Heptachlor	ND	ND	ug/L
Heptachlor epoxide	ND	ND	ug/L
Hexabromobenzene	ND	ND	ug/L
Hexachlorobenzene	ND	ND	ug/L
Hexachlorobutadiene	ND	ND	ug/L
Hexachlorocyclopentadiene	ND	ND	ug/L
Hexachloroethane	ND	ND	ug/L
Hexachlorophene (methylated)	ND	ND	ug/L
Hexachloropropene	ND	ND	ug/L
Indeno(1,2,3-cd)pyrene	ND	ND	ug/L
Iodomethane	ND	ND	ug/L

B2-5.2B Ranges of Confirmed Detections of Compounds in Groundwater
Sludge Dewatering Facility Monitoring Program Wells

Constituent	Minimum	Maximum	Units
Iron	9.0E+03	9.0E+03	ug/L
Isobutanol	ND	ND	ug/L
Isodrin	ND	ND	ug/L
Isophorone	ND	ND	ug/L
Isopropylbenzene	6.0E+00	6.0E+00	ug/L
Isosafrole	ND	ND	ug/L
Kepone	ND	ND	ug/L
Lead	ND	ND	ug/L
m-&p-Xylene	7.0E+00	9.2E+00	ug/L
Magnesium	4.3E+05	4.3E+05	ug/L
m-Dinitrobenzene	ND	ND	ug/L
Mercury	ND	ND	ug/L
Methacrylonitrile	ND	ND	ug/L
Methapyrilene	ND	ND	ug/L
Methoxychlor	ND	ND	ug/L
Methyl Chloride	ND	ND	ug/L
Methyl Ether	6.0E+01	6.0E+01	ug/L
Methyl ethyl ketone (MEK)	ND	3.5E+01	ug/L
Methyl Iodide	ND	5.0E+00	ug/L
Methyl methacrylate	ND	ND	ug/L
Methyl methanesulfonate	ND	ND	ug/L
Methyl parathion	ND	ND	ug/L
Methylene chloride	ND	9.4E+00	ug/L
Methylisobutylketone	ND	9.1E+00	ug/L
Mirex	ND	ND	ug/L
Naphthalene	ND	4.9E+00	ug/L
n-Butanol	3.5E+01	3.5E+01	ug/L
Nickel	1.5E+01	1.6E+01	ug/L
Nitrobenzene	ND	ND	ug/L
N-Nitrosodiethylamine	ND	ND	ug/L
N-Nitrosodimethylamine	ND	ND	ug/L
N-Nitroso-di-n-butylamine	ND	ND	ug/L
N-Nitroso-di-n-propylamine	ND	ND	ug/L
N-Nitrosodiphenylamine	ND	3.4E+00	ug/L
N-Nitrosomethylethylamine	ND	ND	ug/L
N-Nitrosomorpholine	ND	ND	ug/L
N-Nitrosopiperidine	ND	ND	ug/L
N-Nitrosopyrrolidine	ND	ND	ug/L
N-propylbenezene	1.1E+00	1.1E+00	ug/L
o,o,o-Triethyl phosphorothioate	ND	ND	ug/L
OCDD	1.7E+03	4.8E+04	ppt
OCDF	4.9E+02	1.2E+04	ppt

B2-5.2B Ranges of Confirmed Detections of Compounds in Groundwater
Sludge Dewatering Facility Monitoring Program Wells

Constituent	Minimum	Maximum	Units
o-Phenyl phenol	3.1E+01	3.1E+01	ug/L
o-Toluidine	ND	ND	ug/L
o-Xylene	3.1E+00	5.6E+00	ug/L
p-(Dimethylamino)azobenzene	ND	ND	ug/L
Parathion	ND	ND	ug/L
PCB-1016	ND	ND	ug/L
PCB-1221	ND	ND	ug/L
PCB-1232	ND	ND	ug/L
PCB-1242	ND	ND	ug/L
PCB-1248	ND	ND	ug/L
PCB-1254	ND	ND	ug/L
PCB-1260	ND	ND	ug/L
p-Chloroaniline	ND	ND	ug/L
p-Dimethylaminoazobenzene	ND	ND	ug/L
Pentachlorobenzene	ND (ppt)	ND (ug/L)	ppt / ug/L
Pentachloroethane	ND	ND	ug/L
Pentachloronitrobenzene	ND	ND	ug/L
Pentachlorophenol	ND	ND	ug/L
Phenacetin	ND	ND	ug/L
Phenanthrene	ND	ND	ug/L
Phenol	ND	3.2E+01	ug/L
Phenolics	1.6E+02	1.6E+02	ug/L
Phorate	ND	ND	ug/L
Potassium	6.1E+04	6.1E+04	ug/L
p-Phenylenediamine	ND	ND	ug/L
Pronamide	ND	ND	ug/L
Propionitrile	ND	ND	ug/L
Proplene Oxide	ND	ND	ug/L
Pyrene	ND	ND	ug/L
Pyridine	ND	ND	ug/L
Safrole	ND	ND	ug/L
Selenium	ND	ND	ug/L
Silver	ND	1.4E+00	ug/L
Silvex	1.7E+01	1.7E+01	ug/L
Sodium	7.3E+05	7.3E+05	ug/L
Styrene	ND	ND	ug/L
Sulfate	9.3E+04	1.1E+05	ug/L
Sulfotepp	ND	ND	ug/L
t-Butyl Phenol	ND	ND	ug/L
Tetrachloroethene	1.0E+00	2.6E+00	ug/L
Thallium	ND	ND	ug/L
Thionazin	ND	ND	ug/L

B2-5.2B Ranges of Confirmed Detections of Compounds in Groundwater
Sludge Dewatering Facility Monitoring Program Wells

Constituent	Minimum	Maximum	Units
Tin	ND	ND	ug/L
TOC	1.2E+05	1.2E+05	ug/L
Toluene	1.4E+01	2.4E+01	ug/L
Total H7CDDs	3.3E+01	6.7E+03	ppt
Total H7CDFs	8.2E+02	1.7E+04	ppt
Total HCDDs	5.9E+01	1.1E+03	ppt
Total HCDFs	2.0E+02	3.3E+03	ppt
Total PCDDs	2.1E+01	4.0E+02	ppt
Total PCDFs	6.2E+01	9.4E+02	ppt
Total Sulfide	ND (ug/L)	ND (mg/L)	ug/L / mg/L
Total TCDDs	6.4E+01	9.2E+02	ppt
Total TCDFs	4.5E+02	1.2E+04	ppt
Total TEC	4.2E+03	4.2E+03	ppt
Toxaphene	ND	ND	ug/L
Trans-1,2-Dichloroethene	ND	ND	ug/L
Trans-1,2-Dichloropropene	ND	ND	ug/L
trans-1,3-Dichloropropene	ND	ND	ug/L
trans-1,4-dichloro-2-butene	ND	ND	ug/L
Trichloroethene	ND	ND	ug/L
Trichlorofluoromethane	ND	7.3E+00	ug/L
Vanadium	ND	ND	ug/L
Vinyl Acetate	ND	ND	ug/L
Vinyl Chloride	ND	1.2E+01	ug/L
Zinc	2.2E+01	3.2E+01	ug/L

Abbreviations:
mg/L - milligrams per liter
ND - Not Detected at Reporting Limit
ppt - parts per trillion
ug/L - micrograms per liter

B2-5.3 Ranges of Detected Compounds in Groundwater
Poseyville Landfill

Constituent	Min	Max	Units
Benzene	ND	8.6E+03	ug/L
Chlorobenzene	ND	1.3E+03	ug/L
Chloroform	ND	1.6E+02	ug/L
Ethylbenzene	ND	2.2E+02	ug/L

ND = Not Detected

B2-5.4 Ranges of Detected Compounds in Groundwater
Seventh Street Purge Wells

Constituent	Min	Max	Units
1,1,1,2-Tetrachloroethane	ND	2.0E+01	ug/L
1,1,1-Trichloroethane	ND	9.2E+02	ug/L
1,1,2,2-Tetrachloroethane	ND	1.9E+01	ug/L
1,1,2-Trichloroethane	ND	2.0E+01	ug/L
1,1-Dichloroethane	ND	2.2E+01	ug/L
1,1-Dichloroethene	ND	3.2E+02	ug/L
1,2,3-Trichloropropane	ND	1.9E+01	ug/L
1,2,4-Trichlorobenzene	ND	1.9E+01	ug/L
1,2,4-Trimethylbenzene	ND	1.7E+03	ug/L
1,2-Dibromo-3-chloropropane	ND	1.8E+01	ug/L
1,2-Dibromoethane	ND	2.1E+01	ug/L
1,2-Dichlorobenzene	ND	2.2E+01	ug/L
1,2-Dichloroethane	ND	1.9E+01	ug/L
1,2-Dichloroethene, Total	ND	ND	ug/L
1,2-Dichloropropane	ND	9.2E+02	ug/L
1,3,5-Trimethylbenzene	ND	1.6E+03	ug/L
1,3-Dichlorobenzene	ND	2.1E+01	ug/L
1,3-Dichloropropene, Total	ND	ND	ug/L
1,4-Dichlorobenzene	ND	2.1E+01	ug/L
1,4-Dioxane	ND	4.5E+01	ug/L
1-Methylnaphthalene	ND	1.6E+01	ug/L
2-Butanone	ND	8.9E+02	ug/L
2-Hexanone	ND	1.8E+01	ug/L
2-Methylnaphthalene	ND	1.5E+01	ug/L
4-Methyl-2-pentanone	ND	2.4E+01	ug/L
Acenaphthene	ND	1.7E+01	ug/L
Acetone	ND	1.1E+03	ug/L
Acrylonitrile	ND	1.8E+01	ug/L
Alkalinity	ND	8.0E+05	ug/L
Anthracene	ND	2.0E+01	ug/L
Arsenic	ND	9.5E+02	ug/L
Benzene	ND	9.9E+02	ug/L
Benzo(a)pyrene	ND	1.9E+01	ug/L
Benzo(b)fluoranthene	ND	2.1E+01	ug/L
Benzo(g,h,i)perylene	ND	2.0E+01	ug/L
Bromochloromethane	ND	2.1E+01	ug/L
Bromodichloromethane	ND	8.0E+02	ug/L
Bromomethane	ND	2.9E+02	ug/L
Cadmium	ND	1.0E+03	ug/L
Carbon disulfide	ND	1.4E+03	ug/L
Carbon tetrachloride	ND	2.2E+01	ug/L
Chloride	ND	3.7E+06	ug/L
Chlorobenzene	ND	8.0E+01	ug/L

B2-5.4 Ranges of Detected Compounds in Groundwater
Seventh Street Purge Wells

Constituent	Min	Max	Units
Chloroethane	ND	7.7E+02	ug/L
Chloroform	ND	8.7E+02	ug/L
Chloromethane	ND	9.2E+02	ug/L
Chromium	ND	9.7E+02	ug/L
Chrysene	ND	1.9E+01	ug/L
cis-1,2-Dichloroethene	ND	8.6E+02	ug/L
cis-1,3-Dichloropropene	ND	2.0E+01	ug/L
Cyanide, Total	ND	4.8E+01	ug/L
Dibromochloromethane	ND	2.0E+01	ug/L
Dibromomethane	ND	1.9E+01	ug/L
Dichlorodifluoromethane	ND	6.9E+02	ug/L
Diesel	ND	2.2E+03	ug/L
Diethyl ether	ND	ND	ug/L
DRO (C10-C32)	ND	ND	ug/L
Ethylbenzene	ND	1.2E+03	ug/L
Fluoranthene	ND	1.9E+01	ug/L
Fluorene	ND	1.6E+01	ug/L
GRO (C6-C10)	ND	2.6E+04	ug/L
Hexachloroethane	ND	2.1E+01	ug/L
Isopropylbenzene	ND	9.7E+02	ug/L
Lead	ND	1.0E+03	ug/L
m,p-Xylene	ND	4.2E+01	ug/L
Methyl iodide	ND	1.9E+01	ug/L
Methyl tert-butyl ether	ND	2.0E+01	ug/L
Methylene chloride	ND	2.1E+01	ug/L
Naphthalene	ND	1.9E+01	ug/L
n-Propylbenzene	ND	1.2E+03	ug/L
o-Xylene	ND	1.2E+03	ug/L
Phenanthrene	ND	1.8E+01	ug/L
Pyrene	ND	1.8E+01	ug/L
sec-Butylbenzene	ND	1.0E+03	ug/L
Styrene	ND	1.9E+01	ug/L
Tetrachloroethene	ND	8.9E+02	ug/L
Tetrahydrofuran	ND	9.6E+02	ug/L
Toluene	ND	1.1E+03	ug/L
trans-1,2-Dichloroethene	ND	2.2E+01	ug/L
trans-1,3-Dichloropropene	ND	2.0E+01	ug/L
trans-1,4-Dichloro-2-butene	ND	1.8E+01	ug/L
Trichloroethene	ND	9.0E+02	ug/L
Trichlorofluoromethane	ND	3.9E+01	ug/L
Vinyl acetate	ND	ND	ug/L
Vinyl chloride	ND	2.2E+01	ug/L
Xylenes, Total	ND	3.8E+03	ug/L

ND = Not Detected

B2-5.5 Ranges of Detected Compounds in Groundwater
SandBar

Constituent	Min	Max	Units
1,2-Dichlorobenzene	ND	4.3E+02	ug/L
1,3-Dichlorobenzene	ND	5.2E+01	ug/L
1,4-Dichlorobenzene	ND	8.1E+02	ug/L
Benzene	ND	1.7E+03	ug/L
Chlorobenzene	ND	3.3E+02	ug/L

ND = Not Detected

B2-5.6 Ranges of Detected Compounds in Groundwater
Tertiary Pond Recovery Monitoring

Constituent	Min	Max	Units
1,1,1,2-Tetrachloroethane	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ug/L
1,1-Dichloroethane	ND	ND	ug/L
1,1-Dichloroethene	ND	ND	ug/L
1,2,3-Trichloropropane	ND	ND	ug/L
1,2,4,5-Tetrachlorobenzene	ND	ND	ug/L
1,2,4-Trichlorobenzene	ND	ND	ug/L
1,2-Dibromo-3-chloropropane	ND	ND	ug/L
1,2-Dibromoethane (EDB)	ND	ND	ug/L
1,2-Dichlorobenzene	ND	ND	ug/L
1,2-Dichloroethane	ND	ND	ug/L
1,2-Dichloropropane	ND	ND	ug/L
1,3,5-Trinitrobenzene	ND	ND	ug/L
1,3-Dichlorobenzene	ND	ND	ug/L
1,3-Dinitrobenzene	ND	ND	ug/L
1,4-Dichlorobenzene	3.7E+00	3.7E+00	ug/L
1,4-Dioxane	ND	3.5E+02	ug/L
1,4-Naphthoquinone	ND	ND	ug/L
1234678- H7CDD	ND	ND	ppt
1234678- H7CDF	1.3E-03	1.3E-03	ppt
1234789- H7CDF	ND	ND	ppt
123478-HCDD	ND	ND	ppt
123478-HCDF	ND	ND	ppt
123678-HCDD	ND	ND	ppt
123678-HCDF	ND	ND	ppt
123789-HCDD	ND	ND	ppt
123789-HCDF	ND	ND	ppt
12378-PCDD	ND	ND	ppt
12378-PCDF	ND	ND	ppt
1-Naphthylamine	ND	ND	ug/L
2,3,4,6-Tetrachlorophenol	ND	ND	ug/L
2,4,5-T	ND	ND	ug/L
2,4,5-Trichlorophenol	ND	ND	ug/L
2,4,6-Trichlorophenol	ND	ND	ug/L
2,4-D	ND	ND	ug/L
2,4-Dichlorophenol	ND	ND	ug/L
2,4-Dimethylphenol	ND	ND	ug/L
2,4-Dinitrophenol	ND	ND	ug/L
2,4-Dinitrotoluene	ND	ND	ug/L
2,6-Dichlorophenol	ND	ND	ug/L
2,6-Dinitrotoluene	ND	ND	ug/L

B2-5.6 Ranges of Detected Compounds in Groundwater
Tertiary Pond Recovery Monitoring

Constituent	Min	Max	Units
234678-HCDF	ND	ND	ppt
23478-PCDF	ND	ND	ppt
2378-TCDD	ND	ND	ppt
2378-TCDF	ND	ND	ppt
2-Acetylaminofluorene	ND	ND	ug/L
2-Butanone (MEK)	ND	ND	ug/L
2-Chloronaphthalene	ND	ND	ug/L
2-Chlorophenol	ND	ND	ug/L
2-Hexanone	ND	ND	ug/L
2-Methylnaphthalene	ND	ND	ug/L
2-Methylphenol	ND	ND	ug/L
2-Naphthylamine	ND	ND	ug/L
2-Nitroaniline	ND	ND	ug/L
2-Nitrophenol	ND	ND	ug/L
2-Picoline	ND	ND	ug/L
2-Toluidine	ND	ND	ug/L
3 & 4 Methylphenol	ND	ND	ug/L
3,3'-Dichlorobenzidine	ND	ND	ug/L
3,3'-Dimethylbenzidine	ND	ND	ug/L
3-Chloropropene	ND	ND	ug/L
3-Methylcholanthrene	ND	ND	ug/L
3-Nitroaniline	ND	ND	ug/L
4,4'-DDD	ND	ND	ug/L
4,4'-DDE	ND	ND	ug/L
4,4'-DDT	ND	ND	ug/L
4,6-Dinitro-2-methylphenol	ND	ND	ug/L
4-Aminobiphenyl	ND	ND	ug/L
4-Bromophenyl phenyl ether	ND	ND	ug/L
4-Chloro-3-methylphenol	ND	ND	ug/L
4-Chloroaniline	ND	ND	ug/L
4-Chlorophenyl phenyl ether	ND	ND	ug/L
4-Methyl-2-pentanone (MIBK)	ND	ND	ug/L
4-Nitroaniline	ND	ND	ug/L
4-Nitrophenol	ND	ND	ug/L
4-Nitroquinoline-1-oxide	ND	ND	ug/L
5-Nitro-o-toluidine	ND	ND	ug/L
7,12-Dimethylbenz[a]anthracene	ND	ND	ug/L
a,a-Dimethylphenethylamine	ND	ND	ug/L
Acenaphthene	ND	ND	ug/L
Acenaphthylene	ND	ND	ug/L
Acetone	ND	ND	ug/L
Acetonitrile	ND	ND	ug/L
Acetophenone	ND	ND	ug/L

B2-5.6 Ranges of Detected Compounds in Groundwater
Tertiary Pond Recovery Monitoring

Constituent	Min	Max	Units
Acrolein	ND	ND	ug/L
Acrylonitrile	ND	ND	ug/L
Aldrin	ND	ND	ug/L
alpha-BHC	ND	ND	ug/L
Aniline	ND	ND	ug/L
Anthracene	ND	ND	ug/L
Antimony	ND	ND	ug/L
Aramite	ND	ND	ug/L
Aroclor-1016	ND	ND	ug/L
Aroclor-1221	ND	ND	ug/L
Aroclor-1232	ND	ND	ug/L
Aroclor-1242	ND	ND	ug/L
Aroclor-1248	ND	ND	ug/L
Aroclor-1254	ND	ND	ug/L
Aroclor-1260	ND	ND	ug/L
Aroclor-1262	ND	ND	ug/L
Aroclor-1268	ND	ND	ug/L
Arsenic	ND	ND	ug/L
Barium	1.1E+03	1.1E+03	ug/L
Benzene	ND	1.2E+03	ug/L
Benzo[a]anthracene	ND	ND	ug/L
Benzo[a]pyrene	ND	ND	ug/L
Benzo[b]fluoranthene	ND	ND	ug/L
Benzo[g,h,i]perylene	ND	ND	ug/L
Benzo[k]fluoranthene	ND	ND	ug/L
Benzyl alcohol	ND	ND	ug/L
Beryllium	ND	ND	ug/L
beta-BHC	ND	ND	ug/L
Bis(2-chloroethoxy)methane	ND	ND	ug/L
Bis(2-chloroethyl)ether	ND	ND	ug/L
Bis(2-chloroisopropyl) ether	ND	ND	ug/L
Bis(2-ethylhexyl) phthalate	ND	ND	ug/L
Bromodichloromethane	ND	ND	ug/L
Bromoform	ND	ND	ug/L
Bromomethane	ND	ND	ug/L
Butyl benzyl phthalate	ND	ND	ug/L
Cadmium	ND	ND	ug/L
Carbon disulfide	ND	ND	ug/L
Carbon tetrachloride	ND	ND	ug/L
Chlordane (technical)	ND	ND	ug/L
Chlorobenzene	ND	2.0E+01	ug/L
Chlorobenzilate	ND	ND	ug/L
Chlorodibromomethane	ND	ND	ug/L

B2-5.6 Ranges of Detected Compounds in Groundwater
Tertiary Pond Recovery Monitoring

Constituent	Min	Max	Units
Chloroethane	ND	ND	ug/L
Chloroform	ND	ND	ug/L
Chloromethane	ND	ND	ug/L
Chloroprene	ND	ND	ug/L
Chromium	1.3E+01	1.3E+01	ug/L
Chrysene	ND	ND	ug/L
cis-1,2-Dichloroethene	ND	ND	ug/L
cis-1,2-Dichloropropene	ND	ND	ug/L
cis-1,3-Dichloropropene	ND	ND	ug/L
Cobalt	ND	ND	ug/L
Copper	ND	ND	ug/L
Cyanide, Total	ND	ND	ug/L
delta-BHC	ND	ND	ug/L
Diallate	ND	ND	ug/L
Dibenz[a,h]anthracene	ND	ND	ug/L
Dibenzofuran	ND	ND	ug/L
Dibromomethane	ND	ND	ug/L
Dichlorodifluoromethane	ND	ND	ug/L
Dieldrin	ND	ND	ug/L
Diethyl phthalate	ND	ND	ug/L
Dimethoate	ND	ND	ug/L
Dimethyl phthalate	ND	ND	ug/L
Di-n-butyl phthalate	ND	ND	ug/L
Di-n-octyl phthalate	ND	ND	ug/L
Dinoseb	ND	ND	ug/L
Diphenylamine	ND	ND	ug/L
Disulfoton	ND	ND	ug/L
Endosulfan I	ND	ND	ug/L
Endosulfan II	ND	ND	ug/L
Endosulfan sulfate	ND	ND	ug/L
Endrin	ND	ND	ug/L
Endrin aldehyde	ND	ND	ug/L
Ethyl Methacrylate	ND	ND	ug/L
Ethyl Methanesulfonate	ND	ND	ug/L
Ethylbenzene	ND	ND	ug/L
Famphur	ND	ND	ug/L
Fluoranthene	ND	ND	ug/L
Fluorene	ND	ND	ug/L
gamma-BHC (Lindane)	ND	ND	ug/L
Heptachlor	ND	ND	ug/L
Heptachlor epoxide	ND	ND	ug/L
Hexachlorobenzene	ND	ND	ug/L
Hexachlorobutadiene	ND	ND	ug/L

B2-5.6 Ranges of Detected Compounds in Groundwater
Tertiary Pond Recovery Monitoring

Constituent	Min	Max	Units
Hexachlorocyclopentadiene	ND	ND	ug/L
Hexachloroethane	ND	ND	ug/L
Hexachlorophene	ND	ND	ug/L
Hexachloropropene	ND	ND	ug/L
Indeno[1,2,3-cd]pyrene	ND	ND	ug/L
Iodomethane	ND	ND	ug/L
Isobutanol	ND	ND	ug/L
Isodrin	ND	ND	ug/L
Isophorone	ND	ND	ug/L
Isosafrole	ND	ND	ug/L
Kepone	ND	ND	ug/L
Lead	ND	ND	ug/L
Mercury	ND	ND	ug/L
Methacrylonitrile	ND	ND	ug/L
Methapyrilene	ND	ND	ug/L
Methoxychlor	ND	ND	ug/L
Methyl methacrylate	ND	ND	ug/L
Methyl Methanesulfonate	ND	ND	ug/L
Methyl parathion	ND	ND	ug/L
Methylene chloride	ND	ND	ug/L
Naphthalene	ND	ND	ug/L
Nickel	7.5E+01	7.5E+01	ug/L
Nitrobenzene	ND	ND	ug/L
N-Nitrosodiethylamine	ND	ND	ug/L
N-Nitrosodimethylamine	ND	ND	ug/L
N-Nitrosodi-n-butylamine	ND	ND	ug/L
N-Nitrosodi-n-propylamine	ND	ND	ug/L
N-Nitrosodiphenylamine	ND	ND	ug/L
N-Nitrosomethylethylamine	ND	ND	ug/L
N-Nitrosomorpholine	ND	ND	ug/L
N-Nitrosopiperidine	ND	ND	ug/L
N-Nitrosopyrrolidine	ND	ND	ug/L
O,O,O-Triethyl phosphorothioate	ND	ND	ug/L
OCDD	4.6E-03	4.6E-03	ppt
OCDF	3.9E-03	3.9E-03	ppt
Parathion	ND	ND	ug/L
p-Dimethylamino azobenzene	ND	ND	ug/L
Pentachlorobenzene	ND	ND	ug/L
Pentachloroethane	ND	ND	ug/L
Pentachloronitrobenzene	ND	ND	ug/L
Pentachlorophenol	ND	ND	ug/L
Phenacetin	ND	ND	ug/L
Phenanthrene	ND	ND	ug/L

B2-5.6 Ranges of Detected Compounds in Groundwater
Tertiary Pond Recovery Monitoring

Constituent	Min	Max	Units
Phenol	ND	ND	ug/L
Phorate	ND	ND	ug/L
Polychlorinated biphenyls, Total	ND	ND	ug/L
p-Phenylenediamine	ND	ND	ug/L
Pronamide	ND	ND	ug/L
Propionitrile	ND	ND	ug/L
Pyrene	ND	ND	ug/L
Pyridine	ND	ND	ug/L
Safrole	ND	ND	ug/L
Selenium	1.0E+01	1.0E+01	ug/L
Silver	ND	ND	ug/L
Silvex (2,4,5-TP)	ND	ND	ug/L
Styrene	ND	ND	ug/L
Sulfide	8.6E+00	8.6E+03	ug/L
Sulfotepp	ND	ND	ug/L
Tetrachloroethene	ND	ND	ug/L
Thallium	ND	ND	ug/L
Thionazin	ND	ND	ug/L
Tin	ND	ND	ug/L
Toluene	ND	ND	ug/L
Total H7CDDs	3.3E-03	3.3E-03	ppt
Total H7CDFs	4.1E-03	4.1E-03	ppt
Total HCDDs	ND	ND	ppt
Total HCDFs	2.6E-03	2.6E-03	ppt
Total PCDDs	ND	ND	ppt
Total PCDFs	ND	ND	ppt
Total TCDDs	1.3E-03	1.3E-03	ppt
Total TCDFs	ND	ND	ppt
Toxaphene	ND	ND	ug/L
trans-1,2-Dichloroethene	ND	ND	ug/L
trans-1,3-Dichloropropene	ND	ND	ug/L
trans-1,4-Dichloro-2-butene	ND	ND	ug/L
Trichloroethene	ND	ND	ug/L
Trichlorofluoromethane	ND	ND	ug/L
Vanadium	ND	ND	ug/L
Vinyl acetate	ND	ND	ug/L
Vinyl chloride	ND	ND	ug/L
Who-TEC (LoD=0.5)	ND	ND	ppt
Xylenes, total	ND	ND	ug/L
Zinc	ND	ND	ug/L

ND = Not Detected

B2-5.7 Ranges of Detected Compounds in Groundwater
RGIS East

Constituent	Min	Max	Units
1,1,1,2-Tetrachloroethane	ND	8.5E+01	ug/L
1,1,1-Trichloroethane	ND	1.6E+01	ug/L
1,1,2,2-Tetrachloroethane	ND	8.0E+01	ug/L
1,1,2-Trichloroethane	ND	1.0E+02	ug/L
1,1-Dichloroethane	ND	3.4E+02	ug/L
1,1-Dichloroethene	ND	1.6E+02	ug/L
1,2,3,4-Tetrachlorobenzene	ND	2.9E+03	ug/L
1,2,3-Trichlorobenzene	ND	2.8E+02	ug/L
1,2,3-Trichloropropane	ND	2.8E+02	ug/L
1,2,4,5-Tetrachlorobenzene	ND	7.1E+02	ug/L
1,2,4-Trichlorobenzene	ND	2.0E+03	ug/L
1,2-Dibromo-3-chloropropane	ND	1.4E+02	ug/L
1,2-Dibromoethane	ND	7.2E+02	ug/L
1,2-Dichlorobenzene	ND	1.3E+04	ug/L
1,2-Dichloroethane	ND	1.4E+03	ug/L
1,2-Dichloroethene (cis)	ND	5.6E+03	ug/L
1,2-Dichloroethene (trans)	ND	1.8E+02	ug/L
1,2-Dichloropropane	ND	2.8E+02	ug/L
1,3,5-Trinitrobenzene	ND	ND	ug/L
1,3-Dichlorobenzene	ND	2.2E+03	ug/L
1,4-Dichlorobenzene	ND	1.5E+04	ug/L
1,4-Dioxane	ND	3.0E+03	ug/L
1,4-Naphthoquinone	ND	ND	ug/L
1234678- H7CDD	ND	4.6E-01	ppt
1234678- H7CDF	ND	5.2E-01	ppt
1234789- H7CDF	ND	2.0E-02	ppt
123478-HCDD	ND	1.7E-03	ppt
123478-HCDF	ND	1.3E-02	ppt
123678-HCDD	ND	3.0E-02	ppt
123678-HCDF	ND	3.3E-03	ppt
123789-HCDD	ND	7.4E-03	ppt
123789-HCDF	ND	6.9E-05	ppt
12378-PCDD	ND	1.7E-03	ppt
12378-PCDF	ND	1.0E-03	ppt
1-Naphthylamine	ND	4.6E+01	ug/L
2,3,4,6-Tetrachlorophenol	ND	4.4E+03	ug/L
2,4,5-T	ND	1.4E+03	ug/L
2,4,5-Trichlorophenol	ND	2.1E+03	ug/L
2,4,5-Trichlorophenoxyacetic acid	ND	5.9E+02	ug/L
2,4,6-Trichlorophenol	ND	3.8E+03	ug/L
2,4-D	ND	2.5E+04	ug/L
2,4-Dichlorophenol	ND	1.9E+04	ug/L
2,4-Dimethylphenol	ND	1.9E+01	ug/L

B2-5.7 Ranges of Detected Compounds in Groundwater
RGIS East

Constituent	Min	Max	Units
2,4-Dinitrophenol	ND	ND	ug/L
2,4-Dinitrotoluene	ND	2.0E+00	ug/L
2,6-Dichlorophenol	ND	8.9E+02	ug/L
2,6-Dinitrotoluene	ND	ND	ug/L
2,6-Diphenylphenol	ND	4.0E+02	ug/L
234678-HCDF	ND	2.1E-03	ppt
23478-PCDF	ND	4.0E-03	ppt
2378-TCDD	ND	1.9E-03	ppt
2378-TCDF	ND	3.1E-03	ppt
2-Acetylaminofluorene	ND	ND	ug/L
2-Chloronaphthalene	ND	6.4E+01	ug/L
2-Chlorophenol	ND	5.0E+03	ug/L
2-Hexanone	ND	ND	ug/L
2-Methylnaphthalene	ND	4.3E+01	ug/L
2-Methylphenol	ND	3.4E+01	ug/L
2-Naphthylamine	ND	6.0E+00	ug/L
2-Nitroaniline	ND	ND	ug/L
2-Nitrophenol	ND	1.2E+01	ug/L
2-Picoline	ND	9.5E+01	ug/L
3,3'-Dichlorobenzidine	ND	1.7E+00	ug/L
3,3'-Dimethylbenzidine	ND	ND	ug/L
3,4-D	7.2E+01	1.1E+02	ug/L
3/4-Methylphenol	ND	8.2E+02	ug/L
3-Methylcholanthrene	ND	ND	ug/L
3-Nitroaniline	ND	6.0E+00	ug/L
4,4'-DDD	ND	ND	ug/L
4,4'-DDE	ND	1.3E-01	ug/L
4,4'-DDT	ND	ND	ug/L
4,6-Dinitro-2-methylphenol	ND	9.2E+00	ug/L
4-Aminobiphenyl	ND	7.5E+01	ug/L
4-Bromophenyl phenyl ether	ND	ND	ug/L
4-Chloro-3-methylphenol	ND	1.3E+01	ug/L
4-Chloroaniline	ND	8.8E+00	ug/L
4-Chlorophenyl phenyl ether	ND	6.3E+00	ug/L
4-Cumylphenol	ND	ND	ug/L
4-Methyl-2-pentanone(MIBK)	ND	1.3E+02	ug/L
4-Nitroaniline	ND	1.0E+00	ug/L
4-Nitro-o-toluidine	ND	ND	ug/L
4-Nitrophenol	ND	1.4E+00	ug/L
4-Nitroquinoline 1-oxide	ND	ND	ug/L
4-Tert-Butylphenol	ND	5.2E+03	ug/L
5-Nitro-o-toluidine	ND	3.0E+00	ug/L
7,12-Dimethylbenz[a]anthracene	ND	ND	ug/L

B2-5.7 Ranges of Detected Compounds in Groundwater
RGIS East

Constituent	Min	Max	Units
7,12-Dimethylbenzo[a]anthracene	ND	ND	ug/L
a,a-Dimethylphenethylamine	ND	ND	ug/L
Acenaphthene	ND	8.6E+00	ug/L
Acenaphthylene	ND	9.3E+00	ug/L
Acetone	ND	1.8E+03	ug/L
Acetonitrile	ND	1.0E+02	ug/L
Acetophenone	ND	9.1E+01	ug/L
Acrolein	ND	1.6E+01	ug/L
Acrylonitrile	ND	4.2E+01	ug/L
Aldrin	ND	ND	ug/L
Allyl Chloride	ND	6.4E+01	ug/L
alpha-BHC	ND	1.1E+01	ug/L
alpha-Chlordane	ND	ND	ug/L
Aniline	ND	1.1E+03	ug/L
Anthracene	ND	1.2E+01	ug/L
Antimony	ND	9.6E+01	ug/L
Aramite	ND	ND	ug/L
Arochlor 1016	ND	ND	ug/L
Arochlor 1221	ND	ND	ug/L
Arochlor 1232	ND	ND	ug/L
Arochlor 1242	ND	ND	ug/L
Arochlor 1248	ND	ND	ug/L
Arochlor 1254	ND	ND	ug/L
Arochlor 1260	ND	ND	ug/L
Arsenic	ND	1.0E+03	ug/L
Barium	ND	8.2E+02	ug/L
Benzene	ND	6.6E+03	ug/L
Benzo[a]anthracene	ND	7.8E+00	ug/L
Benzo[a]pyrene	ND	2.5E+00	ug/L
Benzo[b]fluoranthene	ND	3.3E+00	ug/L
Benzo[g,h,i]perylene	ND	2.0E+00	ug/L
Benzo[k]fluoranthene	ND	3.0E+00	ug/L
Benzyl Alcohol	ND	1.9E+01	ug/L
Beryllium	ND	6.0E+00	ug/L
beta-BHC	ND	2.3E+01	ug/L
Bis (2-chloroethyl) ether	ND	8.3E+02	ug/L
Bis(2-chloroethoxy)methane	ND	ND	ug/L
Bis(2-chloroisopropyl)ether	ND	8.2E+01	ug/L
Bis(2-ethylhexyl)phthalate	ND	2.3E+01	ug/L
Bromochloromethane	ND	7.2E+03	ug/L
Bromodichloromethane	ND	3.5E+01	ug/L
Bromoform	ND	2.6E+01	ug/L
Bromomethane	ND	ND	ug/L

B2-5.7 Ranges of Detected Compounds in Groundwater
RGIS East

Constituent	Min	Max	Units
Butyl benzyl phthalate	ND	3.0E+00	ug/L
Cadmium	ND	2.7E-01	ug/L
Carbon Disulfide	ND	9.3E+02	ug/L
Carbon Tetrachloride	ND	4.0E+02	ug/L
Chlordane (cis)	ND	ND	ug/L
Chlordane (trans)	ND	ND	ug/L
Chlorobenzene	ND	1.2E+04	ug/L
Chlorobenzilate	ND	ND	ug/L
Chlorodibromomethane	ND	ND	ug/L
Chloroethane	ND	3.0E+01	ug/L
Chloroform	ND	2.7E+03	ug/L
Chloromethane	ND	ND	ug/L
Chloroprene	ND	ND	ug/L
Chlorpyrifos	ND	ND	ug/L
Chromium	ND	2.2E+00	ug/L
Chrysene	ND	1.2E+01	ug/L
cis-1,2-Dichloroethene	ND	8.7E+03	ug/L
cis-1,3-dichloropropene	ND	ND	ug/L
Cobalt	ND	1.1E+01	ug/L
Copper	ND	6.9E+01	ug/L
Cyanide	ND	1.0E+01	ug/L
Decachlorobiphenyl	ND	ND	ug/L
delta-BHC	ND	5.0E+01	ug/L
Diallate	ND	ND	ug/L
Dibenz[a,h]anthracene	ND	2.0E+00	ug/L
Dibenzo[a,h]anthracene	ND	ND	ug/L
Dibenzofuran	ND	1.1E+01	ug/L
Dibromochloromethane	ND	1.2E+00	ug/L
Dibromomethane	ND	5.3E+03	ug/L
Dichlorodifluoromethane	ND	7.8E+00	ug/L
Dieldrin	ND	ND	ug/L
Diethyl phthalate	ND	4.4E+01	ug/L
Dimethoate	ND	ND	ug/L
Dimethyl phthalate	ND	3.0E+00	ug/L
Di-n-butyl phthalate	ND	8.6E+00	ug/L
Di-n-octyl phthalate	ND	8.0E+00	ug/L
Dinoseb	ND	ND	ug/L
Diphenylamine (a)	ND	1.3E+02	ug/L
Diphenylamine (b)	ND	4.4E+02	ug/L
Disulfoton	ND	ND	ug/L
Endosulfan I	ND	1.0E+00	ug/L
Endosulfan II	ND	1.7E+00	ug/L
Endosulfan sulfate	ND	ND	ug/L

B2-5.7 Ranges of Detected Compounds in Groundwater
RGIS East

Constituent	Min	Max	Units
Endrin	ND	ND	ug/L
Endrin Aldehyde	ND	ND	ug/L
Ethyl chloride	ND	6.0E+00	ug/L
Ethyl methacrylate	ND	ND	ug/L
Ethyl methanesulfonate	ND	3.0E+00	ug/L
Ethylbenzene	ND	4.1E+02	ug/L
Famphur	ND	ND	ug/L
Fluoranthene	ND	8.8E+00	ug/L
Fluorene	ND	5.3E+00	ug/L
gamma-BHC (Lindane)	ND	6.2E+00	ug/L
gamma-Chlordane	ND	ND	ug/L
Heptachlor	ND	3.9E-01	ug/L
Heptachlor Epoxide	ND	ND	ug/L
Hexachlorobenzene	ND	3.1E+02	ug/L
Hexachlorobutadiene	ND	1.2E+03	ug/L
Hexachlorocyclopentadiene	ND	ND	ug/L
Hexachloroethane	ND	9.4E+02	ug/L
Hexachlorophene	ND	ND	ug/L
Hexachlorophene (methylated)	ND	ND	ug/L
Hexachloropropene	ND	ND	ug/L
Idomethane	ND	ND	ug/L
Indeno(1,2,3-cd)pyrene	ND	2.0E+00	ug/L
Iodomethane	ND	ND	ug/L
Isobutanol	ND	1.0E+03	ug/L
Isobutanol (C)	ND	2.5E+02	ug/L
Isobutyl alcohol	ND	1.1E+03	ug/L
Isodrin	ND	ND	ug/L
Isophorone	ND	ND	ug/L
Isopropyl benzene	ND	3.0E+01	ug/L
Isopropylbenzene	ND	4.8E+01	ug/L
Isosafrole	ND	ND	ug/L
Kepone	ND	ND	ug/L
Lead	ND	ND	ug/L
Lithium	ND	7.6E+03	ug/L
m-& p-Cresol	ND	1.4E+03	ug/L
m/p-Xylenes	ND	2.6E+02	ug/L
m-Dinitrobenzene	ND	ND	ug/L
Mercury	ND	6.9E-01	ug/L
Methacrylonitrile	ND	7.8E+01	ug/L
Methapyrilene	ND	ND	ug/L
Methoxychlor	ND	3.0E+00	ug/L
Methyl methanesulfonate	ND	ND	ug/L
Methyl chloride	ND	ND	ug/L

B2-5.7 Ranges of Detected Compounds in Groundwater
RGIS East

Constituent	Min	Max	Units
Methyl ethyl ketone	ND	1.8E+02	ug/L
Methyl iodide	ND	ND	ug/L
Methyl isobutyl ketone	ND	1.2E+02	ug/L
Methyl methacrylate	ND	ND	ug/L
Methyl methanesulfonate	ND	ND	ug/L
Methyl parathion	ND	ND	ug/L
Methylene Chloride	ND	6.0E+04	ug/L
Methylisobutylketone	ND	7.1E+01	ug/L
Naphthalene	ND	1.2E+03	ug/L
Nickel	ND	2.4E+01	ug/L
Nitrobenzene	ND	5.6E+00	ug/L
N-Nitrosodiethylamine	ND	ND	ug/L
N-Nitrosodimethylamine	ND	ND	ug/L
N-Nitroso-di-n-butylamine	ND	ND	ug/L
N-Nitroso-di-n-propylamine	ND	ND	ug/L
N-Nitrosodiphenylamine	ND	2.1E+02	ug/L
N-Nitrosomethylethylamine	ND	ND	ug/L
N-Nitrosomorpholine	ND	ND	ug/L
N-Nitrosoperidine	ND	ND	ug/L
N-Nitrosopiperidine	ND	4.0E+00	ug/L
N-Nitrosopyrrolidine	ND	ND	ug/L
n-Propyl benzene	ND	1.4E+01	ug/L
O,O,O-Triethyl phosphorothioate	ND	1.0E+00	ug/L
OCDD	ND	4.3E+00	ppt
OCDF	ND	1.2E+00	ppt
o-Cresol	ND	2.2E+01	ug/L
o-Phenyl phenol	ND	7.1E+03	ug/L
o-Toluidine	ND	3.5E+01	ug/L
o-Xylene	ND	1.3E+02	ug/L
p-(Dimethylamino)azobenzene	ND	ND	ug/L
Parathion	ND	ND	ug/L
PCB-1016	ND	ND	ug/L
PCB-1221	ND	ND	ug/L
PCB-1232	ND	ND	ug/L
PCB-1242	ND	ND	ug/L
PCB-1248	ND	ND	ug/L
PCB-1254	ND	ND	ug/L
PCB-1260	ND	3.9E-01	ug/L
PCBs (as Arochlors)	ND	ND	ug/L
p-Chloroaniline	ND	7.0E+00	ug/L
p-Dimethylaminoazobenzene	ND	ND	ug/L
Pentachlorobenzene	ND	6.9E+02	ug/L
Pentachloroethane	ND	1.1E+02	ug/L

B2-5.7 Ranges of Detected Compounds in Groundwater
RGIS East

Constituent	Min	Max	Units
Pentachloronitrobenzene	ND	1.4E+02	ug/L
Pentachlorophenol	ND	2.5E+03	ug/L
Pentachlorophenol (methylated)	ND	1.6E+03	ug/L
Phenacetin	ND	7.0E+00	ug/L
Phenanthrene	ND	4.8E+01	ug/L
Phenol	ND	1.7E+04	ug/L
Phorate	ND	ND	ug/L
Polychlorinated biphenyls/PCBs	ND	ND	ug/L
p-Phenylenediamine	ND	ND	ug/L
Pronamide	ND	ND	ug/L
Propionitrile	ND	2.0E+00	ug/L
Pyrene	ND	1.2E+01	ug/L
Pyridine	ND	8.0E+00	ug/L
Safrole	ND	ND	ug/L
Selenium	ND	1.1E+01	ug/L
Silver	ND	5.0E+00	ug/L
Silvex	ND	1.3E+02	ug/L
Styrene	ND	6.9E+01	ug/L
Sulfide	ND	1.8E+03	ug/L
Sulfotep	ND	2.4E+00	ug/L
t-1,4-Dichloro-2-butene	ND	2.1E+00	ug/L
t-Butyl Phenol	ND	3.5E+03	ug/L
Tertbutyl phenol	ND	4.5E+03	ug/L
Tetrachloroethene	ND	1.3E+04	ug/L
Tetrachloro-m-xylene	ND	ND	ug/L
Thallium	ND	1.0E+00	ug/L
Thionazin	ND	ND	ug/L
Tin	ND	7.0E+01	ug/L
Toluene	ND	6.0E+02	ug/L
Total H7CDDs	ND	7.5E-01	ppt
Total H7CDFs	ND	1.4E+00	ppt
Total HCDDs	ND	1.3E-01	ppt
Total HCDFs	ND	3.2E-01	ppt
Total PCDDs	ND	3.7E-02	ppt
Total PCDFs	ND	4.8E-02	ppt
Total Sulfide	ND	1.0E+02	ug/L
Total TCDDs	ND	1.1E-01	ppt
Total TCDFs	ND	3.8E-02	ppt
Toxaphene	ND	ND	ug/L
trans-1,2-Dichloroethene	ND	2.3E+01	ug/L
trans-1,3-Dichloropropene	ND	ND	ug/L
trans-1,4-Dichloro-2-butene	ND	ND	ug/L
Trichloroethene	ND	1.9E+03	ug/L

B2-5.7 Ranges of Detected Compounds in Groundwater
RGIS East

Constituent	Min	Max	Units
Trichlorofluoromethane	ND	ND	ug/L
Vanadium	ND	5.0E+00	ug/L
Vinyl Acetate	ND	ND	ug/L
Vinyl Chloride	ND	9.1E+02	ug/L
Who-TEC (LoD=0.5)	1.4E-06	2.2E-02	ppt
Zinc	ND	1.9E+01	ug/L

ND = Not Detected

B2-5.8 Ranges of Detected Compounds in Groundwater
RGIS West

Constituent	Min	Max	Units
1,1,1,2-Tetrachloroethane	ND	ND	ug/L
1,1,1-Trichloroethane	ND	1.4E+00	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ug/L
1,1-Dichloroethane	ND	4.2E+00	ug/L
1,1-Dichloroethene	ND	ND	ug/L
1,2,3,4-Tetrachlorobenzene	ND	ND	ug/L
1,2,3-Trichlorobenzene	ND	ND	ug/L
1,2,3-Trichloropropane	ND	1.5E+00	ug/L
1,2,4,5-Tetrachlorobenzene	ND	ND	ug/L
1,2,4-Trichlorobenzene	ND	ND	ug/L
1,2-Dibromo-3-chloropropane	ND	4.0E+01	ug/L
1,2-Dibromoethane (EDB)	ND	3.3E+01	ug/L
1,2-Dichlorobenzene	ND	2.0E+01	ug/L
1,2-Dichloroethane	ND	2.1E+03	ug/L
1,2-Dichloropropane	ND	ND	ug/L
1,3,5-Trinitrobenzene	ND	ND	ug/L
1,3-Dichlorobenzene	ND	2.1E+01	ug/L
1,4-Dichlorobenzene	ND	2.6E+01	ug/L
1,4-Dioxane	ND	ND	ug/L
1,4-Naphthoquinone	ND	ND	ug/L
1234678- H7CDD	ND	3.1E-02	ppt
1234678- H7CDF	ND	2.8E-02	ppt
1234789- H7CDF	ND	ND	ppt
123478-HCDD	ND	ND	ppt
123478-HCDF	ND	6.1E-03	ppt
123678-HCDD	ND	ND	ppt
123678-HCDF	ND	1.7E-03	ppt
123789-HCDD	ND	ND	ppt
123789-HCDF	ND	ND	ppt
12378-PCDD	ND	ND	ppt
12378-PCDF	ND	3.5E-03	ppt
1-Naphthylamine	ND	ND	ug/L
2,3,4,6-Tetrachlorophenol	ND	ND	ug/L
2,4,5-T	ND	2.0E+00	ug/L
2,4,5-Trichlorophenol	ND	ND	ug/L
2,4,5-Trichlorophenoxyacetic acid	ND	ND	ug/L
2,4,6-Trichlorophenol	ND	ND	ug/L
2,4-D	ND	ND	ug/L
2,4-Dichlorophenol	ND	ND	ug/L
2,4-Dimethylphenol	ND	ND	ug/L
2,4-Dinitrophenol	ND	ND	ug/L
2,4-Dinitrotoluene	ND	ND	ug/L

B2-5.8 Ranges of Detected Compounds in Groundwater
RGIS West

Constituent	Min	Max	Units
2,6-Dichlorophenol	ND	ND	ug/L
2,6-Dinitrotoluene	ND	ND	ug/L
2,6-Diphenyl phenol	ND	ND	ug/L
234678-HCDF	ND	1.3E-03	ppt
23478-PCDF	ND	3.8E-03	ppt
2378-TCDD	ND	ND	ppt
2378-TCDF	ND	7.3E-03	ppt
2-Acetylaminofluorene	ND	ND	ug/L
2-Chloronaphthalene	ND	3.3E+00	ug/L
2-Chlorophenol	ND	ND	ug/L
2-Hexanone	ND	ND	ug/L
2-Methylnaphthalene	ND	ND	ug/L
2-Methylphenol	ND	ND	ug/L
2-Naphthylamine	ND	ND	ug/L
2-Nitroaniline	ND	ND	ug/L
2-Nitrophenol	ND	ND	ug/L
2-Picoline	ND	2.8E+01	ug/L
3,3'-Dichlorobenzidine	ND	ND	ug/L
3,3'-Dimethylbenzidine	ND	ND	ug/L
3/4-Methylphenol	ND	ND	ug/L
3-Chloropropene	ND	ND	ug/L
3-Methylcholanthrene	ND	ND	ug/L
3-Nitroaniline	ND	ND	ug/L
4,4'-DDD	ND	ND	ug/L
4,4'-DDE	ND	ND	ug/L
4,4'-DDT	ND	9.0E-02	ug/L
4,6-Dinitro-2-methylphenol	ND	ND	ug/L
4-Aminobiphenyl	ND	ND	ug/L
4-Bromophenyl phenyl ether	ND	ND	ug/L
4-Chloro-3-methylphenol	ND	ND	ug/L
4-Chloroaniline	ND	ND	ug/L
4-Chlorophenyl phenyl ether	ND	ND	ug/L
4-Nitroaniline	ND	ND	ug/L
4-Nitro-o-toluidine	ND	ND	ug/L
4-Nitrophenol	ND	ND	ug/L
4-Nitroquinoline 1-oxide	ND	ND	ug/L
4-Tert-Butylphenol	ND	ND	ug/L
5-Nitro-o-toluidine	ND	ND	ug/L
7,12-Dimethylbenz[a]anthracene	ND	ND	ug/L
7,12-Dimethylbenzo[a]anthracene	ND	ND	ug/L
a,a-Dimethylphenethylamine	ND	ND	ug/L
Acenaphthene	ND	ND	ug/L
Acenaphthylene	ND	ND	ug/L

B2-5.8 Ranges of Detected Compounds in Groundwater
RGIS West

Constituent	Min	Max	Units
Acetone	ND	3.7E+01	ug/L
Acetonitrile	ND	ND	ug/L
Acetophenone	ND	ND	ug/L
Acrolein	ND	ND	ug/L
Acrylonitrile	ND	ND	ug/L
Aldrin	ND	3.2E-01	ug/L
Allyl chloride	ND	5.1E+01	ug/L
alpha-BHC	ND	8.0E-02	ug/L
alpha-Chlordane	ND	ND	ug/L
Aniline	ND	3.4E+01	ug/L
Anthracene	ND	ND	ug/L
Antimony	ND	7.7E+00	ug/L
Aramite	ND	ND	ug/L
Arochlor 1016	ND	ND	ug/L
Arochlor 1221	ND	ND	ug/L
Arochlor 1232	ND	ND	ug/L
Arochlor 1242	ND	ND	ug/L
Arochlor 1248	ND	ND	ug/L
Arochlor 1254	ND	ND	ug/L
Arochlor 1260	ND	ND	ug/L
Arsenic	ND	3.4E+01	ug/L
Barium	ND	1.3E+03	ug/L
Benzene	ND	2.2E+01	ug/L
Benzo (a) pyrene	ND	ND	ug/L
Benzo[a]anthracene	ND	2.4E+00	ug/L
Benzo[b]fluoranthene	ND	3.4E+00	ug/L
Benzo[g,h,i]perylene	ND	3.3E+00	ug/L
Benzo[k]fluoranthene	ND	ND	ug/L
Benzoic acid, Methyl Ester	ND	ND	ug/L
Benzyl alcohol	ND	ND	ug/L
Beryllium	ND	ND	ug/L
beta-BHC	ND	4.9E-01	ug/L
Bis (2-chloroisopropyl) ether	ND	ND	ug/L
Bis(2-chloroethoxy)methane	ND	2.5E+00	ug/L
Bis(2-chloroethyl)ether	ND	2.0E+01	ug/L
Bis(2-ethylhexyl)phthalate	ND	ND	ug/L
Bromochloromethane	ND	ND	ug/L
Bromodichloromethane	ND	1.7E+00	ug/L
Bromoform	ND	ND	ug/L
Bromomethane	ND	ND	ug/L
Butyl benzyl phthalate	ND	ND	ug/L
Cadmium	ND	2.6E-01	ug/L
Carbon disulfide	ND	ND	ug/L

B2-5.8 Ranges of Detected Compounds in Groundwater
RGIS West

Constituent	Min	Max	Units
Carbon tetrachloride	ND	ND	ug/L
Chlordane - cis	ND	ND	ug/L
Chlordane (alpha)	ND	3.0E-02	ug/L
Chlordane (gamma)	ND	ND	ug/L
Chloride	ND	1.0E+08	ug/L
Chlorobenzene	ND	2.1E+01	ug/L
Chlorobenzilate	ND	ND	ug/L
Chlorodibromomethane	ND	ND	ug/L
Chloroethane	ND	7.9E+01	ug/L
Chloroform	ND	9.3E+00	ug/L
Chloromethane	ND	ND	ug/L
Chloroprene	ND	ND	ug/L
Chordane-gamma	ND	ND	ug/L
Chromium	ND	7.7E+00	ug/L
Chrysene	ND	ND	ug/L
cis-1,2-Dichloroethene	ND	1.3E+01	ug/L
cis-1,3-Dichloropropene	ND	ND	ug/L
Cobalt	ND	2.2E+01	ug/L
Copper	ND	1.6E+01	ug/L
Cyanide, Total	ND	1.1E+01	ug/L
delta-BHC	ND	2.5E-02	ug/L
Diallate	ND	ND	ug/L
Dibenzo[a,h]anthracene	ND	6.1E+00	ug/L
Dibenzofuran	ND	ND	ug/L
Dibromochloromethane	ND	ND	ug/L
Dibromomethane	ND	8.0E+00	ug/L
Dichlorodifluoromethane	ND	ND	ug/L
Dieldrin	ND	6.5E-01	ug/L
Diethyl phthalate	ND	2.6E+00	ug/L
Dimethoate	ND	ND	ug/L
Dimethyl phthalate	ND	ND	ug/L
Di-n-butylphthalate	ND	4.9E+00	ug/L
Di-n-octylphthalate	ND	ND	ug/L
Dinoseb	ND	ND	ug/L
Disulfoton	ND	ND	ug/L
Endosulfan I	ND	7.0E-02	ug/L
Endosulfan II	ND	8.0E-02	ug/L
Endosulfan sulfate	ND	5.0E-02	ug/L
Endrin	ND	2.0E-02	ug/L
Endrin aldehyde	ND	5.0E-02	ug/L
Ethyl chloride	ND	8.1E+01	ug/L
Ethyl methacrylate	ND	ND	ug/L
Ethyl methanesulfonate	ND	ND	ug/L

B2-5.8 Ranges of Detected Compounds in Groundwater
RGIS West

Constituent	Min	Max	Units
Ethylbenzene	ND	ND	ug/L
Famphur	ND	ND	ug/L
Fluoranthene	ND	4.5E+00	ug/L
Fluorene	ND	ND	ug/L
gamma-BHC (Lindane)	ND	9.8E-02	ug/L
gamma-chlordane	ND	ND	ug/L
Heptachlor	ND	1.4E-01	ug/L
Heptachlor epoxide	ND	9.9E-02	ug/L
Hexachlorobenzene	ND	ND	ug/L
Hexachlorobutadiene	ND	ND	ug/L
Hexachlorocyclopentadiene	ND	ND	ug/L
Hexachloroethane	ND	ND	ug/L
Hexachlorophene	ND	ND	ug/L
Hexachloropropene	ND	ND	ug/L
Indeno[1,2,3-cd]pyrene	ND	5.7E+00	ug/L
Iodomethane	ND	ND	ug/L
Isobutanol	ND	ND	ug/L
Isodrin	ND	ND	ug/L
Isophorone	ND	2.6E+00	ug/L
Isosafrole	ND	ND	ug/L
Kepone	ND	ND	ug/L
Lead	ND	ND	ug/L
Lithium	1.4E+02	6.3E+03	ug/L
m/p-Xylenes	ND	ND	ug/L
m-Dinitrobenzene	ND	ND	ug/L
Mercury	ND	ND	ug/L
Methacrylonitrile	ND	ND	ug/L
Methapyrilene	ND	ND	ug/L
Methoxychlor	ND	ND	ug/L
Methyl chloride	ND	ND	ug/L
Methyl iodide	ND	ND	ug/L
Methyl Methacrylate	ND	ND	ug/L
Methyl methanesulfonate	ND	ND	ug/L
Methyl parathion	ND	ND	ug/L
Methylene chloride	ND	1.0E+02	ug/L
Methylethylketone	ND	ND	ug/L
Methylisobutylketone	ND	ND	ug/L
Naphthalene	ND	ND	ug/L
Nickel	ND	2.4E+02	ug/L
Nitrobenzene	ND	ND	ug/L
N-Nitrosodiethylamine	ND	ND	ug/L
n-Nitrosodimethylamine	ND	2.2E+01	ug/L
N-Nitrosodi-n-butylamine	ND	ND	ug/L

B2-5.8 Ranges of Detected Compounds in Groundwater
RGIS West

Constituent	Min	Max	Units
N-Nitrosodi-n-propylamine	ND	ND	ug/L
N-Nitrosodiphenylamine/diphenylamine	ND	ND	ug/L
N-Nitrosomethylethylamine	ND	ND	ug/L
N-Nitrosomorpholine	ND	ND	ug/L
N-Nitrosopiperidine	ND	1.6E+01	ug/L
N-Nitrosopyrrolidine	ND	ND	ug/L
o,o,o-Triethylphosphorothioate	ND	ND	ug/L
OCDD	ND	2.9E-01	ppt
OCDF	ND	6.6E-02	ppt
o-Phenyl phenol	ND	ND	ug/L
o-Toluidine	ND	ND	ug/L
o-Xylene	ND	ND	ug/L
p- (Dimethylamino) azobenzene	ND	ND	ug/L
Parathion	ND	ND	ug/L
PCB-1016	ND	ND	ug/L
PCB-1221	ND	ND	ug/L
PCB-1232	ND	ND	ug/L
PCB-1242	ND	ND	ug/L
PCB-1248	ND	ND	ug/L
PCB-1254	ND	ND	ug/L
PCB-1260	ND	ND	ug/L
PCBs (as Arochlors)	ND	ND	ug/L
p-Chloroaniline	ND	ND	ug/L
p-Dimethylaminoazobenzene	ND	ND	ug/L
Pentachlorobenzene	ND	ND	ug/L
Pentachloroethane	ND	ND	ug/L
Pentachloronitrobenzene	ND	ND	ug/L
Pentachlorophenol	ND	ND	ug/L
Phenacetin	ND	ND	ug/L
Phenanthrene	ND	ND	ug/L
Phenol	ND	ND	ug/L
Phorate	ND	ND	ug/L
p-Phenylenediamine	ND	ND	ug/L
Pronamide	ND	ND	ug/L
Propionitrile	ND	ND	ug/L
Pyrene	ND	4.2E+00	ug/L
Pyridine	ND	3.5E+01	ug/L
Safrole	ND	ND	ug/L
Selenium	ND	1.0E+01	ug/L
Silver	ND	3.9E+01	ug/L
Silvex	ND	ND	ug/L
Styrene	ND	ND	ug/L
Sulfate	ND	3.2E+05	ug/L

B2-5.8 Ranges of Detected Compounds in Groundwater
RGIS West

Constituent	Min	Max	Units
Sulfide	ND	8.5E-02	ug/L
Sulfotepp	ND	ND	ug/L
t-Butyl Phenol	ND	ND	ug/L
Tetrachloroethene	ND	3.8E+01	ug/L
Thallium	ND	ND	ug/L
Thionazin	ND	ND	ug/L
Tin	ND	ND	ug/L
Toluene	ND	ND	ug/L
Total H7CDDs	ND	5.8E-02	ppt
Total H7CDFs	ND	6.6E-02	ppt
Total HCDD Isomers	ND	ND	ppt
Total HCDDs	ND	1.1E-02	ppt
Total HCDF Isomers	ND	ND	ppt
Total HCDFs	ND	2.8E-02	ppt
Total PCDD Isomers	ND	ND	ppt
Total PCDDs	ND	ND	ppt
Total PCDF Isomers	ND	ND	ppt
Total PCDFs	ND	1.6E-02	ppt
Total Sulfide	ND	ND	ug/L
Total TCDD Isomers	ND	ND	ppt
Total TCDDs	ND	3.4E-03	ppt
Total TCDF Isomers	ND	4.0E-02	ppt
Total TCDFs	ND	1.5E-02	ppt
Toxaphene	ND	ND	ug/L
trans-1,2-Dichloroethene	ND	ND	ug/L
trans-1,3-Dichloropropene	ND	ND	ug/L
trans-1,4-Dichloro-2-butene	ND	ND	ug/L
Trichloroethene	ND	2.1E+01	ug/L
Trichlorofluoromethane	ND	ND	ug/L
Vanadium	ND	2.4E+01	ug/L
Vinyl acetate	ND	ND	ug/L
Vinyl Chloride	ND	2.2E+01	ug/L
Who-TEQ (LoD=0.5)	1.3E-03	3.9E-03	ppt
Zinc	ND	5.7E+01	ug/L

ND = Not Detected

B2-5.9 Ranges of Detected Compounds in Groundwater
6 Pond Collection Tile

Constituent	Min	Max	Units
1,1,1,2-Tetrachloroethane	ND	2.3E+01	ug/L
1,1,1-Trichloroethane	ND	2.3E+01	ug/L
1,1,2,2-Tetrachloroethane	ND	2.1E+01	ug/L
1,1,2-Trichloroethane	ND	2.1E+01	ug/L
1,1-Dichloroethane	ND	2.2E+01	ug/L
1,1-Dichloroethene	ND	2.4E+01	ug/L
1,2,3-Trichloropropane	ND	2.2E+01	ug/L
1,2,4,5-Tetrachlorobenzene	ND	ND	ug/L
1,2,4-Trichlorobenzene	ND	3.6E+01	ug/L
1,2-Dibromo-3-chloropropane	ND	8.8E+01	ug/L
1,2-Dibromoethane	ND	7.0E+01	ug/L
1,2-Dichlorobenzene	ND	3.3E+01	ug/L
1,2-Dichloroethane	ND	3.0E+03	ug/L
1,2-Dichloropropane	ND	2.2E+01	ug/L
1,3-Dichlorobenzene	ND	3.3E+01	ug/L
1,3-Dinitrobenzene	ND	ND	ug/L
1,4-Dichlorobenzene	ND	3.3E+01	ug/L
1,4-Dioxane	ND	8.0E+02	ug/L
1,4-Napthoquinone	ND	ND	ug/L
1-Naphthylamine	ND	ND	ug/L
2,3,4,6-Tetrachlorophenol	ND	ND	ug/L
2,4,5-T	ND	5.7E+01	ug/L
2,4,5-TP (Silvex)	ND	5.7E+01	ug/L
2,4,5-Trichlorophenol	ND	3.4E+01	ug/L
2,4,6-Trichlorophenol	ND	3.4E+01	ug/L
2,4-D	ND	5.8E+01	ug/L
2,4-Dichlorophenol	ND	3.3E+01	ug/L
2,4-Dimethylphenol	ND	2.5E+01	ug/L
2,4-Dinitrophenol	ND	3.3E+01	ug/L
2,4-Dinitrotoluene	ND	3.7E+01	ug/L
2,6-Dichlorophenol	ND	3.4E+01	ug/L
2,6-Dinitrotoluene	ND	3.7E+01	ug/L
2-Acetylaminofluorene	ND	ND	ug/L
2-Butanone	ND	2.4E+01	ug/L
2-Chloronaphthalene	ND	3.7E+01	ug/L
2-Chlorophenol	ND	3.4E+01	ug/L
2-Hexanone	ND	2.3E+01	ug/L
2-Methylnaphthalene	ND	3.5E+01	ug/L
2-Naphthylamine	ND	ND	ug/L
2-Nitroaniline	ND	3.6E+01	ug/L
2-Nitrophenol	ND	3.5E+01	ug/L
2-Picoline	ND	ND	ug/L
3,3´-Dichlorobenzidine	ND	ND	ug/L

B2-5.9 Ranges of Detected Compounds in Groundwater
6 Pond Collection Tile

Constituent	Min	Max	Units
3,3´-Dimethylbenzidine	ND	ND	ug/L
3-Methylcholanthrene	ND	ND	ug/L
3-Nitroaniline	ND	3.7E+01	ug/L
4,4´-DDD	ND	8.9E-01	ug/L
4,4´-DDE	ND	8.0E-01	ug/L
4,4´-DDT	ND	1.1E+00	ug/L
4,6-Dinitro-2-methylphenol	ND	3.9E+01	ug/L
4-Aminobiphenyl	ND	ND	ug/L
4-Bromophenyl phenyl ether	ND	3.4E+01	ug/L
4-Chloro-3-methylphenol	ND	3.4E+01	ug/L
4-Chloroaniline	ND	7.6E+01	ug/L
4-Chlorophenyl phenyl ether	ND	4.0E+01	ug/L
4-Methyl-2-pentanone	ND	2.9E+01	ug/L
4-Nitroaniline	ND	3.5E+01	ug/L
4-Nitrophenol	ND	1.6E+01	ug/L
4-Nitroquinoline 1-oxide	ND	ND	ug/L
5-Nitro-o-toluidine	ND	ND	ug/L
7,12-Dimethylbenz(a)anthracene	ND	ND	ug/L
a,a-Dimethylphenethylamine	ND	ND	ug/L
Acenaphthene	ND	3.8E+01	ug/L
Acenaphthylene	ND	3.4E+01	ug/L
Acetone	ND	2.4E+01	ug/L
Acetonitrile	ND	ND	ug/L
Acetophenone	ND	3.4E+01	ug/L
Acrolein	ND	ND	ug/L
Acrylonitrile	ND	2.1E+01	ug/L
Aldrin	ND	7.1E-01	ug/L
Allyl chloride	ND	2.7E+01	ug/L
alpha-BHC	ND	8.5E-01	ug/L
Aniline	ND	3.9E+01	ug/L
Anthracene	ND	3.4E+01	ug/L
Antimony	ND	9.9E+01	ug/L
Aramite	ND	ND	ug/L
Aroclor 1016	ND	2.3E+01	ug/L
Aroclor 1221	ND	ND	ug/L
Aroclor 1232	ND	ND	ug/L
Aroclor 1242	ND	ND	ug/L
Aroclor 1248	ND	ND	ug/L
Aroclor 1254	ND	ND	ug/L
Aroclor 1260	ND	2.4E+01	ug/L
Arsenic	ND	1.1E+02	ug/L
Barium	ND	2.1E+03	ug/L
Benzene	ND	2.1E+01	ug/L

B2-5.9 Ranges of Detected Compounds in Groundwater
6 Pond Collection Tile

Constituent	Min	Max	Units
Benzo(a)anthracene	ND	3.8E+01	ug/L
Benzo(a)pyrene	ND	3.6E+01	ug/L
Benzo(b)fluoranthene	ND	3.4E+01	ug/L
Benzo(g,h,i)perylene	ND	3.8E+01	ug/L
Benzo(k)fluoranthene	ND	4.6E+01	ug/L
Benzyl alcohol	ND	ND	ug/L
Beryllium	ND	1.0E+02	ug/L
beta-BHC	ND	7.8E-01	ug/L
Bis(2-chloroethoxy)methane	ND	3.6E+01	ug/L
Bis(2-chloroethyl)ether	ND	3.4E+01	ug/L
Bis(2-chloroisopropyl)ether	ND	3.4E+01	ug/L
Bis(2-ethylhexyl)phthalate	ND	3.5E+01	ug/L
Bromodichloromethane	ND	2.1E+01	ug/L
Bromoform	ND	2.2E+01	ug/L
Bromomethane	ND	2.7E+01	ug/L
Butyl benzyl phthalate	ND	3.4E+01	ug/L
Cadmium	ND	1.1E+02	ug/L
Carbon disulfide	ND	2.4E+01	ug/L
Carbon tetrachloride	ND	2.4E+01	ug/L
Chlordane, Technical	ND	ND	ug/L
Chlorobenzene	ND	2.1E+01	ug/L
Chlorobenzilate	ND	ND	ug/L
Chloroethane	ND	1.0E+02	ug/L
Chloroform	ND	2.2E+01	ug/L
Chloromethane	ND	2.4E+01	ug/L
Chloroprene	ND	ND	ug/L
Chromium	ND	1.0E+02	ug/L
Chrysene	ND	3.7E+01	ug/L
cis-1,2-Dichloroethene	ND	2.2E+01	ug/L
cis-1,3-Dichloropropene	ND	2.2E+01	ug/L
Cobalt	ND	1.1E+02	ug/L
Copper	ND	1.3E+02	ug/L
Cyanide, Total	ND	ND	ug/L
delta-BHC	ND	9.0E-01	ug/L
Diallate	ND	ND	ug/L
Dibenzo(a,h)anthracene	ND	3.9E+01	ug/L
Dibenzofuran	ND	3.9E+01	ug/L
Dibromochloromethane	ND	2.2E+01	ug/L
Dibromomethane	ND	2.1E+01	ug/L
Dichlorodifluoromethane	ND	2.6E+01	ug/L
Dieldrin	ND	8.6E-01	ug/L
Diethyl phthalate	ND	4.0E+01	ug/L
Dimethoate	ND	ND	ug/L

B2-5.9 Ranges of Detected Compounds in Groundwater
6 Pond Collection Tile

Constituent	Min	Max	Units
Dimethyl phthalate	ND	4.0E+01	ug/L
Di-n-butyl phthalate	ND	3.6E+01	ug/L
Di-n-octyl phthalate	ND	3.6E+01	ug/L
Dinoseb	ND	ND	ug/L
Diphenylamine	ND	ND	ug/L
Disulfoton	ND	ND	ug/L
Endosulfan I	ND	8.6E-01	ug/L
Endosulfan II	ND	9.0E-01	ug/L
Endosulfan sulfate	ND	9.6E-01	ug/L
Endrin	ND	1.1E+00	ug/L
Endrin aldehyde	ND	8.3E-01	ug/L
Ethyl methacrylate	ND	ND	ug/L
Ethyl methanesulfonate	ND	ND	ug/L
Ethylbenzene	ND	2.2E+01	ug/L
Famphur	ND	ND	ug/L
Fluoranthene	ND	3.5E+01	ug/L
Fluorene	ND	4.0E+01	ug/L
gamma-BHC (Lindane)	ND	8.8E-01	ug/L
Heptachlor	ND	8.2E-01	ug/L
Heptachlor epoxide	ND	8.5E-01	ug/L
Hexachlorobenzene	ND	3.6E+01	ug/L
Hexachlorobutadiene	ND	3.4E+01	ug/L
Hexachlorocyclopentadiene	ND	2.9E+01	ug/L
Hexachloroethane	ND	3.2E+01	ug/L
Hexachlorophene	ND	ND	ug/L
Hexachloropropene	ND	ND	ug/L
Indeno(1,2,3-cd)pyrene	ND	3.9E+01	ug/L
Iodomethane	ND	2.7E+01	ug/L
Isobutyl alcohol	ND	ND	ug/L
Isodrin	ND	ND	ug/L
Isophorone	ND	3.7E+01	ug/L
Isosafrole	ND	ND	ug/L
Kepone	ND	ND	ug/L
Lead	ND	1.1E+02	ug/L
m,p-Xylene	ND	4.4E+01	ug/L
m-Cresol	ND	2.7E+01	ug/L
Mercury	ND	2.3E+00	ug/L
Methacrylonitrile	ND	ND	ug/L
Methapyrilene	ND	ND	ug/L
Methoxychlor	ND	1.1E+00	ug/L
Methyl methacrylate	ND	ND	ug/L
Methyl methanesulfonate	ND	ND	ug/L
Methyl parathion	ND	ND	ug/L

B2-5.9 Ranges of Detected Compounds in Groundwater
6 Pond Collection Tile

Constituent	Min	Max	Units
Methylene chloride	ND	8.9E+01	ug/L
Naphthalene	ND	3.5E+01	ug/L
Nickel	ND	2.2E+02	ug/L
Nitrobenzene	ND	3.2E+01	ug/L
N-Nitrosodiethylamine	ND	ND	ug/L
N-Nitrosodimethylamine	ND	2.2E+01	ug/L
N-Nitroso-di-n-butylamine	ND	ND	ug/L
N-Nitrosodi-n-propylamine	ND	3.6E+01	ug/L
N-Nitrosodiphenylamine	ND	3.5E+01	ug/L
N-Nitrosomethylethylamine	ND	ND	ug/L
N-Nitrosomorpholine	ND	ND	ug/L
N-Nitrosopiperidine	ND	ND	ug/L
N-Nitrosopyrrolidine	ND	ND	ug/L
O,O,O-Triethylphosphorothioate	ND	ND	ug/L
o-Cresol	ND	2.9E+01	ug/L
o-Toluidine	ND	ND	ug/L
o-Xylene	ND	2.2E+01	ug/L
Parathion	ND	ND	ug/L
p-Cresol	ND	2.7E+01	ug/L
p-Dimethylaminoazobenzene	ND	ND	ug/L
Pentachlorobenzene	ND	ND	ug/L
Pentachloroethane	ND	ND	ug/L
Pentachloronitrobenzene	ND	ND	ug/L
Pentachlorophenol	ND	3.9E+01	ug/L
Phenacetin	ND	ND	ug/L
Phenanthrene	ND	4.0E+01	ug/L
Phenol	ND	1.5E+01	ug/L
Phorate	ND	ND	ug/L
p-Phenylenediamine	ND	ND	ug/L
Pronamide	ND	ND	ug/L
Propionitrile	ND	ND	ug/L
Pyrene	ND	3.5E+01	ug/L
Pyridine	ND	7.4E+00	ug/L
Safrole	ND	ND	ug/L
Selenium	ND	1.3E+02	ug/L
Silver	ND	9.8E+01	ug/L
Styrene	ND	2.1E+01	ug/L
Sulfide	ND	6.6E+03	ug/L
Sulfotepp	ND	ND	ug/L
sym-Trinitrobenzene	ND	ND	ug/L
Tetrachloroethene	ND	2.4E+01	ug/L
Thallium	ND	1.0E+02	ug/L
Thionazin	ND	ND	ug/L

B2-5.9 Ranges of Detected Compounds in Groundwater
6 Pond Collection Tile

Constituent	Min	Max	Units
Tin	ND	1.0E+02	ug/L
Toluene	ND	2.2E+01	ug/L
Toxaphene	ND	ND	ug/L
trans-1,2-Dichloroethene	ND	2.3E+01	ug/L
trans-1,3-Dichloropropene	ND	2.1E+01	ug/L
trans-1,4-Dichloro-2-butene	ND	2.1E+01	ug/L
Trichloroethene	ND	2.3E+01	ug/L
Trichlorofluoromethane	ND	2.6E+01	ug/L
Vanadium	ND	1.0E+02	ug/L
Vinyl acetate	ND	ND	ug/L
Vinyl chloride	ND	2.3E+01	ug/L
Xylenes, Total	ND	6.5E+01	ug/L
Zinc	ND	1.2E+02	ug/L

ND = Not Detected

B2-5.10 Ranges of Detected Compounds in Groundwater
Till Sand West of Tertiary Pond

Constituent	Min	Max	Units
Ammonia as Nitrogen	7.1E-03	1.8E+03	ug/L
Barium	ND	3.5E+02	ug/L
Calcium	6.5E-02	4.4E+05	ug/L
Chloride	ND	2.9E+05	ug/L
Iron	ND	3.8E+04	ug/L
Magnesium	ND	1.3E+05	ug/L
Manganese	1.9E-04	1.1E+03	ug/L
Nickel	ND	2.6E+02	ug/L
Potassium	8.2E-03	3.1E+04	ug/L
Sodium	ND	5.0E+08	ug/L
Sulfate	ND	9.8E+04	ug/L
Zinc	6.5E-04	8.2E+02	ug/L

ND = Not Detected

B2-5.11 Ranges of Detected Compounds in Groundwater
Northeast Perimeter

Constituent	Min	Max	Units
1,1,1-Trichloroethane	ND	2.4E+01	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ug/L
1,1,2,Trichloroethane	ND	ND	ug/L
1,1-Dichloroethane	ND	3.4E+01	ug/L
1,1-Dichloroethene	ND	8.2E+01	ug/L
1,2,4-Trichlorobenzene	ND	ND	ug/L
1,2-Dibromo-3-chloropropane	ND	ND	ug/L
1,2-Dibromoethane	ND	ND	ug/L
1,2-Dichlorobenzene	ND	2.2E+01	ug/L
1,2-Dichloroethane	ND	ND	ug/L
1,2-Dichloropropane	ND	ND	ug/L
1,3-Dichlorobenzene	ND	ND	ug/L
1,4-Dichlorobenzene	ND	2.4E+01	ug/L
2,4,5-Trichlorophenol	ND	ND	ug/L
2,4,6-Trichlorophenol	ND	ND	ug/L
2,4-Dichlorophenol	ND	ND	ug/L
2,4-Dimethylphenol	ND	ND	ug/L
2,4-Dinitrophenol	ND	ND	ug/L
2,4-Dinitrotoluene	ND	ND	ug/L
2,6-Dinitrotoluene	ND	ND	ug/L
2-Butanone (MEK)	ND	ND	ug/L
2-Chloronaphthalene	ND	ND	ug/L
2-Chlorophenol	ND	ND	ug/L
2-Hexanone	ND	ND	ug/L
2-Methylnaphthalene	ND	ND	ug/L
2-Methylphenol	ND	ND	ug/L
2-Nitroaniline	ND	ND	ug/L
2-Nitrophenol	ND	ND	ug/L
3,3'-Dichlorobenzidine	ND	ND	ug/L
3-Nitroaniline	ND	ND	ug/L
4,4'-DDD	ND	ND	ug/L
4,4'-DDE	ND	ND	ug/L
4,4'-DDT	ND	ND	ug/L
4,6-Dinitro-2-methylphenol	ND	ND	ug/L
4-Bromophenyl phenyl ether	ND	ND	ug/L
4-Chloro-3-methylphenol	ND	ND	ug/L
4-Chloroaniline	ND	ND	ug/L
4-Methyl-2-pentanone	ND	ND	ug/L
4-Methylphenol/3-Methylphe	ND	ND	ug/L
4-Nitroaniline	ND	ND	ug/L
4-Nitrophenol	ND	ND	ug/L
Acenaphthene	ND	ND	ug/L
Acenaphthylene	ND	ND	ug/L

B2-5.11 Ranges of Detected Compounds in Groundwater
Northeast Perimeter

Constituent	Min	Max	Units
Acetone	ND	ND	ug/L
Acetophenone	ND	ND	ug/L
Aldrin	ND	ND	ug/L
alpha-BHC	ND	ND	ug/L
Ammonia as Nitrogen	1.1E+02	1.8E+04	ug/L
Anthracene	ND	ND	ug/L
Aroclor 1016	ND	ND	ug/L
Aroclor 1221	ND	ND	ug/L
Aroclor 1232	ND	ND	ug/L
Aroclor 1242	ND	ND	ug/L
Aroclor 1248	ND	ND	ug/L
Aroclor 1254	ND	ND	ug/L
Aroclor 1260	ND	ND	ug/L
Arsenic	1.0E+00	1.0E+00	ug/L
Barium	2.2E+02	2.3E+02	ug/L
Benzene	ND	8.0E+01	ug/L
Benzo[a]anthracene	ND	ND	ug/L
Benzo[a]pyrene	ND	ND	ug/L
Benzo[b]fluoranthene	ND	ND	ug/L
Benzo[g,h,i]perylene	ND	ND	ug/L
Benzo[k]fluoranthene	ND	ND	ug/L
beta-BHC	ND	ND	ug/L
Bis(2-chloroethoxy)methane	ND	ND	ug/L
Bis(2-chloroethyl)ether	ND	ND	ug/L
Bis(2-ethylhexyl)phthalate	ND	ND	ug/L
Bromochloromethane	ND	ND	ug/L
Bromodichloromethane	ND	ND	ug/L
Bromoform	ND	ND	ug/L
Butyl benzyl phthalate	ND	ND	ug/L
Cadmium	ND	ND	ug/L
Calcium	1.8E+05	1.9E+05	ug/L
Carbon dioxide	2.4E+01	5.0E+05	ug/L
Carbon disulfide	ND	ND	ug/L
Carbon tetrachloride	ND	ND	ug/L
Carbonate Alkalinity	ND	ND	ug/L
Chloride	ND	3.3E+06	ug/L
Chlorobenzene	ND	8.4E+01	ug/L
Chloroethane	ND	ND	ug/L
Chloroform	ND	ND	ug/L
Chromium	2.0E+00	2.0E+00	ug/L
Chrysene	ND	ND	ug/L
cis-1,2-Dichloroethene	ND	2.4E+02	ug/L
cis-1,3-Dichloropropene	ND	ND	ug/L

B2-5.11 Ranges of Detected Compounds in Groundwater
Northeast Perimeter

Constituent	Min	Max	Units
Copper	ND	2.0E+00	ug/L
delta-BHC	ND	ND	ug/L
Dibenzo(a,h)anthracene	ND	ND	ug/L
Dibenzofuran	ND	ND	ug/L
Dibromochloromethane	ND	ND	ug/L
Dichlorodifluoromethane	ND	8.6E+01	ug/L
Dieldrin	ND	ND	ug/L
Diethyl phthalate	ND	ND	ug/L
Dimethyl phthalate	ND	ND	ug/L
Di-n-octyl phthalate	ND	ND	ug/L
Endosulfan I	ND	ND	ug/L
Endosulfan II	ND	ND	ug/L
Endosulfan sulfate	ND	ND	ug/L
Endrin	ND	ND	ug/L
Endrin aldehyde	ND	ND	ug/L
Ethane	ND	9.3E+02	ug/L
Ethene	ND	8.7E+02	ug/L
Ethylbenzene	ND	2.3E+01	ug/L
Ferric Iron	ND	1.5E+07	ug/L
Ferrous Iron	ND	7.2E+03	ug/L
Fluoranthene	ND	ND	ug/L
Fluorene	ND	ND	ug/L
gamma-BHC (lindane)	ND	ND	ug/L
Heptachlor	ND	ND	ug/L
Heptachlor epoxide	ND	ND	ug/L
Hexachlorobenzene	ND	ND	ug/L
Hexachlorobutadiene	ND	ND	ug/L
Hexachlorocyclopentadiene	ND	ND	ug/L
Hexachloroethane	ND	ND	ug/L
Indeno[1,2,3-cd]pyrene	ND	ND	ug/L
Iron	ND	3.3E+04	ug/L
Isophorone	ND	ND	ug/L
Isopropylbenzene	ND	ND	ug/L
Lead	ND	ND	ug/L
Magnesium	1.3E+04	2.4E+04	ug/L
Manganese	ND	1.3E+03	ug/L
Mercury	ND	ND	ug/L
Methane	ND	ND	ug/L
Methoxychlor	ND	ND	ug/L
Methyl tert-butyl ether (MTBE)	ND	2.5E+01	ug/L
Methylene chloride	ND	ND	ug/L
Naphthalene	ND	ND	ug/L
Nitrate as N	ND	5.3E+03	ug/L

B2-5.11 Ranges of Detected Compounds in Groundwater
Northeast Perimeter

Constituent	Min	Max	Units
nitrate-nitrite	ND	ND	ug/L
Nitrite as N	ND	3.0E+03	ug/L
Nitrobenzene	ND	ND	ug/L
N-Nitroso-di-n-propylamine	ND	ND	ug/L
N-Nitrosodiphenylamine	ND	ND	ug/L
Organic Carbon, Total	ND	8.8E+04	ug/L
o-Xylene	ND	ND	ug/L
Pentachlorophenol	ND	ND	ug/L
Phenanthrene	ND	ND	ug/L
Phenol	ND	ND	ug/L
Phosphorus, Total	ND	3.3E+03	ug/L
Potassium	1.5E+04	1.6E+04	ug/L
Pyrene	ND	ND	ug/L
Selenium	ND	ND	ug/L
Silver	ND	ND	ug/L
Sodium	ND	1.5E+06	ug/L
Strontium	ND	1.5E+04	ug/L
Styrene	ND	ND	ug/L
Sulfate	ND	2.8E+05	ug/L
Sulfide	ND	2.0E+04	ug/L
Tetrachloroethene	ND	2.5E+01	ug/L
Toluene	ND	8.5E+01	ug/L
Total Organic Carbon	ND	7.0E+04	ug/L
trans-1,2-Dichloroethene	ND	2.8E+01	ug/L
trans-1,3-Dichloropropene	ND	ND	ug/L
Trichloroethene	ND	8.0E+01	ug/L
Trichlorofluoromethane	ND	1.6E+05	ug/L
Vinyl chloride	ND	5.3E+02	ug/L
Xylene (mixture M-,P-)	ND	ND	ug/L
Xylenes, Total	ND	6.9E+01	ug/L
Zinc	ND	3.0E+03	ug/L

ND = Not Detected

B2-5.12 Ranges of Detected Compounds in Groundwater
Ash Pond Area

Constituent	Min	Max	Units
1,1,1-Trichloroethane	ND	2.0E+01	ug/L
1,1-Dichloroethane	ND	2.6E+02	ug/L
1,1-Dichloroethene	ND	4.1E+03	ug/L
1,2,3-Trichloropropane	ND	2.4E+01	ug/L
1,2,4-Trichlorobenzene	ND	2.3E+01	ug/L
1,2,4-Trimethylbenzene	ND	1.2E+02	ug/L
1,2-Dichlorobenzene	ND	2.0E+01	ug/L
1,2-Dichloroethane	ND	8.4E+01	ug/L
1,2-Dichloroethene, Total	ND	ND	ug/L
1,3,5-Trimethylbenzene	ND	2.3E+01	ug/L
1,4-Dichlorobenzene	ND	2.1E+01	ug/L
1,4-Dioxane	ND	3.7E+02	ug/L
Acetone	ND	3.0E+01	ug/L
Arsenic	ND	9.8E+02	ug/L
Benzene	ND	2.7E+03	ug/L
Boron	5.1E-01	1.5E+03	ug/L
Chlorobenzene	ND	2.1E+01	ug/L
Chloroform	ND	3.7E+03	ug/L
cis-1,2-Dichloroethene	ND	1.6E+03	ug/L
Dibromomethane	ND	2.1E+01	ug/L
Ethylbenzene	ND	8.7E+01	ug/L
Isobutanol	ND	2.9E+02	ug/L
Isobutyl alcohol	ND	ND	ug/L
Isopropylbenzene	ND	2.2E+01	ug/L
m/p-Xylenes	ND	3.7E+02	ug/L
n-Propylbenzene	ND	2.3E+01	ug/L
o-Xylene	ND	2.0E+02	ug/L
Pentafluorobenzene	1.0E+01	1.0E+01	ug/L
Tetrachloroethene	ND	1.2E+04	ug/L
Toluene	ND	2.2E+03	ug/L
trans-1,2-Dichloroethene	ND	2.1E+01	ug/L
Trichloroethene	ND	5.9E+02	ug/L
Vinyl chloride	ND	3.8E+02	ug/L
Xylenes, Total	ND	ND	ug/L

ND = Not Detected

B2-5.13 Ranges of Detected Compounds in Groundwater
US-10 Tank Farm

Constituent	Min	Max	Units
Styrene	ND	6.9E+04	ug/L

ND = Not Detected

B2-5.14 Ranges of Detected Compounds in Groundwater
Former Chemical Manufacturing Area

Constituent	Min	Max	Units
1,1,1,2-Tetrachloroethane	ND	ND	ug/L
1,1,1-Trichloroethane	ND	2.3E+00	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ug/L
1,1,2-Trichloroethane	ND	2.8E+00	ug/L
1,1-Dichloroethane	ND	9.7E+01	ug/L
1,1-Dichloroethene	ND	8.7E+00	ug/L
1,2,3,4-Tetrachlorobenzene	ND	7.0E+07	ug/L
1,2,3-Trichlorobenzene	ND	1.1E+07	ug/L
1,2,3-Trichloropropane	ND	ND	ug/L
1,2,4,5-Tetrachlorobenzene	ND	5.9E+06	ug/L
1,2,4-Trichlorobenzene	ND	3.2E+08	ug/L
1,2,4-Trimethylbenzene	ND	ND	ug/L
1,2-Dibromo-3-chloropropane	ND	ND	ug/L
1,2-Dibromoethane	ND	ND	ug/L
1,2-Dichlorobenzene	ND	1.6E+08	ug/L
1,2-Dichloroethane	ND	2.6E+01	ug/L
1,2-Dichloroethene, Total	ND	ND	ug/L
1,2-Dichloropropane	ND	ND	ug/L
1,3,4,5-Tetrachlorobenzene	ND	3.6E+07	ug/L
1,3,5-Trichlorobenzene	ND	ND	ug/L
1,3,5-Trimethylbenzene	ND	ND	ug/L
1,3-Dichlorobenzene	ND	1.1E+07	ug/L
1,3-Dichloropropene, Total	ND	ND	ug/L
1,4-Dichlorobenzene	ND	9.4E+07	ug/L
2,4,5-T	ND	ND	ug/L
2,4,5-TP (Silvex)	ND	ND	ug/L
2,4,5-Trichlorophenol	ND	ND	ug/L
2,4,6-Tribromophenol	ND	8.1E+02	ug/L
2,4,6-Trichlorophenol	ND	ND	ug/L
2,4-D	ND	1.7E+01	ug/L
2,4-Dichlorophenol	ND	ND	ug/L
2,4-Dimethylphenol	ND	ND	ug/L
2,4-Dinitrophenol	ND	ND	ug/L
2,4-Dinitrotoluene	ND	ND	ug/L
2,6-Dinitrotoluene	ND	ND	ug/L
2-Butanone	ND	9.9E+03	ug/L
2-Chloronaphthalene	ND	ND	ug/L
2-Chlorophenol	ND	ND	ug/L
2-Fluorobiphenyl	ND	2.1E+03	ug/L
2-Fluorophenol	ND	6.9E+02	ug/L
2-Hexanone	ND	ND	ug/L
2-Methylnaphthalene	ND	3.2E+05	ug/L
2-Methylphenol	ND	ND	ug/L

B2-5.14 Ranges of Detected Compounds in Groundwater
Former Chemical Manufacturing Area

Constituent	Min	Max	Units
2-Nitroaniline	ND	ND	ug/L
2-Nitrophenol	ND	ND	ug/L
3,3´-Dichlorobenzidine	ND	ND	ug/L
3-Nitroaniline	ND	ND	ug/L
4,6-Dinitro-2-methylphenol	ND	2.8E+06	ug/L
4-Bromofluorobenzene	1.9E+01	9.2E+08	ug/L
4-Bromophenyl phenyl ether	ND	ND	ug/L
4-Chloro-3-methylphenol	ND	ND	ug/L
4-Chloroaniline	ND	ND	ug/L
4-Chlorophenyl phenyl ether	ND	ND	ug/L
4-Methyl-2-pentanone	ND	ND	ug/L
4-Methylphenol	ND	1.8E+03	ug/L
4-Nitroaniline	ND	ND	ug/L
4-Nitrophenol	ND	ND	ug/L
Acenaphthene	ND	ND	ug/L
Acenaphthylene	ND	ND	ug/L
Acetone	ND	3.9E+05	ug/L
Acrylonitrile	ND	ND	ug/L
Anthracene	ND	ND	ug/L
Benzene	ND	3.0E+06	ug/L
Benzo(a)anthracene	ND	ND	ug/L
Benzo(a)pyrene	ND	ND	ug/L
Benzo(b)fluoranthene	ND	ND	ug/L
Benzo(g,h,i)perylene	ND	ND	ug/L
Benzo(k)fluoranthene	ND	ND	ug/L
Bis(2-chloroethoxy)methane	ND	ND	ug/L
Bis(2-chloroethyl)ether	ND	ND	ug/L
Bis(2-chloroisopropyl)ether	ND	ND	ug/L
Bis(2-ethylhexyl)phthalate	ND	ND	ug/L
Bromochloromethane	ND	ND	ug/L
Bromodichloromethane	ND	ND	ug/L
Bromomethane	ND	ND	ug/L
Butyl benzyl phthalate	ND	ND	ug/L
Carbazole	ND	ND	ug/L
Carbon disulfide	ND	ND	ug/L
Carbon tetrachloride	ND	ND	ug/L
Chlorobenzene	ND	4.0E+08	ug/L
Chloroethane	ND	2.6E+01	ug/L
Chloroform	ND	ND	ug/L
Chloromethane	ND	ND	ug/L
Chrysene	ND	ND	ug/L
cis-1,2-Dichloroethene	ND	6.4E+00	ug/L
cis-1,3-Dichloropropene	ND	ND	ug/L

B2-5.14 Ranges of Detected Compounds in Groundwater
Former Chemical Manufacturing Area

Constituent	Min	Max	Units
Cyclohexane	ND	ND	ug/L
Dibenzo(a,h)anthracene	ND	ND	ug/L
Dibenzofuran	ND	ND	ug/L
Dibromochloromethane	ND	ND	ug/L
Dibromofluoromethane	1.9E+01	9.7E+08	ug/L
Dibromomethane	ND	ND	ug/L
Dichlorodifluoromethane	ND	ND	ug/L
Diethyl ether	ND	ND	ug/L
Diethyl phthalate	ND	ND	ug/L
Dimethyl phthalate	ND	ND	ug/L
Di-n-butyl phthalate	ND	ND	ug/L
Di-n-octyl phthalate	ND	ND	ug/L
Diphenyl oxide	ND	2.0E+08	ug/L
Ethylbenzene	ND	7.0E+02	ug/L
Fluoranthene	ND	1.0E+00	ug/L
Fluorene	ND	ND	ug/L
Hexachlorobenzene	ND	1.2E+06	ug/L
Hexachlorobutadiene	ND	ND	ug/L
Hexachlorocyclopentadiene	ND	ND	ug/L
Hexachloroethane	ND	ND	ug/L
Indeno(1,2,3-cd)pyrene	ND	ND	ug/L
Isophorone	ND	ND	ug/L
Isopropylbenzene	ND	ND	ug/L
m,p-Xylene	ND	1.9E+01	ug/L
Methyl iodide	ND	ND	ug/L
Methyl tert-butyl ether	ND	ND	ug/L
Methylcyclohexane	ND	ND	ug/L
Methylene chloride	ND	1.8E+01	ug/L
Naphthalene	ND	7.5E+06	ug/L
Nitrobenzene	ND	ND	ug/L
N-Nitrosodi-n-propylamine	ND	ND	ug/L
N-Nitrosodiphenylamine	ND	ND	ug/L
n-Propylbenzene	ND	ND	ug/L
o-Xylene	ND	ND	ug/L
Pentachlorobenzene	ND	5.3E+05	ug/L
Pentachlorophenol	ND	ND	ug/L
Phenanthrene	ND	ND	ug/L
Phenol	ND	8.4E+06	ug/L
Pyrene	ND	ND	ug/L
Styrene	ND	ND	ug/L
Tetrachloroethene	ND	ND	ug/L
Toluene	ND	1.3E+06	ug/L
trans-1,2-Dichloroethene	ND	ND	ug/L

B2-5.14 Ranges of Detected Compounds in Groundwater
Former Chemical Manufacturing Area

Constituent	Min	Max	Units
trans-1,3-Dichloropropene	ND	ND	ug/L
trans-1,4-Dichloro-2-butene	ND	ND	ug/L
Trichloroethene	ND	2.0E+00	ug/L
Trichlorofluoromethane	ND	ND	ug/L
Vinyl acetate	ND	ND	ug/L
Vinyl chloride	ND	3.1E+01	ug/L
Xylenes, Total	ND	ND	ug/L

ND = Not Detected

B2-5.15 Ranges of Detected Compounds in Groundwater
LEL 1

Constituent	Min	Max	Units
1,1,1,2-Tetrachloroethane	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ug/L
1,1-Dichloroethane	ND	5.0E+04	ug/L
1,1-Dichloroethene	ND	ND	ug/L
1,2,3,4-Tetrachlorobenzene	ND	2.5E+07	ug/L
1,2,3-Trichlorobenzene	ND	7.8E+06	ug/L
1,2,3-Trichloropropane	ND	5.2E+02	ug/L
1,2,4-Trichlorobenzene	ND	7.5E+07	ug/L
1,2,4-Trimethylbenzene	ND	1.4E+05	ug/L
1,2-Dibromo-3-chloropropane	ND	ND	ug/L
1,2-Dibromoethane	ND	ND	ug/L
1,2-Dichlorobenzene	ND	1.1E+08	ug/L
1,2-Dichloroethane	ND	ND	ug/L
1,2-Dichloroethene, Total	ND	2.9E+02	ug/L
1,2-Dichloropropane	ND	1.0E+03	ug/L
1,3,4,5-Tetrachlorobenzene	ND	2.4E+07	ug/L
1,3,5-Trichlorobenzene	ND	ND	ug/L
1,3,5-Trimethylbenzene	ND	3.0E+04	ug/L
1,3-Dichlorobenzene	ND	9.5E+04	ug/L
1,3-Dichloropropene, Total	ND	ND	ug/L
1,4-Dichlorobenzene	ND	2.6E+08	ug/L
1-Ethyl-2-methyl-benzene	1.0E+05	1.0E+05	ug/L
1-ethyl-3-methyl-benzene	6.0E+04	1.5E+06	ug/L
1-Methyl-1H-indene	1.4E+05	1.4E+05	ug/L
1-methyl-anthracene	2.5E+06	2.5E+06	ug/L
1-Methylnaphthalene	4.4E+06	4.4E+06	ug/L
2,3-Dimethyl-naphthalene	2.7E+06	2.7E+06	ug/L
2,4,5-Trichlorophenol	ND	1.0E+05	ug/L
2,4,6-Trichlorophenol	ND	1.1E+05	ug/L
2,4-Dichlorophenol	ND	3.9E+05	ug/L
2,4-Dimethylphenol	ND	ND	ug/L
2,4-Dinitrophenol	ND	ND	ug/L
2,4-Dinitrotoluene	ND	ND	ug/L
2,6-Dimethyl-naphthalene	3.2E+06	3.2E+06	ug/L
2,6-Dinitrotoluene	ND	ND	ug/L
2,7-Dimethyl-naphthalene	2.3E+06	2.3E+06	ug/L
2-Butanone	ND	ND	ug/L
2-Chloronaphthalene	ND	ND	ug/L
2-Chlorophenol	ND	1.1E+05	ug/L
2-Ethyl-naphthalene	6.2E+06	6.2E+06	ug/L
2-Fluorobiphenyl	ND	3.6E+01	ug/L

B2-5.15 Ranges of Detected Compounds in Groundwater
LEL 1

Constituent	Min	Max	Units
2-Fluorophenol	ND	1.5E+02	ug/L
2-Hexanone	ND	ND	ug/L
2-Methylindene	4.6E+06	4.6E+06	ug/L
2-Methylnaphthalene	ND	6.2E+05	ug/L
2-methyl-phenanthrene	2.1E+06	2.1E+06	ug/L
2-Methylphenol	ND	ND	ug/L
2-Nitroaniline	ND	ND	ug/L
2-Nitrophenol	ND	ND	ug/L
3,3´-Dichlorobenzidine	ND	ND	ug/L
3-Nitroaniline	ND	ND	ug/L
4,6-Dinitro-2-methylphenol	ND	ND	ug/L
4-Bromofluorobenzene	1.0E+02	2.0E+08	ug/L
4-Bromophenyl phenyl ether	ND	ND	ug/L
4-Chloro-3-methylphenol	ND	ND	ug/L
4-Chloroaniline	ND	ND	ug/L
4-Chlorophenyl phenyl ether	ND	ND	ug/L
4-Methyl-2-pentanone	ND	ND	ug/L
4-Methylphenol	ND	ND	ug/L
4-Nitroaniline	ND	ND	ug/L
4-Nitrophenol	ND	ND	ug/L
9,10-Dimethylanthracene	2.2E+06	2.2E+06	ug/L
Acenaphthene	ND	2.2E+06	ug/L
Acenaphthylene	ND	1.1E+06	ug/L
Acetone	ND	ND	ug/L
Acrylonitrile	ND	ND	ug/L
Anthracene	ND	ND	ug/L
Benzene	ND	2.3E+06	ug/L
Benzo(a)anthracene	ND	ND	ug/L
Benzo(a)pyrene	ND	ND	ug/L
Benzo(b)fluoranthene	ND	ND	ug/L
Benzo(g,h,i)perylene	ND	ND	ug/L
Benzo(k)fluoranthene	ND	ND	ug/L
Bis(2-chloroethoxy)methane	ND	ND	ug/L
Bis(2-chloroethyl)ether	ND	ND	ug/L
Bis(2-chloroisopropyl)ether	ND	ND	ug/L
Bis(2-ethylhexyl)phthalate	ND	ND	ug/L
Bromochloromethane	ND	ND	ug/L
Bromodichloromethane	ND	ND	ug/L
Bromomethane	ND	ND	ug/L
Butyl benzyl phthalate	ND	ND	ug/L
Carbazole	ND	ND	ug/L
Carbon disulfide	ND	2.1E+03	ug/L
Carbon tetrachloride	ND	ND	ug/L

B2-5.15 Ranges of Detected Compounds in Groundwater
LEL 1

Constituent	Min	Max	Units
Chlorobenzene	9.0E+01	2.7E+07	ug/L
Chloroethane	ND	ND	ug/L
Chloroform	ND	8.0E+03	ug/L
Chloromethane	ND	ND	ug/L
Chrysene	ND	ND	ug/L
cis-1,2-Dichloroethene	ND	4.5E+04	ug/L
cis-1,3-Dichloropropene	ND	ND	ug/L
Dibenzo(a,h)anthracene	ND	ND	ug/L
Dibenzofuran	ND	ND	ug/L
Dibromochloromethane	ND	ND	ug/L
Dibromofluoromethane	1.0E+02	2.1E+08	ug/L
Dibromomethane	ND	ND	ug/L
Dichlorodifluoromethane	ND	ND	ug/L
Diethyl ether	ND	ND	ug/L
Diethyl phthalate	ND	ND	ug/L
Dimethyl phthalate	ND	ND	ug/L
Di-n-butyl phthalate	ND	ND	ug/L
Di-n-octyl phthalate	ND	ND	ug/L
Diphenyl oxide	ND	5.6E+03	ug/L
Eicosane	2.3E+06	2.3E+06	ug/L
Ethylbenzene	ND	2.0E+06	ug/L
Fluoranthene	ND	1.0E+00	ug/L
Fluorene	ND	1.4E+06	ug/L
Heptadecane	1.2E+07	1.2E+07	ug/L
Hexachlorobenzene	ND	ND	ug/L
Hexachlorobutadiene	ND	3.3E+04	ug/L
Hexachlorocyclopentadiene	ND	ND	ug/L
Hexachloroethane	ND	ND	ug/L
Hexadecane	6.2E+06	6.2E+06	ug/L
Indene	1.6E+05	3.4E+06	ug/L
Indeno(1,2,3-cd)pyrene	ND	ND	ug/L
Isophorone	ND	ND	ug/L
Isopropylbenzene	ND	4.0E+04	ug/L
m/p-Xylenes	9.7E+04	9.7E+04	ug/L
Methyl iodide	ND	ND	ug/L
Methyl tert-butyl ether	ND	ND	ug/L
Methylene chloride	ND	1.1E+03	ug/L
Naphthalene	ND	6.2E+06	ug/L
Nitrobenzene	ND	ND	ug/L
N-Nitrosodi-n-propylamine	ND	ND	ug/L
N-Nitrosodiphenylamine	ND	ND	ug/L
Nonadecane	5.8E+06	5.8E+06	ug/L
n-Propylbenzene	ND	3.7E+04	ug/L

B2-5.15 Ranges of Detected Compounds in Groundwater
LEL 1

Constituent	Min	Max	Units
Octadecane	3.2E+06	3.2E+06	ug/L
o-Xylene	ND	1.2E+05	ug/L
Pentachlorophenol	ND	1.1E+04	ug/L
Pentadecane	2.8E+06	2.8E+06	ug/L
Phenanthrene	ND	5.6E+06	ug/L
Phenol	ND	4.0E+04	ug/L
Pyrene	ND	1.3E+06	ug/L
Styrene	ND	ND	ug/L
Tetrachloroethene	ND	3.5E+04	ug/L
Tetradecane	5.4E+06	5.4E+06	ug/L
Toluene	ND	2.4E+02	ug/L
trans-1,2-Dichloroethene	ND	ND	ug/L
trans-1,3-Dichloropropene	ND	2.8E+05	ug/L
trans-1,4-Dichloro-2-butene	ND	ND	ug/L
Trichloroethene	ND	3.5E+04	ug/L
Trichlorofluoromethane	ND	ND	ug/L
Tridecane	4.4E+06	4.4E+06	ug/L
Undecane	3.0E+06	3.0E+06	ug/L
Vinyl acetate	ND	ND	ug/L
Vinyl chloride	ND	ND	ug/L
Xylenes, Total	ND	ND	ug/L

ND = Not Detected

B2-5.16 Ranges of Detected Compounds in Groundwater
LEL 3

Constituent	Min	Max	Units
1,1,1,2-Tetrachloroethane	ND	8.8E+04	ug/L
1,1,1-Trichloroethane	ND	8.0E+04	ug/L
1,1,2,2-Tetrachloroethane	ND	2.0E+01	ug/L
1,1,2-Trichloroethane	ND	1.2E+03	ug/L
1,1-Dichloroethane	ND	4.3E+02	ug/L
1,1-Dichloroethene	ND	2.0E+05	ug/L
1,2,3-Trichloropropane	ND	2.6E+03	ug/L
1,2,4-Trichlorobenzene	ND	2.3E+07	ug/L
1,2,4-Trimethylbenzene	ND	8.0E+04	ug/L
1,2-Dibromo-3-chloropropane	ND	1.8E+01	ug/L
1,2-Dibromoethane	ND	6.5E+04	ug/L
1,2-Dichlorobenzene	ND	4.8E+07	ug/L
1,2-Dichloroethane	ND	8.3E+04	ug/L
1,2-Dichloroethene, Total	ND	6.2E+03	ug/L
1,2-Dichloropropane	ND	1.3E+05	ug/L
1,3,5-Trimethylbenzene	ND	4.6E+04	ug/L
1,3-Dichlorobenzene	ND	3.9E+06	ug/L
1,3-Dichloropropene, Total	ND	ND	ug/L
1,4-Dichlorobenzene	ND	4.1E+07	ug/L
2,4,5-Trichlorophenol	ND	4.6E+06	ug/L
2,4,6-Trichlorophenol	ND	3.4E+06	ug/L
2,4-Dichlorophenol	ND	4.7E+03	ug/L
2,4-Dimethylphenol	ND	1.3E+03	ug/L
2,4-Dinitrophenol	ND	5.0E+01	ug/L
2,4-Dinitrotoluene	ND	3.1E+01	ug/L
2,6-Dinitrotoluene	ND	3.9E+01	ug/L
2-Butanone	ND	1.5E+02	ug/L
2-Chloronaphthalene	ND	1.3E+02	ug/L
2-Chlorophenol	ND	1.6E+03	ug/L
2-Hexanone	ND	4.4E+01	ug/L
2-Methylnaphthalene	ND	1.9E+06	ug/L
2-Methylphenol	ND	1.4E+02	ug/L
2-Nitroaniline	ND	3.8E+01	ug/L
2-Nitrophenol	ND	3.3E+01	ug/L
3,3´-Dichlorobenzidine	ND	ND	ug/L
3-Nitroaniline	ND	3.1E+01	ug/L
4,6-Dinitro-2-methylphenol	ND	3.0E+01	ug/L
4-Bromophenyl phenyl ether	ND	3.8E+01	ug/L
4-Chloro-3-methylphenol	ND	1.5E+02	ug/L
4-Chloroaniline	ND	5.0E+01	ug/L
4-Chlorophenyl phenyl ether	ND	3.9E+01	ug/L
4-Methyl-2-pentanone	ND	1.6E+03	ug/L
4-Methylphenol	ND	7.7E+03	ug/L

B2-5.16 Ranges of Detected Compounds in Groundwater
LEL 3

Constituent	Min	Max	Units
4-Nitroaniline	ND	2.7E+01	ug/L
4-Nitrophenol	ND	3.4E+01	ug/L
Acenaphthene	ND	3.6E+01	ug/L
Acenaphthylene	ND	3.8E+01	ug/L
Acetone	ND	3.4E+03	ug/L
Acrylonitrile	ND	2.1E+01	ug/L
Anthracene	ND	3.7E+01	ug/L
Benzene	ND	2.2E+06	ug/L
Benzo(a)anthracene	ND	3.9E+01	ug/L
Benzo(a)pyrene	ND	3.5E+01	ug/L
Benzo(b)fluoranthene	ND	3.6E+01	ug/L
Benzo(g,h,i)perylene	ND	3.2E+01	ug/L
Benzo(k)fluoranthene	ND	4.4E+01	ug/L
Bis(2-chloroethoxy)methane	ND	3.5E+01	ug/L
Bis(2-chloroethyl)ether	ND	9.2E+02	ug/L
Bis(2-chloroisopropyl)ether	ND	4.5E+01	ug/L
Bis(2-ethylhexyl)phthalate	ND	4.3E+01	ug/L
Bromochloromethane	ND	4.3E+02	ug/L
Bromodichloromethane	ND	2.0E+01	ug/L
Bromomethane	ND	2.8E+01	ug/L
Butyl benzyl phthalate	ND	4.2E+01	ug/L
Carbazole	ND	4.2E+01	ug/L
Carbon disulfide	ND	2.2E+01	ug/L
Carbon tetrachloride	ND	2.0E+01	ug/L
Chlorobenzene	ND	2.7E+07	ug/L
Chloroethane	ND	2.2E+01	ug/L
Chloroform	ND	2.2E+05	ug/L
Chloromethane	ND	2.1E+01	ug/L
Chrysene	ND	3.7E+01	ug/L
cis-1,2-Dichloroethene	ND	5.5E+03	ug/L
cis-1,3-Dichloropropene	ND	2.0E+01	ug/L
Dibenzo(a,h)anthracene	ND	3.4E+01	ug/L
Dibenzofuran	ND	2.2E+06	ug/L
Dibromochloromethane	ND	1.9E+01	ug/L
Dibromomethane	ND	2.0E+01	ug/L
Dichlorodifluoromethane	ND	1.7E+01	ug/L
Diethyl ether	ND	1.3E+02	ug/L
Diethyl phthalate	ND	4.3E+01	ug/L
Dimethyl phthalate	ND	3.8E+01	ug/L
Di-n-butyl phthalate	ND	4.1E+01	ug/L
Di-n-octyl phthalate	ND	4.5E+01	ug/L
Ethylbenzene	ND	9.6E+05	ug/L
Fluoranthene	ND	4.2E+01	ug/L

B2-5.16 Ranges of Detected Compounds in Groundwater
LEL 3

Constituent	Min	Max	Units
Fluorene	ND	4.1E+01	ug/L
Hexachlorobenzene	ND	3.7E+06	ug/L
Hexachlorobutadiene	ND	2.0E+03	ug/L
Hexachlorocyclopentadiene	ND	1.8E+01	ug/L
Hexachloroethane	ND	2.5E+01	ug/L
Indeno(1,2,3-cd)pyrene	ND	3.3E+01	ug/L
Isophorone	ND	3.6E+01	ug/L
Isopropylbenzene	ND	7.7E+05	ug/L
m,p-Xylene	ND	1.4E+05	ug/L
Methyl iodide	ND	2.7E+01	ug/L
Methyl tert-butyl ether	ND	2.1E+01	ug/L
Methylene chloride	ND	5.0E+04	ug/L
Naphthalene	ND	8.4E+06	ug/L
Nitrobenzene	ND	3.3E+01	ug/L
N-Nitrosodi-n-propylamine	ND	3.7E+01	ug/L
N-Nitrosodiphenylamine	ND	2.6E+06	ug/L
n-Propylbenzene	ND	1.2E+05	ug/L
o-Xylene	ND	9.0E+04	ug/L
Pentachlorophenol	ND	1.6E+04	ug/L
Phenanthrene	ND	4.0E+01	ug/L
Phenol	ND	8.9E+03	ug/L
Pyrene	ND	4.0E+01	ug/L
Styrene	ND	2.0E+05	ug/L
Tetrachloroethene	ND	9.1E+05	ug/L
Toluene	ND	1.6E+06	ug/L
trans-1,2-Dichloroethene	ND	7.2E+02	ug/L
trans-1,3-Dichloropropene	ND	1.9E+01	ug/L
trans-1,4-Dichloro-2-butene	ND	1.6E+01	ug/L
Trichloroethene	ND	1.2E+05	ug/L
Trichlorofluoromethane	ND	1.8E+01	ug/L
Vinyl acetate	ND	ND	ug/L
Vinyl chloride	ND	5.6E+02	ug/L
Xylenes, Total	ND	2.3E+05	ug/L

ND = Not Detected

B2-5.17 Ranges of Detected Compounds in Groundwater
Chemical Disposal Well 3 Area

Constituent	Min	Max	Units
0,0,0-Triethylphosphorothioate	ND	ND	ug/L
1,1,1,2-Tetrachloroethane	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ug/L
1,1-Dichloroethane	ND	ND	ug/L
1,1-Dichloroethene	ND	ND	ug/L
1,2,3-Trichloropropane	ND	ND	ug/L
1,2,4,5-Tetrachlorobenzene	ND	ND	ug/L
1,2,4-Trichlorobenzene	ND	ND	ug/L
1,2,4-Trimethylbenzene	ND	ND	ug/L
1,2-Dibromo-3-chloropropane	ND	ND	ug/L
1,2-Dibromoethane	ND	ND	ug/L
1,2-Dichlorobenzene	ND	4.0E+00	ug/L
1,2-Dichloroethane	ND	9.0E+00	ug/L
1,2-Dichloroethene, Total	ND	1.2E+00	ug/L
1,2-Dichloropropane	ND	ND	ug/L
1,3,5-Trimethylbenzene	ND	ND	ug/L
1,3-Dichlorobenzene	ND	ND	ug/L
1,3-Dichloropropene, Total	ND	ND	ug/L
1,4-Dichlorobenzene	ND	6.0E+00	ug/L
1,4-Dioxane	ND	ND	ug/L
1,4-Naphthoquinone	ND	ND	ug/L
1-Naphthylamine	ND	ND	ug/L
2,3,4,6-Tetrachlorophenol	ND	ND	ug/L
2,4,5-T	ND	4.3E+03	ug/L
2,4,5-TP (Silvex)	ND	1.2E+02	ug/L
2,4,5-Trichlorophenol	ND	1.8E+04	ug/L
2,4,6-Trichlorophenol	ND	4.5E+03	ug/L
2,4-D	3.5E+00	4.5E+00	ug/L
2,4-DB	ND	ND	ug/L
2,4-Dichlorophenol	ND	1.9E+04	ug/L
2,4-Dimethylphenol	ND	ND	ug/L
2,4-Dinitrophenol	ND	ND	ug/L
2,4-Dinitrotoluene	ND	ND	ug/L
2,6-Dichlorophenol	ND	ND	ug/L
2,6-Dinitrotoluene	ND	ND	ug/L
2-Acetylaminofluorene	ND	ND	ug/L
2-Butanone	ND	9.9E+00	ug/L
2-Chloronaphthalene	ND	ND	ug/L
2-Chlorophenol	ND	3.9E+03	ug/L
2-Hexanone	ND	ND	ug/L
2-Methylnaphthalene	ND	ND	ug/L

B2-5.17 Ranges of Detected Compounds in Groundwater
Chemical Disposal Well 3 Area

Constituent	Min	Max	Units
2-Methylphenol	ND	ND	ug/L
2-Naphthylamine	ND	ND	ug/L
2-Nitroaniline	ND	ND	ug/L
2-Nitrophenol	ND	ND	ug/L
2-Picoline	ND	ND	ug/L
3,3'-Dichlorobenzidine	ND	ND	ug/L
3,3'-Dimethylbenzidine	ND	ND	ug/L
3-Methylcholanthrene	ND	ND	ug/L
3-Nitroaniline	ND	ND	ug/L
4,4'-DDD	ND	ND	ug/L
4,4'-DDE	ND	ND	ug/L
4,4'-DDT	ND	ND	ug/L
4,6-Dinitro-2-methylphenol	ND	ND	ug/L
4,6-Dinitro-o-cresol	ND	ND	ug/L
4-Aminobiphenyl	ND	ND	ug/L
4-Bromophenyl phenyl ether	ND	ND	ug/L
4-Chloro-3-methylphenol	ND	ND	ug/L
4-Chloroaniline	ND	ND	ug/L
4-Chlorophenyl phenyl ether	ND	ND	ug/L
4-Methyl-2-pentanone	ND	ND	ug/L
4-Methylphenol	ND	ND	ug/L
4-Nitroaniline	ND	ND	ug/L
4-Nitrophenol	ND	ND	ug/L
4-Nitroquinoline 1-Oxide	ND	ND	ug/L
5-Nitro-o-toluidine	ND	ND	ug/L
7,12-Dimethylbenz(a)anthracene	ND	ND	ug/L
a,a-Dimethylphenethylamine	ND	ND	ug/L
Acenaphthene	ND	ND	ug/L
Acenaphthylene	ND	ND	ug/L
Acetone	ND	2.6E+01	ug/L
Acetonitrile	ND	ND	ug/L
Acetophenone	ND	ND	ug/L
Acrolein	ND	ND	ug/L
Acrylonitrile	ND	ND	ug/L
Aldrin	ND	ND	ug/L
Allyl chloride	ND	ND	ug/L
alpha Chlordane	ND	ND	ug/L
alpha-BHC	ND	ND	ug/L
Aniline	ND	ND	ug/L
Anthracene	ND	ND	ug/L
Antimony, Total	ND	ND	ug/L
Aramite	ND	ND	ug/L
Aroclor-1016	ND	ND	ug/L

B2-5.17 Ranges of Detected Compounds in Groundwater
Chemical Disposal Well 3 Area

Constituent	Min	Max	Units
Aroclor-1221	ND	ND	ug/L
Aroclor-1232	ND	ND	ug/L
Aroclor-1242	ND	ND	ug/L
Aroclor-1248	ND	ND	ug/L
Aroclor-1254	ND	ND	ug/L
Aroclor-1260	ND	ND	ug/L
Arsenic, Total	ND	ND	ug/L
Benzene	ND	3.1E+02	ug/L
Benzo(a)anthracene	ND	ND	ug/L
Benzo(a)pyrene	ND	ND	ug/L
Benzo(b)fluoranthene	ND	ND	ug/L
Benzo(g,h,i)perylene	ND	ND	ug/L
Benzo(k)fluoranthene	ND	ND	ug/L
Benzyl alcohol	ND	ND	ug/L
Beryllium, Total	ND	ND	ug/L
beta-BHC	ND	ND	ug/L
Bis(2-chloroethoxy)methane	ND	ND	ug/L
Bis(2-chloroethyl)ether	ND	ND	ug/L
Bis(2-chloroisopropyl)ether	ND	ND	ug/L
Bis(2-ethylhexyl)phthalate	ND	ND	ug/L
Bromochloromethane	ND	ND	ug/L
Bromodichloromethane	ND	ND	ug/L
Bromoform	ND	ND	ug/L
Bromomethane	ND	ND	ug/L
Butyl benzyl phthalate	ND	ND	ug/L
Cadmium, Total	ND	ND	ug/L
Carbazole	ND	ND	ug/L
Carbon disulfide	ND	ND	ug/L
Carbon tetrachloride	ND	ND	ug/L
Chlorobenzene	ND	2.3E+02	ug/L
Chlorobenzilate	ND	ND	ug/L
Chloroethane	ND	ND	ug/L
Chloroform	ND	ND	ug/L
Chloromethane	ND	ND	ug/L
Chloroprene	ND	ND	ug/L
Chromium, Total	ND	ND	ug/L
Chrysene	ND	ND	ug/L
cis-1,2-Dichloroethene	ND	1.2E+00	ug/L
cis-1,3-Dichloropropene	ND	ND	ug/L
Cobalt, Total	ND	ND	ug/L
Copper, Total	ND	ND	ug/L
Cyanide	ND	ND	ug/L
Dalapon	ND	ND	ug/L

B2-5.17 Ranges of Detected Compounds in Groundwater
Chemical Disposal Well 3 Area

Constituent	Min	Max	Units
delta-BHC	ND	ND	ug/L
Diallate	ND	ND	ug/L
Dibenzo(a,h)anthracene	ND	ND	ug/L
Dibenzofuran	ND	ND	ug/L
Dibromochloromethane	ND	ND	ug/L
Dibromomethane	ND	ND	ug/L
Dicamba	ND	ND	ug/L
Dichlorodifluoromethane	ND	ND	ug/L
Dichloroprop	ND	ND	ug/L
Dieldrin	ND	ND	ug/L
Diethyl ether	ND	ND	ug/L
Diethyl phthalate	ND	ND	ug/L
Dimethoate	ND	ND	ug/L
Dimethyl phthalate	ND	ND	ug/L
Di-n-butyl phthalate	ND	ND	ug/L
Di-n-octyl phthalate	ND	ND	ug/L
Dinoseb	ND	ND	ug/L
Disulfoton	ND	ND	ug/L
Endosulfan I	ND	ND	ug/L
Endosulfan II	ND	ND	ug/L
Endosulfan sulfate	ND	ND	ug/L
Endrin	ND	ND	ug/L
Endrin aldehyde	ND	ND	ug/L
Endrin ketone	ND	ND	ug/L
Ethyl Methacrylate	ND	ND	ug/L
Ethyl methanesulfonate	ND	ND	ug/L
Ethylbenzene	ND	ND	ug/L
Famphur - Estimated	ND	ND	ug/L
Fluoranthene	ND	ND	ug/L
Fluorene	ND	ND	ug/L
gamma Chlordane	ND	ND	ug/L
gamma-BHC (Lindane)	ND	ND	ug/L
Heptachlor	ND	ND	ug/L
Heptachlor epoxide	ND	ND	ug/L
Hexachlorobenzene	ND	ND	ug/L
Hexachlorobutadiene	ND	ND	ug/L
Hexachlorocyclopentadiene	ND	ND	ug/L
Hexachloroethane	ND	ND	ug/L
Hexachlorophene - Estimated	ND	ND	ug/L
Hexachloropropene	ND	ND	ug/L
Indeno(1,2,3-cd)pyrene	ND	ND	ug/L
Isobutanol	ND	ND	ug/L
Isodrin	ND	ND	ug/L

B2-5.17 Ranges of Detected Compounds in Groundwater
Chemical Disposal Well 3 Area

Constituent	Min	Max	Units
Isophorone	ND	ND	ug/L
Isopropylbenzene	ND	ND	ug/L
Isosafrole	ND	ND	ug/L
Kepone - Estimated	ND	ND	ug/L
Lead, Total	ND	ND	ug/L
m-,p-Cresol	ND	ND	ug/L
m,p-Xylene	ND	ND	ug/L
MCPA	ND	ND	ug/L
MCPP	ND	ND	ug/L
m-Dichlorobenzene	ND	ND	ug/L
m-Dinitrobenzene	ND	ND	ug/L
Mercury	ND	ND	ug/L
Methacrylonitrile	ND	ND	ug/L
Methapyrilene	ND	ND	ug/L
Methoxychlor	ND	ND	ug/L
Methyl bromide	ND	ND	ug/L
Methyl chloride	ND	ND	ug/L
Methyl Iodide	ND	ND	ug/L
Methyl methacrylate	ND	ND	ug/L
Methyl methanesulfonate	ND	ND	ug/L
Methyl parathion	ND	ND	ug/L
Methyl tert-butyl ether	ND	ND	ug/L
Methylene bromide	ND	ND	ug/L
Methylene chloride	ND	3.7E+01	ug/L
m-Nitroaniline	ND	ND	ug/L
Naphthalene	ND	1.6E+03	ug/L
Nickel, Total	ND	ND	ug/L
Nitrobenzene	ND	ND	ug/L
N-Nitrosodiethylamine	ND	ND	ug/L
N-Nitrosodimethylamine	ND	ND	ug/L
N-Nitrosodi-N-Butylamine	ND	ND	ug/L
N-Nitrosodi-n-propylamine	ND	ND	ug/L
N-Nitrosodiphenylamine	ND	ND	ug/L
N-Nitrosodipropylamine	ND	ND	ug/L
N-Nitrosomethylethylamine	ND	ND	ug/L
N-Nitrosomorpholine	ND	ND	ug/L
N-Nitrosopiperidine	ND	ND	ug/L
N-Nitrosopyrrolidine	ND	ND	ug/L
n-Propylbenzene	ND	ND	ug/L
o-Cresol	ND	ND	ug/L
o-Nitroaniline	ND	ND	ug/L
o-Toluidine	ND	ND	ug/L
o-Xylene	ND	ND	ug/L

B2-5.17 Ranges of Detected Compounds in Groundwater
Chemical Disposal Well 3 Area

Constituent	Min	Max	Units
Parathion	ND	ND	ug/L
p-Chloroaniline	ND	ND	ug/L
p-Chloro-m-cresol	ND	ND	ug/L
p-Dichlorobenzene	ND	ND	ug/L
p-Dimethylaminoazobenzene	ND	ND	ug/L
Pentachlorobenzene	ND	ND	ug/L
Pentachloroethane	ND	ND	ug/L
Pentachloronitrobenzene	ND	ND	ug/L
Pentachlorophenol	ND	1.0E+04	ug/L
Phenacetin	ND	ND	ug/L
Phenanthrene	ND	ND	ug/L
Phenol	ND	2.6E+03	ug/L
Phorate	ND	ND	ug/L
p-Nitroaniline	ND	ND	ug/L
p-Phenylenediamine	ND	ND	ug/L
Pronamide	ND	ND	ug/L
Propionitrile	ND	ND	ug/L
Pyrene	ND	ND	ug/L
Pyridine	ND	ND	ug/L
Safrole	ND	ND	ug/L
Selenium, Total	ND	ND	ug/L
Silicon, Total	8.1E+00	8.1E+03	ug/L
Silver, Total	ND	ND	ug/L
Styrene	ND	ND	ug/L
Sulfide	ND	ND	ug/L
Sulfotepp	ND	ND	ug/L
sym-Trinitrobenzene	ND	ND	ug/L
Tetrachloroethene	ND	6.4E+00	ug/L
Thallium, Total	ND	ND	ug/L
Thionazin	ND	ND	ug/L
Toluene	ND	2.4E+00	ug/L
Toxaphene	ND	ND	ug/L
trans-1,2-Dichloroethene	ND	ND	ug/L
trans-1,3-Dichloropropene	ND	ND	ug/L
Trans-1,4-Dichloro-2-Butene	ND	ND	ug/L
Trichloroethene	ND	1.3E+00	ug/L
Trichlorofluoromethane	ND	ND	ug/L
Vinyl acetate	ND	ND	ug/L
Vinyl chloride	ND	3.9E-01	ug/L
Xylenes, Total	ND	ND	ug/L
Zinc, Total	ND	ND	ug/L

ND = Not Detected

B2-5.1 Ranges of Detected Compounds in Groundwater
Glacial Till and Regional Aquifer

Constituent	Min	Max	Units
1,1,1,2-Tetrachloroethane	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ug/L
1,1-Dichloroethane	ND	1.1E+02	ug/L
1,1-Dichloroethene	ND	ND	ug/L
1,1-Dichloropropene	ND	ND	ug/L
1,2,3-Trichloropropane	ND	ND	ug/L
1,2,4-Trichlorobenzene	ND	1.2E+02	ug/L
1,2,4-Trimethylbenzene	ND	ND	ug/L
1,2-Dibromo-3-Chloropropane	ND	1.2E+02	ug/L
1,2-Dibromoethane (EDB)	ND	1.0E+02	ug/L
1,2-Dichlorobenzene	ND	1.1E+02	ug/L
1,2-Dichloroethane	ND	1.2E+02	ug/L
1,2-Dichloropropane	ND	ND	ug/L
1,3,5-Trimethylbenzene	ND	ND	ug/L
1,3-Dichlorobenzene	ND	ND	ug/L
1,3-Dichloropropane	ND	ND	ug/L
1,4-Dichlorobenzene	ND	1.0E+02	ug/L
1,4-Dioxane	ND	3.7E+02	ug/L
2,4,5-T	ND	1.2E+02	ug/L
2,4,5-TP (Silvex)	ND	1.2E+02	ug/L
2,4,5-Trichlorophenol	ND	8.7E+01	ug/L
2,4,6-Trichlorophenol	ND	ND	ug/L
2,4-D	ND	1.3E+02	ug/L
2,4-Dichlorophenol	ND	8.3E+01	ug/L
2,4-Dichlorophenylacetic acid	ND	ND	ug/L
2,4-Dimethylphenol	ND	ND	ug/L
2,4-Dinitrotoluene	ND	ND	ug/L
2,6-Dinitrotoluene	ND	ND	ug/L
2-Chloronaphthalene	ND	ND	ug/L
2-Chlorophenol	ND	8.1E+01	ug/L
2-Chlorotoluene	ND	ND	ug/L
2-Hexanone	ND	ND	ug/L
2-Methlyphenol	ND	ND	ug/L
2-Methylnaphthalene	ND	ND	ug/L
2-Methylphenol	ND	ND	ug/L
2-Nitroaniline	ND	ND	ug/L
2-Nitrophenol	ND	ND	ug/L
3-Nitroaniline	ND	ND	ug/L
4-Bromophenyl phenyl ether	ND	ND	ug/L
4-Chloro-3-methylphenol	ND	ND	ug/L
4-Chlorotoluene	ND	ND	ug/L

B2-5.18 Ranges of Detected Compounds in Groundwater
West Side Shallow

Constituent	Min	Max	Units
Antimony	ND	ND	ug/L
1,1,1,2-Tetrachloroethane	ND	2.0E+01	ug/L
1,1,1-Trichloroethane	ND	2.1E+01	ug/L
1,1,2,2-Tetrachloroethane	ND	1.9E+01	ug/L
1,1,2-Trichloroethane	ND	2.0E+01	ug/L
1,1-Dichloroethane	ND	2.9E+01	ug/L
1,1-Dichloroethene	ND	2.3E+01	ug/L
1,2,3-Trichloropropane	ND	2.0E+01	ug/L
1,2,4,5-Tetrachlorobenzene	ND	ND	ug/L
1,2,4-Trichlorobenzene	ND	2.4E+02	ug/L
1,2,4-Trimethylbenzene	ND	1.9E+01	ug/L
1,2-Dibromo-3-chloropropane	ND	1.9E+01	ug/L
1,2-Dibromoethane	ND	2.0E+01	ug/L
1,2-Dichlorobenzene	ND	2.4E+02	ug/L
1,2-Dichloroethane	ND	2.0E+01	ug/L
1,2-Dichloroethene, Total	ND	ND	ug/L
1,2-Dichloropropane	ND	2.0E+01	ug/L
1,3,5-Trimethylbenzene	ND	2.0E+01	ug/L
1,3-Dichlorobenzene	ND	2.3E+02	ug/L
1,3-Dichloropropene, Total	ND	ND	ug/L
1,3-Dinitrobenzene	ND	ND	ug/L
1,4-Dichlorobenzene	ND	2.4E+02	ug/L
1,4-Dioxane	ND	ND	ug/L
1,4-Naphthoquinone	ND	ND	ug/L
1-Naphthylamine	ND	ND	ug/L
2,3,4,6-Tetrachlorophenol	ND	ND	ug/L
2,4,5-T	ND	4.5E+01	ug/L
2,4,5-TP (Silvex)	ND	4.7E+01	ug/L
2,4,5-Trichlorophenol	ND	2.9E+02	ug/L
2,4,6-Tribromophenol	2.5E+01	4.3E+01	ug/L
2,4,6-Trichlorophenol	ND	2.8E+02	ug/L
2,4-D	ND	ND	ug/L
2,4-DB	1.2E+00	3.6E+00	ug/L
2,4-Dichlorophenol	ND	2.7E+02	ug/L
2,4-Dimethylphenol	ND	2.2E+02	ug/L
2,4-Dinitrophenol	ND	3.4E+02	ug/L
2,4-Dinitrotoluene	ND	3.3E+02	ug/L
2,6-Dichlorophenol	ND	ND	ug/L
2,6-Dinitrotoluene	ND	3.0E+02	ug/L
2-Acetylaminofluorene	ND	ND	ug/L
2-Butanone	ND	2.3E+01	ug/L
2-Chloronaphthalene	ND	2.6E+02	ug/L
2-Chlorophenol	ND	2.5E+02	ug/L

B2-5.18 Ranges of Detected Compounds in Groundwater
West Side Shallow

Constituent	Min	Max	Units
2-Fluorobiphenyl	2.0E+01	3.4E+01	ug/L
2-Fluorophenol	1.4E+01	2.2E+01	ug/L
2-Hexanone	ND	2.3E+01	ug/L
2-Methylnaphthalene	ND	2.6E+02	ug/L
2-Methylphenol	ND	2.3E+02	ug/L
2-Naphthylamine	ND	ND	ug/L
2-Nitroaniline	ND	3.1E+02	ug/L
2-Nitrophenol	ND	2.6E+02	ug/L
2-Picoline	ND	ND	ug/L
3,3'-Dichlorobenzidine	ND	ND	ug/L
3,3'-Dimethylbenzidine	ND	ND	ug/L
3-Methylcholanthrene	ND	ND	ug/L
3-Nitroaniline	ND	3.2E+02	ug/L
4,4'-DDD	ND	ND	ug/L
4,4'-DDE	ND	ND	ug/L
4,4'-DDT	ND	ND	ug/L
4,6-Dinitro-2-methylphenol	ND	3.3E+02	ug/L
4,6-Dinitro-o-cresol	ND	ND	ug/L
4-Aminobiphenyl	ND	ND	ug/L
4-Bromofluorobenzene	9.6E+01	9.7E+01	ug/L
4-Bromophenyl phenyl ether	ND	2.7E+02	ug/L
4-Chloro-3-methylphenol	ND	2.9E+02	ug/L
4-Chloroaniline	ND	3.0E+02	ug/L
4-Chlorophenyl phenyl ether	ND	2.7E+02	ug/L
4-Methyl-2-pentanone	ND	2.5E+01	ug/L
4-Methylphenol	ND	2.2E+02	ug/L
4-Nitroaniline	ND	3.1E+02	ug/L
4-Nitrophenol	ND	1.4E+02	ug/L
4-Nitroquinoline 1-oxide	ND	ND	ug/L
5-Nitro-o-toluidine	ND	ND	ug/L
7,12-Dimethylbenz(a)anthracene	ND	ND	ug/L
a,a-Dimethylphenethylamine	ND	ND	ug/L
Acenaphthene	ND	2.6E+02	ug/L
Acenaphthylene	ND	2.7E+02	ug/L
Acetone	ND	2.5E+01	ug/L
Acetonitrile	ND	ND	ug/L
Acetophenone	ND	ND	ug/L
Acrolein	ND	ND	ug/L
Acrylonitrile	ND	1.9E+01	ug/L
Aldrin	ND	ND	ug/L
Allyl chloride	ND	ND	ug/L
alpha Chlordane	ND	NULL	ug/L
alpha-BHC	ND	ND	ug/L

B2-5.18 Ranges of Detected Compounds in Groundwater
West Side Shallow

Constituent	Min	Max	Units
Aniline	ND	ND	ug/L
Anthracene	ND	2.8E+02	ug/L
Antimony, Total	ND	ND	ug/L
Aramite	ND	ND	ug/L
Aroclor 1016	ND	ND	ug/L
Aroclor 1221	ND	ND	ug/L
Aroclor 1232	ND	ND	ug/L
Aroclor 1242	ND	ND	ug/L
Aroclor 1248	ND	ND	ug/L
Aroclor 1254	ND	ND	ug/L
Aroclor 1260	ND	ND	ug/L
Aroclor-1016	ND	ND	ug/L
Aroclor-1221	ND	ND	ug/L
Aroclor-1232	ND	ND	ug/L
Aroclor-1242	ND	ND	ug/L
Aroclor-1248	ND	ND	ug/L
Aroclor-1254	ND	ND	ug/L
Aroclor-1260	ND	ND	ug/L
Arsenic	ND	5.3E+00	ug/L
Barium	1.2E-02	4.1E+02	ug/L
Benzene	ND	4.5E+01	ug/L
Benzo(a)anthracene	ND	2.8E+02	ug/L
Benzo(a)pyrene	ND	2.9E+02	ug/L
Benzo(b)fluoranthene	ND	2.8E+02	ug/L
Benzo(g,h,i)perylene	ND	3.3E+02	ug/L
Benzo(k)fluoranthene	ND	3.0E+02	ug/L
Benzyl alcohol	ND	ND	ug/L
Beryllium	ND	5.0E-01	ug/L
beta-BHC	ND	ND	ug/L
Bis(2-chloroethoxy)methane	ND	2.7E+02	ug/L
Bis(2-chloroethyl)ether	ND	2.5E+02	ug/L
Bis(2-chloroisopropyl)ether	ND	2.2E+02	ug/L
Bis(2-ethylhexyl)phthalate	ND	2.9E+02	ug/L
Bromochloromethane	ND	2.1E+01	ug/L
Bromodichloromethane	ND	2.1E+01	ug/L
Bromoform	ND	ND	ug/L
Bromomethane	ND	2.7E+01	ug/L
Butyl benzyl phthalate	ND	3.1E+02	ug/L
Cadmium	ND	ND	ug/L
Carbazole	ND	3.2E+02	ug/L
Carbon disulfide	ND	2.4E+01	ug/L
Carbon tetrachloride	ND	2.2E+01	ug/L
Chlordane, Technical	ND	ND	ug/L

B2-5.18 Ranges of Detected Compounds in Groundwater
West Side Shallow

Constituent	Min	Max	Units
Chlorobenzene	ND	2.0E+01	ug/L
Chlorobenzilate	ND	ND	ug/L
Chloroethane	ND	3.0E+01	ug/L
Chloroform	ND	9.0E+01	ug/L
Chloromethane	ND	2.2E+01	ug/L
Chloroprene	ND	ND	ug/L
Chromium	ND	ND	ug/L
Chrysene	ND	2.8E+02	ug/L
cis-1,2-Dichloroethene	ND	2.0E+01	ug/L
cis-1,3-Dichloropropene	ND	2.2E+01	ug/L
Cobalt	ND	ND	ug/L
Copper	ND	4.2E+00	ug/L
Cyanide	ND	ND	ug/L
Dalapon	ND	ND	ug/L
DCAA	8.5E+00	5.0E+01	ug/L
Decachlorobiphenyl	6.8E-02	9.0E-02	ug/L
delta-BHC	ND	ND	ug/L
Diallate	ND	ND	ug/L
Dibenzo(a,h)anthracene	ND	3.0E+02	ug/L
Dibenzofuran	ND	2.7E+02	ug/L
Dibromochloromethane	ND	2.1E+01	ug/L
Dibromofluoromethane	9.9E+01	1.0E+02	ug/L
Dibromomethane	ND	2.0E+01	ug/L
Dicamba	ND	ND	ug/L
Dichlorodifluoromethane	ND	2.1E+01	ug/L
Dichloroprop	ND	ND	ug/L
Dieldrin	ND	ND	ug/L
Diethyl ether	ND	ND	ug/L
Diethyl phthalate	ND	2.8E+02	ug/L
Dimethoate	ND	ND	ug/L
Dimethyl phthalate	ND	2.8E+02	ug/L
Di-n-butyl phthalate	ND	3.1E+02	ug/L
Di-n-octyl phthalate	ND	3.1E+02	ug/L
Dinoseb	ND	ND	ug/L
Diphenylamine	ND	ND	ug/L
Disulfoton	ND	ND	ug/L
Endosulfan I	ND	ND	ug/L
Endosulfan II	ND	ND	ug/L
Endosulfan sulfate	ND	ND	ug/L
Endrin	ND	ND	ug/L
Endrin aldehyde	ND	ND	ug/L
Endrin ketone	ND	ND	ug/L
Ethyl Methacrylate	ND	ND	ug/L

B2-5.18 Ranges of Detected Compounds in Groundwater
West Side Shallow

Constituent	Min	Max	Units
Ethyl methanesulfonate	ND	ND	ug/L
Ethylbenzene	ND	2.0E+01	ug/L
Fluoranthene	ND	3.0E+02	ug/L
Fluorene	ND	2.8E+02	ug/L
gamma Chlordane	ND	NULL	ug/L
gamma-BHC (Lindane)	ND	ND	ug/L
Heptachlor	ND	ND	ug/L
Heptachlor epoxide	ND	ND	ug/L
Hexachlorobenzene	ND	2.8E+02	ug/L
Hexachlorobutadiene	ND	2.4E+02	ug/L
Hexachlorocyclopentadiene	ND	1.6E+02	ug/L
Hexachloroethane	ND	2.4E+02	ug/L
Hexachloropropene	ND	ND	ug/L
Indeno(1,2,3-cd)pyrene	ND	2.9E+02	ug/L
Iodomethane	ND	ND	ug/L
Isobutanol	ND	ND	ug/L
Isobutyl alcohol	ND	ND	ug/L
Isodrin	ND	ND	ug/L
Isophorone	ND	2.8E+02	ug/L
Isopropylbenzene	ND	1.9E+01	ug/L
Isosafrole	ND	ND	ug/L
Lead	ND	5.2E+00	ug/L
m-,p-Cresol	ND	ND	ug/L
m,p-Xylene	ND	3.9E+01	ug/L
MCPA	ND	ND	ug/L
MCPP	ND	ND	ug/L
m-Dichlorobenzene	ND	ND	ug/L
m-Dinitrobenzene	ND	ND	ug/L
Mercury	ND	ND	ug/L
Methacrylonitrile	ND	ND	ug/L
Methapyrilene	ND	ND	ug/L
Methoxychlor	ND	ND	ug/L
Methyl bromide	ND	ND	ug/L
Methyl chloride	ND	ND	ug/L
Methyl Iodide	ND	2.7E+01	ug/L
Methyl methacrylate	ND	ND	ug/L
Methyl methanesulfonate	ND	ND	ug/L
Methyl parathion	ND	ND	ug/L
Methyl tert-butyl ether	ND	2.1E+01	ug/L
Methylene bromide	ND	ND	ug/L
Methylene chloride	ND	2.1E+01	ug/L
m-Nitroaniline	ND	ND	ug/L
Naphthalene	ND	2.5E+02	ug/L

B2-5.18 Ranges of Detected Compounds in Groundwater
West Side Shallow

Constituent	Min	Max	Units
Nickel	ND	ND	ug/L
Nitrobenzene	ND	2.6E+02	ug/L
N-Nitrosodiethylamine	ND	ND	ug/L
N-Nitrosodimethylamine	ND	ND	ug/L
N-Nitroso-di-n-butylamine	ND	ND	ug/L
N-Nitrosodi-n-propylamine	ND	2.7E+02	ug/L
N-Nitrosodiphenylamine	ND	2.8E+02	ug/L
N-Nitrosodiphenylamine/Diphenylamine	ND	ND	ug/L
N-Nitrosodipropylamine	ND	ND	ug/L
N-Nitrosomethylethylamine	ND	ND	ug/L
N-Nitrosomorpholine	ND	ND	ug/L
N-Nitrosopiperidine	ND	ND	ug/L
N-Nitrosopyrrolidine	ND	ND	ug/L
n-Propylbenzene	ND	1.9E+01	ug/L
O,O,O-Triethylphosphorothioate	ND	ND	ug/L
o-Cresol	ND	ND	ug/L
o-Nitroaniline	ND	ND	ug/L
o-Toluidine	ND	ND	ug/L
o-Xylene	ND	2.0E+01	ug/L
Parathion	ND	ND	ug/L
p-Chloroaniline	ND	ND	ug/L
p-Chloro-m-cresol	ND	ND	ug/L
p-Dichlorobenzene	ND	ND	ug/L
p-Dimethylaminoazobenzene	ND	ND	ug/L
Pentachlorobenzene	ND	ND	ug/L
Pentachloroethane	ND	ND	ug/L
Pentachloronitrobenzene	ND	ND	ug/L
Pentachlorophenol	ND	3.0E+02	ug/L
Phenacetin	ND	ND	ug/L
Phenanthrene	ND	2.8E+02	ug/L
Phenol	ND	1.2E+02	ug/L
Phorate	ND	ND	ug/L
p-Nitroaniline	ND	ND	ug/L
p-Phenylenediamine	ND	ND	ug/L
Pronamide	ND	ND	ug/L
Propionitrile	ND	ND	ug/L
Pyrene	ND	2.9E+02	ug/L
Pyridine	ND	ND	ug/L
Safrole	ND	ND	ug/L
Selenium	ND	ND	ug/L
Silicon, Total	2.7E+00	8.6E+03	ug/L
Silver	ND	ND	ug/L
Styrene	ND	2.0E+01	ug/L

B2-5.18 Ranges of Detected Compounds in Groundwater
West Side Shallow

Constituent	Min	Max	Units
Sulfide	ND	4.9E+03	ug/L
Sulfotepp	ND	ND	ug/L
sym-Trinitrobenzene	ND	ND	ug/L
Tetrachloroethene	ND	2.1E+01	ug/L
Tetrachloro-m-xylene	5.1E-02	7.5E-02	ug/L
Thallium	ND	ND	ug/L
Thionazin	ND	ND	ug/L
Tin	ND	ND	ug/L
Toluene	ND	2.0E+01	ug/L
Toxaphene	ND	ND	ug/L
trans-1,2-Dichloroethene	ND	2.1E+01	ug/L
trans-1,3-Dichloropropene	ND	2.2E+01	ug/L
Trans-1,4-Dichloro-2-Butene	ND	2.1E+01	ug/L
Trichloroethene	ND	2.1E+01	ug/L
Trichlorofluoromethane	ND	1.8E+01	ug/L
Vanadium	ND	ND	ug/L
Vinyl acetate	ND	ND	ug/L
Vinyl chloride	ND	2.1E+01	ug/L
Xylenes, Total	ND	5.9E+01	ug/L
Zinc	7.8E-03	4.3E+01	ug/L

ND = Not Detected