

GM Central Foundry (Massena)**Site Description**

GM Central Foundry in Massena, New York is a 270-acre site bordered by the St. Lawrence River to the north, the St. Regis Mohawk Nation to the east, the Raquette River to the south, and property owned by Alcoa and Conrail to the west. The facility was originally built to produce aluminum cylinder heads for the Chevrolet Corvair and has been in operation since 1959. Polychlorinated biphenyls (PCBs) were used as a component in hydraulic fluids to provide protection from fire and thermal degradation associated with the high temperature, high pressure environment of aluminum die-casting machines. The site consists of several discrete areas—a twelve-acre Industrial Landfill, the North Disposal Area, the East Disposal Area, four industrial lagoons, the St. Lawrence River, the Raquette River, on-site soils, and Tribal soils and sediments.

Potential Responsible Parties (PRPs)

General Motors Corporation is the PRP for the site.

Threats and Contaminants

PCBs are the constituent of concern in the groundwater, on- and off-site soils, and sediments in the St. Lawrence and Raquette Rivers, Turtle Cove, and Turtle Creek. Volatile organic compounds are present in the groundwater. Phenols have been detected in lagoon sludges, as well as in the disposal areas.

Cleanup Approach Update Since 2004

Sediments and near-shore surface soils in the Cove area adjacent to the river embayment on the St. Regis Mohawk property were remediated from October 2004 to March 2005 to a cleanup level of less than 0.1 mg/kg PCBs for sediments and 1 mg/kg PCBs for soils. Post excavation sampling confirmed the cleanup levels. The soil excavated areas were sampled using a grid based approach. Verification sampling and analysis was performed until a depth was reached at which PCBs were no longer present above clean-up criteria of 1 mg/kg for soils that was specified in the Record of Decision (ROD). Verification sampling in the Cove area was conducted on a grid spacing of 50 ft by 50 ft within the excavation limits of the Cove. Samples were collected from two intervals (0 ft to 0.5 ft) and (0.5 ft to 1 ft) below the bottom or

sidewall of the excavation. The lower sample (0.5 ft to 1 ft) was only analyzed if the analytical result from the interval above was greater than the 0.1 mg/kg cleanup level. A cofferdam was constructed at the mouth of the cove, the water was pumped out and the cove area was excavated “in the dry” using an excavator and trucks to haul sediment to the GM facility. The excavated sediment and soils have been stored onsite in temporary containment cells until a final disposition for the sediments is agreed upon. The bottoms of the cells are lined with HDPE, surrounded by berms, and the top of the cells are covered with a layer of HDPE to contain the sediment and soil and to keep it from coming into contact with surface or groundwater. The excavation was performed by Severson Environmental Services. Approximately 18,240 cubic yards (cy) (dewatered quantity = 13,060 cy) of soils and sediments with a PCB concentration greater than 10 mg/kg and 18,440 cy (dewatered quantity = 10,430 cy) of soils and sediments with a PCB concentration less than 10 mg/kg were removed from the cove and upland areas (EPA 2005).

“Baseline water sampling was conducted prior to initiating the remedial excavation activities to obtain background water quality information and to monitor perimeter environmental conditions during the cofferdam installation. The pre-remedial water sampling consisted of turbidity monitoring and water sampling. During remedial activities water samples were collected from Turtle Creek discharge water to the St. Lawrence River and from remedial storm water collected in the Cove and or containment areas pumped up to GM for treatment. Turbidity monitoring began in November 2004, during the installation of the cofferdam. An action level of 25 Nephelometric Turbidity Units (NTUs) above the background was specified in the Environmental Monitoring Plan. Turbidity measurements were collected using a Horiba U-10 or a Lamotte turbidity meter. Turbidity measurements were collected at different phases of the project including: during installation of the sheetpile walls outside of the silt curtain containment in the St Lawrence River; within the Cove, prior to dewatering following installation of the cofferdam; during the dewatering of the Cove to the St. Lawrence River at the discharge site of the pump; during rerouting of Turtle Creek water to the St. Lawrence River at the discharge side of the pump; and during combined discharges of Outfall 002 and Turtle Creek water to the St. Lawrence River. Only two turbidity exceedances were documented during the project. In November 2004, during installation of the cofferdam while routine turbidity readings were being collected hourly, an elevated reading of 37 NTUs was collected downstream of the sheetpile installation. The inner silt curtain was adjusted and the readings dropped below the 25 NTU action level. In December 2004, combined pumping of water from Outfall 002 and Turtle Creek to the St. Lawrence River received three consecutive elevated turbidity readings (above the 25 NTU limit), pumping was discontinued and

redirected to inside the Cove. Turbidity monitoring was discontinued in April 2005" (BBLES. 2006).

"All water samples from Turtle Creek were analyzed for PCBs using USEPA Method SW-846 8082. Weekly grab samples were collected from October 14, 2004 through March 28, 2005, eighteen grab-water samples were collected weekly during this time period. Fourteen of the weekly samples were non-detect for PCBs, three samples detected PCBs at less than 0.15 ug/L, and only one sample detected PCBs at greater than 0.3 ug/L (0.390 ug/L)" (BBLES. 2006).

"Water remaining in the bottom of the Cove near the end of dewatering, as well as all construction water accumulating in the excavation from stormwater runoff and or groundwater, was pumped to GM's waste water treatment system (WWTS) for treatment. These Cove water samples were also analyzed using USEPA Method SW-846 8082" (BBLES. 2006).

"Environmental air monitoring conducted during the project consisted of particulate dust monitoring, PCB air monitoring, and Volatile Organic Compound (VOC) screening. The air monitoring stations are as follows: AIR 1 (upwind location adjacent to the 10 MGL), AIR2 (north side of the cove at Loran's Marina), AIR3 (in Loran Thompson's backyard), AIR4 (furthest east station adjacent to Raquette Point Road on the Saint Regis Mohawk Tribe (SRMT) Property), AIR5 (downwind of the East Disposal Area (EDA)), AIR6 (east of containment cell No. 4), AIR7 (east of containment cell No.3), AIR8 (east of the north end of the EDA), and AIR9 (downwind of the EDA)" (BBLES. 2006).

"Particulate dust monitoring was conducted during remedial activities for the project. The primary period of suspension was approximately the first week of December 2004 through mid-March 2005. The real time meters were placed at AIR2 and AIR3 (downwind locations). Dust monitoring occurred during the active placement of PCB-containing soils at AIR5 and AIR9 (adjacent to the EDA). The time-weighted average (TWA) was recorded in 2-hour intervals, then later in longer time intervals. The action level for particulate dust was sustained readings (25 minutes) of 150 ug/m³. The dust monitoring began during installation of the cofferdam, continued through excavation activities and backfilling operations. Only one elevated particulate dust reading was recorded during the project at AIR2. The high reading (8.010 ug/m³) was recorded during a short time period (20 minutes) and was attributed to construction of a new access road within 2 feet of the air monitoring location" (BBLES. 2006).

“Two types of PCB air monitoring were conducted during the Cove project; High-Volume Air Sampling (TO-4) and Low-Volume Air Monitoring (National Institute for Occupational Safety and Health (NIOSH) 5503)” (BBLES. 2006).

“High-volume air sampling for PCBs was conducted using the equipment and procedures described in USEPA Method TO-4 (at AIR2, AIR3, and AIR4) to protect public health. The two PCB action levels prescribed to protect public health for the Cove project were as follows: 0.07 ug/m³ Evaluation Level, and 0.11 ug/m³ Contingency Level. All high-volume samples were collected over sample intervals of approximately 24 hours (1 day). Baseline samples were collected from October 7 to October 14, 2004 at AIR1, AIR2, AIR3, and AIR4 for three days prior to Cove remedial activities. PCB High-volume air sampling conducted at AIR2, AIR3, and AIR4 (downwind locations) during the excavation phase of the work activities began on November 2, 2004. The air samples were collected from these three locations for approximately 24 hours at which time the sample prefilter and polyurethane foam PUF cartridge were sent to Con-Test for PCB analysis with appropriate chain of custody. High-volume air sampling was periodically suspended with USEPA approval during periods of work suspension or inactivity. A total of 250 samples (including QA/QC samples) were collected and sent to Con-Test for analyses. There were a total of 4 samples that exceeded the prescribed action levels. Of these, one sample was above the evaluation action level of 0.07 ug/m³ (sample ID AIR2-44 collected February 4, 2005) and three samples were above the contingency action level of 0.11 ug/m³. All four of the samples were collected from the same air monitoring station (AIR2), which was the closest to the remedial work. Contingencies conducted following the receipt of the analytical results for the exceedances included: continue the high-volume PCB air monitoring and analyses; cover PCB-containing stockpile(s) with polyethylene sheeting; cover the PCB-containing containment cell; reduce the open excavation area; and perform limited action, as the remedial action contributing to the cause of the analytical exceedances had been completed” (BBLES. 2006).

“Low-Volume Air Monitoring (NIOSH 5503) was performed using NIOSH Method 5503; it was conducted downwind of the containment cells (at AIR6, AIR7, and/or AIR8) and/or downwind at the EDA (at AIR5 and/or AIR9) for the remedial site workers. The action level for the protection of site workers was the NIOSH-recommended worker exposure level of 1 ug/m³. Air sampling stations were used when active placement of PCB-containing materials was taking place within one of the containment cells. A total of 139 samples were analyzed, all the 139 samples were below the NIOSH-recommended worker exposure action level of 1 ug/m³” (BBLES. 2006).

“Real-time air monitoring was conducted to detect potential VOCs volatilizing directly adjacent to the remedial excavations, and also at AIR2 and AIR3 (downwind locations) during the initial remedial excavations. The real-time VOC monitoring was conducted using a photoionization detector (PID). The real-time action level was 5 ppm. The highest real-time reading of VOCs during the project was 0.2 ppm” (BBLES. 2006).

Sitewide Monitoring Activities

Visual inspections of the sediment cap in the St. Lawrence River consist of yearly inspections performed on the portion of the cap in the shallow water area from 1996 to 2005. Underwater videos of the deep water portions of the cap are performed once every five years; the most recent inspection was performed in 2006. Repairs were made to the cap by Perris Environmental in 2003, 2004 and 2005, due to ice damage to the armor stone layer, to a total area of less than 100 square feet with “like-and-kind” armor materials.

Biota sampling of spot-tail shiner fish was performed annually from 1997 thru 2001, yielding inconclusive results. GM submitted a draft biota sampling plan in the form of a memorandum to the EPA to include edible fish sampling in the next sampling event in spring 2008, the sampling event is contingent upon approval by the EPA. This sampling event will provide data to assess whether the fish advisory in a segment of the St Lawrence River can be removed. The spot-tail shiner sampling will resume this fall 2007.

Approximately 1,440 cy of Raquette River sediment containing PCBs above 1 mg/kg was removed in 2002-2003 and additional sediment sampling was conducted in July 2005 in areas further downstream from the excavated area. The data have not been released to the public yet. No sediment sampling has been conducted in the excavated area since 2002. The 2002 results indicated a PCB concentration of less than 1 mg/kg PCBs in the sediment.

Annual operation, maintenance, and monitoring costs per the Five Year Review (EPA, 2005) are as follows: St Lawrence River cap inspection and maintenance - \$15,000; groundwater monitoring, sampling and analysis - \$4,000; and site inspection/maintenance - \$60,000.

Current Activities

Excavation of the PCB-containing soil on the St. Regis Mohawk reservation, upland from Turtle Cove, began in August 2007. Approximately 800 cy of soil was removed from the site, it was taken to the GM property for disposal. Crews removed trees and brush from five areas in the northwest corner of the reservation. Soil was removed from five sites totaling approximately one acre of tribal land. PCB air monitoring stations were situated downwind from the work site to help ensure the community and the environment are protected. All work was performed under the supervision of St Regis Mohawk Tribe's Environmental Division and the EPA. The remediation was completed in September 2007.

References

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