

Lockheed Martin Corporation

Airdock Storm Drain Debris Removal

Project Report
Akron, Ohio

December 1, 2008

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**Airdock Storm Drain Debris
Removal Project**
Akron, Ohio

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1. Introduction and Background

Since 2003 Lockheed Martin has undertaken a remediation program to address historical solid particle releases of non-liquid PCB contained in the siding material used on the exterior of the Akron Airdock. The strategy for the remediation program is to work from the source of the release outward by first removing or coating the siding material on the Airdock, removing soil near the Airdock with elevated PCB concentrations and removing debris from the pavement surface and the storm water drainage system. The Airdock siding has been removed or coated, soil with elevated concentrations of PCB's has been excavated and disposed off-site, and residual PCBs from the pavement surfaces surrounding the Airdock was collected and disposed off-site. This project was undertaken to complete the next phase of the exterior strategy which is to remove residual PCBs contained in sediment and debris from the storm drain system that surrounds the Airdock and extends off-site to Triplett Boulevard. The storm drain system that was cleaned is illustrated on Figure 1 contained in Appendix A.

Prior to the initiation of the Storm Drain Debris Removal activities, a Storm Drain Debris Removal Work Plan (June 24, 2008) was developed and submitted to Lockheed Martin for review and approval. The work plan described the processes and procedures to be followed in order to complete the various tasks required to remove sediment and debris in the storm drain lines.

During the course of the remedial construction project, ARCADIS maintained an On-Site Construction Supervisor to oversee the project. Project activities were performed by ARCADIS' subcontractor, Royal Environmental, Inc. (Royal).

Lockheed Martin currently leases the Akron Airdock (Plant A) and 19 acres of fenced in area immediately surrounding Plant A from Summit County Port Authority who is the current owner of the property. This project also included property owned by other organizations surrounding Plant A. This includes storm drain lines west of Plant A towards Plant E, east towards Plant B and to the north and south of Plant A. Access permission was obtained from the property owners prior to the start of work.

2. Scope of Work

Remedial construction activities lasted approximately 12 weeks between August and November 2008. Project reports and schedule (see Appendix B) were submitted to Lockheed Martin on a weekly basis. The scope of work included the following tasks:

- Identification of Storm Drain Lines;
- Sediment and debris removal process;

- Storm Drain Video Inspection;
- Waste Management; and
- Decontamination.

These tasks are described on the following sections.

2.1 Identification of Storm Drain Lines

Sediment and debris removal was performed on four sections (as illustrated on Figure 1 contained in Appendix A) of storm drain that service the Airdock which consist of the following:

- PAW-48" (Plant "A" West 24-inch-diameter to 48-inch-diameter) – Extending north from an unidentified manhole (located 59 feet south of MH-PAW-48-2) on the south end to where PAW-48" connects with the Airport East West storm drain line (see Figure 2 through Figure 4 contained in Appendix A);
- PAW-24" – 30" (Plant "A" West – 24-inch-diameter to 30-inch-diameter) – Extending north from manhole MH-PAW-1 to where PAW-24" - 30" connects with the Airport East West storm drain line (see Figure 5 through Figure 7 contained in Appendix A);
- PAE-8" and 24" – 30" (Plant "A" East – 8-inch diameter to 24-inch-diameter to 30-inch-diameter) – Extending north from catch basins south of manhole MH-PAE-1 on the south end to where PAE-24" 30" connects with the Airport East West storm drain line (see Figure 8 through 10 contained in Appendix A);
- Airport East West Storm Drain – Extending west from MH-PAE-7 to the outlet at Haley's Creek (see Figure 1 contained in Appendix A); and
- Manholes and catch basins associated with the storm drain pipe sections being cleaned.

The storm drain debris removal was performed to a visually cleaned standard. The debris removal activities were intended to remove the sediment from the subject pipelines.

2.2 Sediment and Debris Removal Process

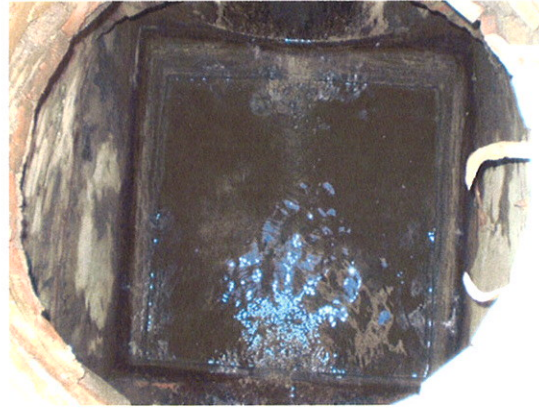
Hydraulic debris removal was performed on storm drain sections up to 48-inches in diameter. Storm drain sections 48-inches or larger were manually cleaned focusing on solids removal followed by final hydraulic cleaning. Debris removal activities were conducted from south to north along each storm drain segment.

- Prior to commencement of storm drain debris removal, ARCADIS established bypass pumping of dry weather flow around the section of storm drain being cleaned. Debris removal activities were not conducted during significant rain events to minimize the amount water requiring bypass. In addition, ARCADIS isolated the section of drain to be cleaned through the use of drain plugs and/or sand bags. These plugs helped to reduce upstream flow from entering the section of pipe being cleaned, and water used during flushing of the section was captured and removed from the drain and not allowed to travel further downstream. All water and debris that entered the downstream plugged manhole was removed using a vacuum truck.
- Hydraulic debris removal of each storm drain section, 30-inches in diameter or smaller, was performed using water jet / vacuum sewer debris removal truck. This truck was self contained and utilized a high pressure / high volume water spray along with an integral vacuum. The unit operates by utilizing high pressure, high volume water produced by a pump located on the truck to propel a nozzle with rear thrust jets connected to a light weight hose. Upon placing the nozzle and hose in the pipe the water drives the nozzle along the drain, blasting loose and back flushing it to the access manhole. The vacuum recovery system is then employed to vacuum up the debris and rinse water and store it within the collector body of the truck for transport to the debris staging and water treatment area. No chemicals were used during the debris removal activities.
- Each storm drain section, 48-inches in diameter or larger, were cleaned by physically entering and manually removing debris. Debris was conveyed by sled to an upgradient or downgradient manhole for removal. Confined space entry procedures were employed for all tasks requiring storm drain entry. Once gross removal of material was completed, the line was flushed utilizing the water jet/vacuum truck as described above to remove any remaining finer material.
- In addition to debris removal storm drain pipe section, each manhole and catch basin associated with the storm drain pipe section being cleaned was pressure washed. This was accomplished using the hand held pressure washing wand which is integral to the jetter/vacuum truck.
- All debris and water collected during the debris removal process was transported back to the staging area located within the fenced in area at the northeast corner of Plant A. Waste management activities are discussed in Section 2.4 of this report.

Shown below are before debris removal and after debris removal photographs of manholes associated with the four different storm drain lines described in section 2.1



**Manhole PAW-48-5 Before Debris
Removal**



**Manhole PAW-48-5 After Debris
Removal**



**Manhole PAW-6 Before Debris
Removal**



**Manhole PAW-6 After Debris
Removal**



Manhole PAE-1 Before Debris Removal



Manhole PAE-1 After Debris Removal



Manhole MH-1 Before Debris Removal



Manhole MH-1 After Debris Removal

2.3 Storm Drain Video Inspection

Following debris removal of each storm drain section, a post debris removal video inspection was performed using a video camera to confirm that the pipe is free of visible sediment and debris. Video inspections were performed using a robotic video equipment in pipe diameters less than 48-inch and via hand held video equipment in pipe diameters greater than 48-inch. The video inspections are logged on CD's that are provided in Appendix C. Confined space entry procedures were employed for all video inspection tasks requiring storm drain entry.

2.4 Waste Management

Project wastes (water and debris) were managed at a staging area located within the fenced in area at the northeast corner of Plant A.

2.4.1 Water

All water collected during the storm drain debris removal project in the vacuum truck was transferred into a 20,000-gallon capacity, steel settling tank. This tank was configured with internal baffles and weirs to promote settling of suspended particulates in the water. Water from the settling tank was pumped through a series of bag filters to remove fine sediment and then filtered by liquid phase carbon prior to discharge into a second 20,000-gallon water tank. After the second tank was full, it was sampled for polychlorinated biphenyls (PCBs) prior to discharge through a flow meter, to the 12-inch diameter sanitary sewer drain located approximately 200 feet north of the northeast corner of Plant A property fence. Only filtered water with non-detect PCB results was allowed to be discharged. Approximately 55,599 gallons of filtered water was discharged to the sanitary sewer. Table 1 below summarizes the filtered water sample dates, sample analytical results, laboratory data package Lot#, filtered water discharge date and volume of filtered water discharged.

**TABLE 1
STORM DRAIN DEBRIS REMOVAL PROJECT
WATER DISCHARGE SUMMARY**

Date Sampled	Total PCB Results (µg/liter)	Laboratory Lot #	Discharge Date	Gallons Discharged
9/23/08	Non-Detect	A81230308	10/07/08	8,600
			10/08/08	1,428
10/09/08	Non-Detect	A8J090303	10/17/08	4,410
			10/20/08	13,000
10/22/08	Non-Detect	A8J220322	10/31/08	10,920
			11/03/08	8,001
11/13/08	Non-Detect	A8K130287	11/17/08	9,240

2.4.2 Debris

Debris collected during the storm drain debris removal process was transferred into 20-cubic-yard capacity steel roll-off box containers provided by Lockheed Martin. Debris was placed on 6-mil plastic in the staging area where water drained from the debris. After water decanted from the debris it was loaded into the roll off box. The roll-off box containers were specially constructed filter boxes double lined with polyethylene plastic liners and were provided with a tarp canopy free of rips or cuts.

One roll-off box was shipped off-site as Toxic Substance Control Act (TSCA) material for disposal at the EQ facility located in Model City, Michigan and twelve roll-off boxes were shipped off-site as construction debris to American Landfill located in Wayne, Ohio.

2.5 Decontamination

At the conclusion of the storm drain debris removal activities disposable equipment such as hoses, bag filters, and carbon was placed in 55-gallon drums for disposal as TSCA waste. Equipment such as the Vac-truck material holding tank and water holding settling tanks were rinsed and wiped down.