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LOCKHEED MARTIN

August 28, 2007

Tony Martig
Waste Pesticides and Toxics Division
Region 5 (DT-8J)
U. S. Environmental Protection Agency
77 W. Jackson Blvd.
Chicago, IL 60604-3590

RE: Application for Risk-Based Soil Cleanup Plan
Akron Airdock, Akron, Ohio

Dear Mr. Martig:

As presented at our recent meeting held June 26, 2007 regarding the subject site, Lockheed Martin is requesting a risk-based disposal approval from U.S. EPA Region 5 (EPA) under 40 CFR 761.61(c), specifically to cleanup soil from areas outside the Akron Airdock. The attached risk-based application presents sampling results, analysis from a PCB risk assessment, and a proposed soil remediation plan to remove and dispose of approximately 92 cubic yards of soil containing total PCBs over 25 ppm. The application also presents details on a pending environmental covenant to permanently restrict the site to industrial land use.

The conceptual soil cleanup plan was introduced to EPA in the *Akron Airdock PCB Exterior Remediation Strategy* submitted by Lockheed Martin on June 25, 2007. The enclosed risk-based application is supported by data from over 200 soil samples. The risk analysis presented in Section 5 provides support for the conclusion that collectively, the soil remedy, along with other remedial measures undertaken over the past 4 years, is sufficient to protect against unreasonable risk of injury to health or to the environment.

The optimal schedule to implement the proposed soil cleanup is during early fall of this year. Lockheed Martin will initiate the activities described in the application upon approval by EPA.

We look forward to your response. Please contact me if we can provide additional information or if you have any questions regarding this application.

Sincerely,

Brad Heim

Copy: Dave Gunnarson (Lockheed Martin)
Vanessa Steigerwald Dick (Ohio EPA)
Chris Burnham (Summit County Port Authority)

Application for
40 CFR §761.61(c) Risk-Based Cleanup of Soil

Akron Airdock
Akron, Ohio

August 2007

Lockheed Martin Corporation
1210 Massillon Road
Akron, Ohio 44315

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EXECUTIVE SUMMARY

This risk-based application is for cleanup of polychlorinated biphenyls (PCBs) in soil from areas outside the Akron Airdock (Airdock) facility located in Akron, Ohio. The following approvals are sought under this application addressing soil exposed at the surface and soil beneath pavement:

1. Sampling plan and results for characterization and delineation (completed)
2. Removal and off-site disposal of soil containing PCBs greater than 25 parts per million (ppm) and backfilling with clean (< 1 ppm total PCB) fill (planned)
3. Verification sampling plan following soil removal (planned)

In 2003, the unusual non-liquid PCB Aroclor 1268 was discovered to have been a component of the Airdock's original roof and siding. Exposed soil and soil beneath pavement on and surrounding the Airdock parcel was sampled at over 200 locations (referenced as the "Soil Assessment Area") during several iterative events between 2003 and 2007. The results from the sampling assessments are presented in this application along with a proposed cleanup plan and PCB risk evaluation.

Soil containing PCB concentrations greater than 25 ppm will be removed from two on-parcel areas and covered with clean soil. Excavated soil will be managed as PCB remediation waste and be subject to disposal under the Toxic Substances Control Act (TSCA). Verification samples will be collected following the soil removal actions. The areas of the planned soil removal actions are within the Airdock parcel, which will be deed restricted for industrial use. The calculated risk to industrial workers exposed to the remaining soil is an excess cancer risk of 2E-06 and a hazard index of 0.17. The levels of PCBs in off-parcel portions of the Soil Assessment Area are less than the TSCA unrestricted default standard of 1 ppm; therefore, the risks and hazards posed to potential off-parcel receptors do not pose an unreasonable risk.

Cleanup of the facility is being conducted pursuant to a Consent Agreement and Final Order (CAFO) and several risk-based approvals granted by United States Environmental Protection Agency (EPA). The objective of the soil cleanup plan is to protect against unreasonable risk of injury to health or to the environment. The entire 19-acre Airdock parcel will be restricted to industrial land use through a deed notice and environmental covenant enforceable under Ohio law as part of the overall site cleanup. In addition to the environmental covenant, soil removal will be conducted as a presumptive remedy from certain areas of the Airdock parcel. Other soil covered by this application that is outside of the 19-acre Airdock parcel contains PCBs at concentrations within levels allowable for unrestricted use.

1. INTRODUCTION

Cleanup of the Airdock facility is being conducted pursuant to a CAFO and several risk-based approvals granted by EPA pursuant to 40 C.F.R. §761.61(c). This risk-based application is for cleanup of non-liquid PCBs in soil from areas outside the Airdock facility, located in Akron, Ohio (Figure 1). The following approvals are sought under this application for soil exposed at surface and beneath pavement:

1. Sampling plan and results for characterization and delineation (completed)
2. Removal and off-site disposal of soil containing PCBs greater than 25 parts per million (ppm) and backfilling with clean (< 1 ppm total PCB) fill (planned)
3. Verification sampling plan following soil removal (planned)

This risk-based cleanup application meets the self-implementing requirements of §761.61(a) with the exception that characterization sampling was not conducted in accordance with Subpart N (cleanup site characterization sampling), and verification sampling is not planned in accordance with Subpart O (cleanup verification sampling). Justification for the modified characterization and verification sampling approaches is presented in Sections 3 and 4, respectively.

Lockheed Martin previously requested a risk-based approval for management of soil beneath pavement associated with emergency maintenance and repair activities (August 30, 2006). This application supersedes the August 30, 2006 request.

1.1 Background

In 2003, the unusual non-liquid PCB Aroclor 1268 was discovered to have been a component of the Airdock's original roof and siding. PCBs apparently had been included in the coating of the roofing and siding material to serve as a fire retardant. Since the initial PCB discovery and continuing to the present, Lockheed Martin has successfully planned and implemented a voluntary remediation program to manage the Robertson Protected Metal (RPM) roofing and siding material that contains Aroclor 1268.

The Airdock and its associated 19-acre parcel are undergoing voluntary remediation under two regulatory programs: the federal TSCA and the State of Ohio Environmental Protection Agency (Ohio EPA) Voluntary Action Program (VAP).

1.2 Application

This application is organized in the following sections.

Section 2 – Remedial Approach and Objectives: describes the general approach to remediation, occupancy levels, restrictions, cleanup goals, and corresponding risk levels for each assessment area.

Section 3 –Sampling Approach and Characterization Data: describes the various phases of soil sampling and analysis investigations conducted between 2003 and 2007.

Section 4 – Soil Remediation Plan: describes the removal, off-site disposal, and verification sampling of soil from two areas containing PCBs greater than 25 ppm.

Section 5 – Risk Evaluation: describes the quantitative risk evaluation to potential human receptors from contact with PCBs in soil. The results of the analysis provide justification for no remedial action in portions of the site.

Section 6 – References: lists the references used to support the application.

Tables, figures, and Appendix A follow the text.

2. REMEDIAL APPROACH AND OBJECTIVES

The overall goal of the Airdock remediation project is to prevent unreasonable risk of injury to human health or the environment by controlling sources of PCB Aroclor 1268 on or emanating from the Airdock parcel and the affected media so as to meet applicable TSCA and VAP standards.

2.1 FACILITY BOUNDARIES AND OWNERSHIP

The Airdock facility is a structure built on a parcel of land defined by property ownership and for tax assessment purposes, as occupying 19.1837 acres. The land, buildings, and paved surfaces on the parcel constitute the Airdock parcel, which is owned by Summit County Port Authority, and leased by Lockheed Martin. References in this application to "on-parcel" indicate areas or samples collected within the Airdock parcel boundaries. Areas or samples collected from beyond the Airdock parcel boundaries are referenced as "off-parcel." Collectively, the on-parcel and off-parcels areas constitute the cleanup site for this application and are referred to as the "Soil Assessment Area". These areas and boundaries are depicted in Figure 2.

2.2 OCCUPANCY AND RESTRICTIONS

Workers at the Airdock and on the surrounding properties are primarily engaged in occupational activities that occur inside buildings with limited contact to the exterior environment. On average, the duration of exterior occupational exposure is likely less than 6.7 hours per week, the defined period for "low occupancy" use under the PCB definitions (§ 761.3). Entry to the Airdock and all surrounding properties is secured. However, this application is conservatively based upon an assumption of high occupancy for all accessible exterior areas to account for potential future changes in occupational use.

Regardless of the occupancy status under TSCA, the Airdock parcel, (area bound by blue line in Figure 2), will be restricted through an environmental covenant, to industrial land use as part of the overall site remedy under the Ohio Uniform Environmental Covenants Act [UECA] (Ohio Revised Code 5301.80 to 5301.92). Both the current property owner, Summit County Port Authority, and tenant, Lockheed Martin, as well as the approving agency, Ohio EPA, will be holders of the environmental covenant. The environmental covenant will be recorded by Summit County Port Authority.

To Lockheed Martin's knowledge, surrounding properties that are part of this application, which are currently used for industrial purposes, will not be subject to activity or land use restrictions. Therefore, as part of the typical risk assessment process, a hypothetic residential receptor scenario is included in the risk analysis presented in Section 5.

2.3 PCB WASTE CLASSIFICATION AND CLEANUP LEVELS

Samples of exposed soil and soil beneath pavement that contain PCB 1268 derived from the RPM are considered PCB remediation wastes under §761.3. Accordingly, management and disposal of PCB remediation waste is based on the "as found" PCB concentration of individual samples collected in situ.

Cleanup levels for PCB remediation waste according to location of the Soil Assessment Areas are listed below.

Soil Removal Areas (On-Parcel): Based on previously collected data (summarized in Section 3.1), soil containing PCBs greater than 25 ppm in individual soil core samples will be excavated and the excavated soil will be replaced with clean fill. The excavated soil will be managed as PCB remediation waste and be subject to disposal under TSCA. Verification samples will be collected following the soil removal actions. The areas of the planned soil removal actions are within the Airdock parcel and therefore will be deed restricted as part of the VAP cleanup. Section 4 presents the proposed soil removal and verification sampling plan.

Soil On-Parcel: Based on previously collected data (summarized in Section 3.1), the maximum PCB concentration, excluding the areas from which soil will be removed, is 15 ppm in any individual soil core sample (exposed or beneath pavement). The average PCB concentration of all soil samples collected in the on-parcel area (156 samples) is 1.5 ppm and the 95 percent upper confidence level (UCL) is 1.8 ppm. The entire on-parcel area will be deed restricted as part of the VAP cleanup. The calculated risk to workers exposed to the remaining soil is an excess cancer risk of 2E-06 and a hazard index of 0.17. Therefore, the on-parcel soil outside of the areas targeted for soil removal meet risk-based cleanup criteria and no further remedial action is necessary. Supporting risk analysis for this conclusion is presented in Section 5.

Soil Off-Parcel: Based on previously collected data (38 samples; summarized in Section 3.2), the maximum PCB concentration in the off-parcel areas that are subject to this application is 1.7 ppm (a single sample, and the only one over 1 ppm) in any individual soil core sample (exposed or beneath pavement), the average PCB concentration is 0.24 ppm, and the 95 UCL is 0.35 ppm. The calculated risk to workers exposed to off-parcel soil is an excess cancer risk of 4E-07 and a hazard index of 0.031. These data demonstrate that the PCB concentrations in these areas are well below EPA's default unrestricted use value of 1 ppm and that these residual PCBs do not pose an unreasonable risk. Supporting risk analysis for this conclusion is presented in Section 5.

3. SAMPLING APPROACH AND CHARACTERIZATION DATA

Sampling of soil as bulk PCB remediation waste was designed to adequately characterize the vertical and horizontal extent of impact, acknowledging the physical features of the site, current and planned occupancy, and the type of release. There is no known date or point of release; rather, the weathering process from the RPM panels is believed to have occurred from non-specific areas of the exposed roof and siding materials and over many years. The PCB that is found in RPM, Aroclor 1268, is solid at room temperature and almost insoluble in water. Its mobility in the exterior environment therefore is extremely limited, and it is present only as a constituent of variously sized small, solid particles.

The target areas for exterior assessment are those expected to be directly impacted by the exfoliated RPM, which would be close to the Airdock itself, and the areas to which the RPM could have migrated via runoff or wind dispersion. Topography of the Airdock is extremely flat with only approximately 1 foot of topographic relief over the entire 19-acre parcel. Surrounding properties are equally level with a 300-acre airfield located immediately north and an adjoining industrial complex located to the south, east, and west. The area between the Airdock and the surrounding plants to the east, south, and west is mostly paved. Drainage from the Airdock parcel and surrounding properties is controlled by a series of catch basins and storm drains within a broad valley that forms a drainage divide between two watersheds. There are no open ditches, basins, or other surface drainage features on the site or in the local area.

Over 200 soil samples were conducted over a 4 year assessment program. Soil sampling methods for all sampling events used direct-push technology to advance shallow borings. Soil core diameters were approximately 1.25 to 2 inches (3.2 to 5.1 cm). Sample core thickness ranged from 3 to 12 inches (7.6 to 30.5 cm). The samples were submitted to Severn Trent Laboratories, Inc. (STL) in Chicago, Illinois, or North Canton, Ohio for laboratory analysis of total PCBs using EPA Method 8082, modified to include Aroclor 1268. Sampling locations are shown in Figure 3.

3.1 SOIL SAMPLING IN ON-PARCEL AREAS

Lockheed Martin conducted iterative phases of soil sampling and analysis to delineate the extent of PCB impact in the limited areas of exposed soil at the surface and from soil beneath pavement surrounding the Airdock.

3.1.1 Southeast Area (Planned Excavation Area)

Soil core samples were collected from 20 locations based on an approximate 25-foot-center sampling grid in the grassy area located on the eastern side of Airdock south of the electrical substation (Figure 4). This area, referenced as the Southeast Area, contains four, grass-covered polygons, each covering less than 3,600 square feet (sf). Five sampling locations were established at each polygon, with individual samples collected from the approximate center and the four corners of each polygon (Figure 4).

Forty-two individual samples and three duplicate samples were collected over the course of two sampling dates (September 2003 and June 2004). Sampling results from the Southeast Area are summarized in Table 1.

In all polygons, the westernmost sample core locations revealed the highest concentrations of PCBs. The levels of total PCBs in the westernmost line of samples ranged from 41 ppm to 460 ppm. In contrast, the levels of total PCBs in the eastern-most line of samples ranged from 0.75 ppm to 13 ppm. The westernmost samples from the two polygons that directly abut Airdock also showed the highest PCB levels relative to the samples from the two southern polygons. This spatial pattern of impact, with highest PCB levels closest to Airdock (RPM source), is consistent with water runoff from the vertical siding as the primary transport mechanism, and limited lateral migration on the ground surface due to the grass-covering on the northern polygons and the presence of several catch basins in the pavement that abuts the southern end of the Southeast Area.

With one exception, the vertical PCB pattern in the sampling data shows rapid attenuation with depth; in most cases the concentrations decline by at least a factor of 10. The lone exception is at sample LM-SO045, where the highest PCB level, 50 ppm, is reported in the uppermost core sample, followed by a decrease in concentration to 12 ppm at the 12-inch depth, followed by an increase to 33 ppm in the deepest (24-inch) sample.

Of the 20 soil sample locations tested in the Southeast Area only six locations (eight total samples) exhibit total PCB levels greater than 25 ppm.

3.1.2 North Area

Sampling was initially conducted along the edge of the pavement surrounding the north and northwest portions of the Airdock parcel in September 2003. Additional delineation sampling

was conducted in 2005 along transects spaced 100-feet apart that extended outward from the pavement edge onto the airport property and property to the east owned by Aircraft Braking Systems Corporation (ABSC). The sampling distance interval increased away from the site with samples collected just beyond the pavement edge (0 feet), at 25 feet, at 50 feet, and at 100 feet (Figure 3). A focused sampling grid was also conducted in the northwest area between the existing fence and the property line in the northwest corner. In all, a total of 55 soil core samples were collected from on-parcel areas in the North Area. Sampling results from the North Area are summarized in Table 2. Total PCB concentrations in the samples ranges from non-detect to 15 ppm.

The spatial and vertical pattern of PCB impact in the North Area is similar to that in the Southeast Area, with the highest concentrations in the samples closest to the Airdock, and PCB levels sharply declining with depth and distance outward from the source. For example, the sample with the highest PCB concentration, LM-SO057, 15 ppm, was collected in the closest unpaved area to the Airdock, approximately 75 feet north, and from the shallowest soil depth interval (0-6 inches). The PCB concentration of the underlying sample from 6-12 inches was reported at 0.41 ppm, and the deepest sample, from 1-2 feet, was reported at 0.087 ppm. Moving north from sample LM-SO057 along the sampling transect, the PCB levels declined to 11 (LM-SO092), then to 1.3 ppm (LM-SO093) and 1.51 (LM-SO094), and finally to 0.33 ppm at LM-SO095, closest to the northern property boundary.

3.1.3 Subpavement Samples

Soil borings were drilled at 16 locations spaced evenly around the Airdock through pavement to sample the underlying soil for potential PCB impact (Figure 3). Pavement types at the sampling locations consisted of concrete or asphalt, with the pavement condition varying from good (no cracks or surface spalling) to poor (spalled, cracked, or broken in pieces and loose).

Soil samples were collected from the 0 to 0.25-foot, 1 to 2-foot, and 2 to 4-foot intervals beneath the pavement at each boring location. The 0 to 0.25-foot and 1 to 2-foot intervals were submitted to the laboratory for total PCB analysis. The 2 to 4-foot intervals were sent to the laboratory for extraction and held until the results for the 0 to 0.25-foot and 1 to 2-foot intervals were reviewed. If the PCBs were detected in the 1 to 2-foot interval then the 2 to 4-foot interval was released for analysis.

A total of 40 subsurface soil samples were analyzed for PCBs. The results of the analysis indicated that PCBs were detected at the 0 to 0.25-foot interval at all 16 soil boring locations with

concentrations ranging from 0.0083 to 30 ppm. PCBs were detected at the 1 to 2-foot interval at eight boring locations with concentrations ranging from 0.0073 to 25 ppm. PCBs were detected at the 2 to 4-foot interval at four boring locations with concentrations ranging from 0.0095 to 0.24 ppm. A summary of the analytical data for the soil samples is presented in Table 3.

In general, the data showed no obvious correlation between relative concentration and pavement condition. For example, the highest concentrations of PCBs at the 0 to 0.25-foot and 1 to 2-foot intervals (30 and 25 ppm, respectively) were detected at soil boring location LM-SC8 (this area will be excavated). Pavement condition at LM-SC8 was noted to be poor but without cracks, in contrast to LM-SC9 or LM-SC11, where the pavement was noted to be cracked, but the levels of PCBs were much lower.

3.2 SOIL SAMPLING IN OFF-PARCEL AREAS

Tables 4, 5, and 6 present summaries of soil samples collected from off-parcel areas within the Soil Assessment Area.

3.2.1 South Area

Soil core samples were collected from seven locations in the area known as the South Area (Figure 3). Four samples were collected from the grassy island and three samples were collected from a grass-covered park area in the courtyard between Plants B, C, and G. Sampling results from the South Area are summarized in Table 4.

One sample, LM-SO122, 0-0.5 feet, was reported with a total PCB concentration of 1.7 ppm. Concentrations of the remaining samples, including the deeper sample at LM-SO122, were all less than 1 ppm total PCBs or non-detectable levels.

3.2.2 North Area

Soil core samples were collected from five transects north of the Airdock, three of which were continuations of the on-parcel North Area transects (Figure 3). Soil samples were collected to points approximately 750 feet north of the parcel boundary on to airport property. Eight sample locations are on ABSC property and 17 samples locations are on airport property. Sampling results from the South Area are summarized in Table 5.

All of the samples collected from the off-parcel North Area were reported with either less than 1 ppm total PCBs or non-detectable levels.

3.2.3 Subpavement Samples

Soil borings were drilled at four locations through pavement between Airdock and Plant E to sample the underlying soil for potential PCB impact (Figure 3). Pavement types at the sampling locations consisted of concrete or asphalt, with the pavement condition varying from good (no cracks or surface spalling) to poor (spalled, cracked, or broken in pieces and loose). Soil samples were collected from the 0 to 0.25-foot interval beneath the pavement at each boring location.

A summary of the analytical data for the soil samples is presented in Table 6. PCBs were not detected at the four off-parcel subpavement soil sample locations.

3.3 CHARACTERIZATION SUMMARY

Exposed soil and soil beneath pavement on and surrounding the Airdock parcel was sampled at over 130 locations using a combination of focused sampling (e.g. close to the source in the Southeast Area) and systematic sampling (e.g. transects). Sampling was conducted over several iterative events between September 2003 and May 2007. The results from all sampling assessments reveal the following patterns.

- The highest concentrations are found in the exposed soil of the Southeast Area, an area that is located closest to the RPM of Airdock;
- PCB levels rapidly decrease with depth and distance from Airdock;
- Levels of PCBs on-parcel range from non-detect to 460 ppm; eight samples out of 156 total on-parcel samples exceed 25 ppm;
- Levels of PCBs off-parcel range from non-detect to 1.7 ppm; (37 out of 38 total samples) are all less than 1 ppm.

The distribution pattern and levels of PCBs are consistent with the non-liquid and non-point nature of the historical releases from RPM.

4. SOIL REMEDIATION PLAN

The entire 19-acre Airdock parcel will be restricted to industrial land use through a deed notice and environmental covenant as part of the overall site cleanup. Execution of the environmental covenant will be completed by the third quarter of 2008 as required by the grant agreement between Ohio Department of Development, grantor, Summit County Port Authority, site owner and grantee, and Lockheed Martin, development partner.

In addition to the environmental covenant, soil removal will be conducted as a presumptive remedy from certain areas of the Airdock parcel.

Risk analysis of existing sampling data indicates that risk goals will be met following the excavation and removal of soil from two areas: the Southeast Area and the SC-8 Area. Areas of proposed excavation are shown in Figures 4, 5, and 6. The soil remediation plan sets forth guidelines for the proper removal and management of PCB remediation waste with total PCB concentrations above a target cleanup level of 25 ppm. All material removed will be managed and disposed as bulk PCB remediation waste with assumed levels of greater than 50 ppm total PCBs.

4.1 SOUTHEAST AREA SOIL EXCAVATION

Based on the results of characterization sampling completed in the Southeast Area discussed in Section 3.1.1, a narrow strip of unpaved ground near the Airdock contains concentrations of total PCBs in the upper 6 inches of soil ranging from 41 to 460 ppm. One sample location was reported with concentrations of 30 ppm total PCBs at a depth of 2 feet. The planned dimensions of the Southeast Area Soil Excavation are approximately 225 feet long, up to 25 feet wide, and 0.5 feet deep, except for the vicinity of sample location LM-SO045, which will be excavated to a depth of 2 feet. The excavated soil will be replaced by clean fill. The areas requiring remediation are depicted in Figures 4 and 6. All soil and debris excavated from this area will be managed as TSCA-regulated waste, as if it contains total PCB greater than 50 ppm.

4.2 SC8 AREA SOIL EXCAVATION

Based on the results of characterization sampling completed around the Airdock as discussed in Section 3.1.3, an isolated area of impact is present at sample location LM-SC8, located on the northwestern corner of the parcel (Figure 5). Total PCBs at this location range from 25 to 30 ppm in the upper 2 feet of soil beneath pavement. A 5-foot wide by 5-foot long by 2-foot deep

excavation will be conducted around sampling point LM-SC8. All soil and materials beneath the pavement from this area will be managed as TSCA-regulated waste, as if it contains total PCB greater than 50 ppm.

4.3 FIELD PROCEDURES

Plans and specs for the soil removal action will be prepared and used to select contractors prior to initiating work. All work will be conducted in accordance with a site-specific health and safety plan. Facility permits and approvals for subsurface digging will be obtained in accordance with Lockheed Martin safe work practices. The following sections describe the general work elements of the soil removal action.

4.3.1 Excavation

Each excavation area will be marked in advance and cleared for utilities. Excavation will be performed by either manual or mechanical means. The dimensions and expected removal volumes based upon removal of soil containing levels of PCBs greater than 25 ppm are listed in Table 7. The total volume removed is anticipated to be approximately 92 cubic yards or roughly 138 tons.

4.3.2 Handling and Interim Storage of PCB Remediation Waste

Any special requirements for the handling and storage of PCB remediation waste will be determined prior to initiating soil excavation activities. Polyethylene sheeting will be used to protect the ground surface at areas where the material requires temporary storage. The polyethylene sheeting will also be placed over the stockpiled material to serve as a cover system to protect the waste during non-working hours. The storage areas will be clearly marked in the field with signs indicating “PCB Remediation Waste.” Where practicable, the excavated soil and debris will be directly loaded into waste hauling trucks or roll-off boxes to achieve “real time” removal from the site.

4.3.3 Disposal of PCB Remediation Waste

All TSCA waste streams will be transported by licensed waste haulers and disposed of at a licensed TSCA landfill that have been pre-approved for use by Lockheed Martin. The

appropriate TSCA notification of generation of PCB remediation waste will be filed with EPA, as required.

4.4 VERIFICATION SAMPLING AND ANALYSIS

Following the removal of soil or debris from the excavation area, verification samples will be collected. A diagram showing the proposed sampling areas and excavation area is illustrated on Figure 6.

The Southeast Airdock Soil Excavation Area will be divided into three separate excavation and sampling areas, designated A, B, and C as shown. The SC-8 Area will be designated as excavation and sampling area D. Areas A, B, and C will be further subdivided for verification sampling purposes as A1, A2, A3, B1, B2, C1, and C2.

Each discrete area will be sampled independently for cleanup verification purposes. The following sampling procedures will be conducted:

- Collect three individual samples from the base of each excavation sub-area;
- Use coordinate-based random sampling to select the sampling locations of the three samples from each excavation sub-area;
- Use a core sampler with a diameter ≥2 cm and ≤ 3 cm; and
- Collect samples from the base of the excavation to a maximum depth of 7.5 cm.

All verification samples will be submitted to a VAP-certified laboratory for analysis of total PCBs. Quality assurance/quality control (QA/QC) samples will be collected as required.

To demonstrate compliance with the target cleanup level of 25 ppm, all individual sample results from the verification samples collected from the base of the excavation must be equal or less than 25 ppm.

If specific sub areas within the excavation zones indicate PCB levels greater than the target cleanup level of 25 ppm, additional soil excavation and disposal and verification sampling may be required.

4.5 BACKFILL AND SITE RESTORATION

Following receipt of acceptable (≤ 25 ppm total PCB) post-excavation verification sample results, the excavations will be backfilled and restored to grades that existed prior to excavation. Backfill will consist of locally available clean fill materials. If the fill material is soil, a sample will be analyzed and approved prior to delivery to the site and will be less than 1 ppm total PCBs.

Material will be placed in lifts where excavations extend beyond 1 foot below ground surface and will be compacted with the placement equipment. Special care will be taken when compacting soils or fill around utilities. Following the placement of backfill, the area will be paved or seeded in accordance with facility development plans.

4.6 POST-CONSTRUCTION ACTIVITIES

A post-excavation report will be prepared following remediation to summarize the completed field activities, present the verification sampling data, and provide copies of the waste manifests executed for the transportation and disposal of the waste. All reports will be maintained on file at the site, in accordance with the record-keeping requirements of Subpart J of 40 C.F.R. 761. Copies of such reports will be made available to the EPA, upon request.

5. RISK EVALUATION

Soil PCB data, presented in Section 3, are included in the VAP property-specific risk assessment (risk assessment) for the Airdock parcel, which addresses risks and hazards associated with potential exposures to multiple chemicals in both soil and groundwater (Tetra Tech 2007). The primary soil contaminants at the Airdock are PCBs, specifically Aroclor 1268. The primary groundwater contaminants are volatile organic compounds. This section of the application presents the results of a risk evaluation that focuses only on potential exposure to PCBs in soil from areas outside the Airdock, and presents the associated risks and hazards from PCBs.

5.1 RISK AND HAZARD SUMMARY

Soil containing PCB concentrations greater than 25 ppm will be removed from two on-parcel areas and backfilled with clean fill (PCB < 1 ppm) as described in Section 4. Following this presumptive soil removal activity and based on the existing characterization data, PCBs in soil on the Airdock parcel will average (defined as the 95 UCL) 1.8 milligrams per kilogram (mg/kg) with no single sample greater than 15 mg/kg. The calculated occupational exposure cancer risk contribution from remaining PCBs in soil from on-parcel areas (based on an exposure point concentration [EPC] of 1.8 mg/kg) calculated from the existing dataset is 2E-06; the calculated hazard contribution from PCBs in soil is 0.17.

The calculated occupational exposure cancer risk contribution from remaining PCBs in soil from off-parcel areas (based on an EPC of 0.34 mg/kg) calculated from the existing dataset is 4E-07; the calculated hazard contribution from PCBs in soil is 3.1E-02.

Finally, the risks and hazards for hypothetical residential receptors potentially exposed to PCBs in soil from adjoining off-parcel areas are semi-qualitatively characterized. Specifically, because the EPC for PCBs in soil (0.34 mg/kg) is less than the TSCA unrestricted default standard for PCBs of 1 ppm, the risks and hazards posed to hypothetical residents at adjoining off-parcel areas do not pose an unreasonable risk.

5.2 RISK EVALUATION

Analytical data considered for use in the risk assessment were collected as part of a variety of investigations reported between 2003 and 2007 (Weston 2004; BBL 2005, 2006a, 2006b; LMC

2007a, 2007b; and Tetra Tech 2004, 2005b, 2006b;). As a result of the two areas of planned excavation, the risk assessment did not consider at least one depth-specific set of analytical results associated with the following seven sampling locations LM-S0005, LM-S0007, LM-S0009, LM-S0045, LM-S0048, LM-S0051, and LM-SC8.

5.2.1 Exposure Setting and Pathways

Receptors are expected to be exposed to PCBs in soil beneath and near the Airdock through a variety of exposure settings and pathways. The potentially complete exposure pathways considered in this PCB risk evaluation include the following: incidental ingestion of, direct contact with, and inhalation of fugitive dusts from surface soil (Note: industrial workers are expected to be exposed to surface soil only outside the Airdock, on- and off-parcel settings; residential receptors are expected to be exposed to surface soil only at off-parcel locations).

5.2.2 Exposure Quantification

Standard risk assessment procedures were followed in accordance with EPA (for example EPA 1989, 1996, 1997, 2003, and 2004a) and Ohio EPA (2002) guidance. Receptor- and pathway-specific exposures were calculated using intake equations and exposure parameter values taken primarily from EPA's Risk Assessment Guidance for Superfund (RAGS) Part E (EPA 2004b) and Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures" (Ohio EPA 2002). Exposures were calculated for the reasonable maximum exposure (RME) case, which represents the highest exposure reasonably expected to occur.

One of the key input parameters to the exposure calculations is the EPC, which is defined as the concentration of a chemical that a human receptor is exposed to at an exposure point. In this case, the EPC represents the concentration of PCB in soil to which receptors are assumed to be exposed. Separate surface soil EPCs were calculated for on-parcel and off-parcel soil. Consistent with EPA guidance, the surface soil EPC for industrial workers and residential receptors was defined as the lesser of the maximum detected concentration and the 95 UCL of the sample concentration mean. Location-specific 95 UCL values were calculated using EPA's ProUCL Version 3.0 software package (EPA 2004a). A value equal to one-half the reporting limit was used for censored measurements.

The 95 UCL values calculated for on- and off-parcel surface soil are presented in Tables A-1 and A-2, respectively in Appendix A. The on- and off-parcel surface soil EPCs were set equal to the 95 UCLs, 1.8 and 0.34 mg/kg, respectively.

5.2.3 Receptor-Specific Exposures

Receptor-specific doses under RME conditions were calculated using standard risk assessment equations. The numerator of these equations is generally calculated as the product of a medium-specific concentration (referred to as the EPC), an intake or exposure rate (how much of the medium the receptor is exposed to), an exposure frequency (how often a receptor is exposed), and an exposure duration (how long a receptor is exposed). The denominator is generally the product of a receptor-specific body weight and an averaging time (equal to a standard lifetime [70 years] for carcinogenic calculations and the exposure duration for non-carcinogenic equations). The receptor-specific exposure frequency (EF) and exposure duration (ED) assumptions used in this risk evaluation, which are far more conservative than actual conditions likely to be present at the Airdock facility are presented below.

- Industrial worker: EF – 250 days/year and ED – 25 years
- Residents: EF -- 350 days/year and ED – 30 years

5.2.4 Toxicity Assessment

Toxicity factors used to quantify potential carcinogenic and non-carcinogenic health effects are referred to as slope factors (SF) and reference doses (RfD), respectively, and were selected from Table II of Ohio EPA's "Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures" (Ohio EPA 2002).

The following PCB-specific oral and inhalation slope SFs and RfDs were used:

- Oral RfD --- 2.0E-05 mg/kg-day (industrial workers)
- Oral SF – 2.0E+00 $(mg/kg\text{-}day)^{-1}$
- Inhalation SF – 3.5E-01 $(mg/kg\text{-}day)^{-1}$

As noted by Ohio EPA, most organic chemicals (including PCBs) are well absorbed (GI > 50 percent). As recommended by EPA, oral administered toxicity values for chemicals with a GI

absorption efficiency greater than 50 percent are generally not adjusted for use in characterizing risks and hazards associated with dermal exposures (EPA 2004b). Therefore, for the purpose of this risk assessment, the oral administered SFs and RfDs for PCBs were used directly and were not adjusted to characterize risks and hazards associated with dermal exposure.

5.3 RISK AND HAZARD CHARACTERIZATION FOR PCBS IN SOIL

In summary, carcinogenic risks and non-carcinogenic hazards for industrial workers potentially exposed to PCBs in soil were calculated in accordance with well-established methodologies as presented in EPA's RAGS (EPA 1989). Carcinogenic risks and non-carcinogenic hazards associated with potential residential exposures were evaluated semi-quantitatively as described above.

5.3.1 Risks and Hazards for Industrial Workers

Table 8 summarizes carcinogenic risks and non-carcinogenic hazards associated with potential exposure to PCBs in soil at both on-parcel and off-parcel areas.

Total risks for industrial workers at on-parcel (2E-06) and off-parcel (4E-07) areas are within or less than the EPA cumulative target risk range of 1E-06 to 1E-04(EPA 1990).

Total hazards for industrial workers at on-parcel (1.7E-01) and off-parcel (3.1E-02) areas are less than the cumulative target hazard goal of 1.

5.3.2 Risks and Hazards for Hypothetical Unrestricted Receptors (Residents)

The EPC for PCBs in off-parcel surface soil is 0.34 ppm. This concentration is less than the unrestricted TSCA cleanup level of 1 ppm. Therefore, the risks and hazards posed to adjoining off-parcel unrestricted receptors such as hypothetical residents by the presence of PCBs in off-parcel soil do not pose an unreasonable risk.

5.4 UNCERTAINTY ANALYSIS

Uncertainties are associated with all elements of the risk assessment process, from selection of chemical of potential concern through the steps of exposure evaluation, toxicity assessment, and

risk and hazard characterization. In most cases, the methodology used to prepare the risk assessment incorporates conservative assumptions so as to limit the potential to underestimate receptor-specific exposures, risks, and hazards. This is particularly the case here, where access and exposure will be quite limited. Areas of uncertainty directly related to PCBs are discussed below.

- The risk assessment assumes that on-going and planned remediation of interior and exterior plant and work surfaces (cleaning, sealing, and replacing) will be completed to acceptable standards. Therefore, potential exposure pathways related to contact with PCBs on these surfaces were not evaluated in the risk assessment. To the extent these remedial efforts are not adequately completed, potential exposures may have been underestimated.

- Risks associated with potential exposure to PCBs were characterized using a SF of 2 $(mg/kg\text{-}day)^{-1}$. This SF is based on toxicity tests performed on Aroclor 1254. However, the primary component of the PCBs found in the RPM used at the Airdock is Aroclor 1268. The congener composition of Aroclor 1268 differs substantially from that of Aroclor 1254. Warren and others (2004) have suggested an SF value for Aroclor 1268 of 2.7E-01 $(mg/kg\text{-}day)^{-1}$ about seven- to eightfold lower than the SF value used in the risk assessment. This alternate Aroclor 1268-specific SF value was developed "based in part on existing potency estimates for other PCB mixtures, coupled with the relative 2,3,7,8-tetrachlorodibenzo-p-dioxin toxic equivalents (TEQ) content and bioaccumulation potential of PCB mixtures" (Warren and others 2004). Therefore, the risks associated with potential exposure to PCBs in soil at the Airdock may have been overestimated.

5.5 RISK EVALUATION CONCLUSION

Risks and hazards for potential exposure to PCBs in soil were evaluated separately for occupational and residential exposure. Based on the available data, analysis, and assumptions presented in the risk assessment, the on-parcel and the off-parcel areas with PCBs in soil do not pose an unreasonable risk to human health or the environment.

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TABLES

(12 pages)

TABLE 1

ON-PARCEL SOIL SAMPLES COLLECTED FROM SOUTHEAST AREA
AKRON AIRDOCK - AKRON, OHIO

Sample ID No.	Depth (feet)	Date	1016	1221	1232	1242	1248	1254	1260	1268	Total PCBs (mg/kg)
Samples Above 25 ppm											
LM-SO005	0-0.5	9/17/2003	ND	ND	ND	ND	ND	ND	ND	290	290
LM-SO007	0-0.5	9/17/2003	ND	ND	ND	ND	ND	ND	ND	460	460
LM-SO009	0-0.5	9/17/2003	ND	ND	ND	ND	ND	ND	ND	130	130
LM-SO045-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	50	50
LM-SO045-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	12	12
LM-SO045-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	33	33
LM-SO045-24 DUP	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	30	30
LM-SO048-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	41	41
LM-SO051-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	150	150
Remaining Samples (<25 ppm)											
LM-SO004	0-0.5	9/17/2003	ND	ND	ND	ND	ND	ND	ND	**3.1**	**3.1**
LM-SO004 DUP	0-0.5	9/17/2003	ND	ND	ND	ND	ND	ND	ND	**2.9**	**2.9**
LM-SO006	0-0.5	9/17/2003	ND	ND	ND	ND	ND	ND	ND	**13**	**13**
LM-SO008	0-0.5	9/17/2003	ND	ND	ND	ND	ND	ND	ND	**13**	**13**
LM-SO010	0-0.5	9/17/2003	ND	ND	ND	ND	ND	ND	ND	**0.75**	**0.75**
LM-SO011	0-0.5	9/17/2003	ND	ND	ND	ND	ND	ND	ND	**9**	**9**
LM-SO043-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**2.3**	**2.3**
LM-SO043-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.39**	**0.39**
LM-SO043-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.11**	**0.11**
LM-SO044-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.37**	**0.37**
LM-SO044-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.24**	**0.24**
LM-SO044-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO046-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**3.8**	**3.8**
LM-SO046-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.054**	**0.054**
LM-SO046-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.018**	**0.018**

See notes at end of Table

TABLE 1 (Continued)

Sample ID No.	Depth (feet)	Date	1016	1221	1232	1242	1248	1254	1260	1268	Total PCBs (mg/kg)
Remaining Samples (<25 ppm) Continued											
LM-SO047-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**10**	**10**
LM-SO047-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.6**	**0.6**
LM-SO047-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.048**	**0.048**
LM-SO048-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**1.8**	**1.8**
LM-SO048-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.02**	**0.02**
LM-SO049-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**14**	**14**
LM-SO049-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.11**	**0.11**
LM-SO049-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO049-024 DUP	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO050-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**9.5**	**9.5**
LM-SO050-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.23**	**0.23**
LM-SO050-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.063**	**0.063**
LM-SO051-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**5.7**	**5.7**
LM-SO051-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.077**	**0.077**
LM-SO052-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**3.6**	**3.6**
LM-SO052-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.16**	**0.16**
LM-SO052-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.74**	**0.74**
LM-SO053-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**2.2**	**2.2**
LM-SO053-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.23**	**0.23**
LM-SO053-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.0036**	**0.0036**

Notes:
PCBs = Polychlorinated biphenyls
mg/kg = Milligrams per kilogram
ND = Not detected
DUP = Duplicate sample

TABLE 2

ON-PARCEL SOIL SAMPLES COLLECTED FROM NORTH AREA
AKRON AIRDOCK - AKRON, OHIO

Sample ID No.	Depth (feet)	Date	1016	1221	1232	1242	1248	1254	1260	1268	Total PCBs (mg/kg)
LM-SO054-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**2.3**	**2.3**
LM-SO054-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.17**	**0.17**
LM-SO054-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.25**	**0.25**
LM-SO055-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**8.7**	**8.7**
LM-SO055-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**3**	**3**
LM-SO055-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.64**	**0.64**
LM-SO056-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**2.9**	**2.9**
LM-SO056-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.28**	**0.28**
LM-SO056-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.057**	**0.057**
LM-SO056-24 DUP	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.039**	**0.039**
LM-SO057-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**15**	**15**
LM-SO057-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.41**	**0.41**
LM-SO057-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.087**	**0.087**
LM-SO058-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**1.8**	**1.8**
LM-SO058-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.036**	**0.036**
LM-SO058-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	ND	**0.018**
LM-SO059-006	0-0.5	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**1.2**	**1.2**
LM-SO059-012	0.5-1	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.39**	**0.39**
LM-SO059-024	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.15**	**0.15**
LM-SO059-24 DUP	1-2	6/7/2004	ND	ND	ND	ND	ND	ND	ND	**0.14**	**0.14**
LM-SO72	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	ND	**1.7 J**	**1.7 J**
LM-SO72	0.5 - 1	5/23/2005	ND	ND	ND	ND	ND	ND	ND	**0.42 J**	**0.42 J**
LM-SO73	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**1.5 J**	**1.5 J**
LM-SO73A	0 - 0.25	11/9/2005	ND	ND	ND	ND	ND	ND	ND	**2.1**	**2.1**
LM-SO73	0.5 - 1	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.084**	**0.084**
LM-SO74	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.49 J**	**0.49 J**
LM-SO75	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.16**	**0.16**
LM-SO76	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**8 J**	**8 J**
LM-SO76	0.5 - 1	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**3.6 J**	**3.6 J**
LM-SO77	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**2.2 J**	**2.2 J**
LM-SO77	0.5 - 1	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.26 J**	**0.26 J**
LM-SO78	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.82 J**	**0.82 J**
LM-SO78A	0 - 0.25	11/9/2005	ND	ND	ND	ND	ND	ND	ND	**2**	**2**

See notes at end of Table

TABLE 2 (Continued)

Sample ID No.	Depth (feet)	Date	1016	1221	1232	1242	1248	1254	1260	1268	Total PCBs (mg/kg)
LM-SO79	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.82 J**	**0.82 J**
LM-SO79A	0 - 0.25	11/9/2005	ND	ND	ND	ND	ND	ND	ND	**1.6**	**1.6**
LM-SO80	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.93 J**	**0.93 J**
LM-SO81	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**2 J**	**2 J**
LM-SO81A	0 - 0.25	11/9/2005	ND	ND	ND	ND	ND	ND	ND	**4.8**	**4.8**
LM-SO81	0.5 - 1	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.77 J**	**0.77 J**
LM-SO82	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.26 J**	**0.26 J**
LM-SO83	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.59 J**	**0.59 J**
LM-SO83A	0 - 0.25	11/9/2005	ND	ND	ND	ND	ND	ND	ND	**0.95**	**0.95**
LM-SO88	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	**0.59 J**	**1.6 J**	**2.19 J**
LM-SO88	0.5 - 1	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**3 J**	**3 J**
LM-SO89	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	**0.42 J**	**1.7 J**	**2.12 J**
LM-SO89	0.5 - 1	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.03**	**0.03**
LM-SO90	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	**0.42 J**	**0.9 J**	**1.32 J**
LM-SO90	0.5 - 1	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.025**	**0.025**
LM-SO090	1 - 1.5	8/10/2005	ND	ND	ND	ND	ND	ND	ND	**0.3**	**0.3**
LM-SO91	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	**0.34 J**	**0.45 J**	**0.79 J**
LM-SO91A	0 - 0.25	11/9/2005	ND	ND	ND	ND	ND	ND	ND	**1.3**	**1.3**
LM-SO92	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**11 J**	**11 J**
LM-SO92	0.5 - 1	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.075**	**0.075**
LM-SO93	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**1.3 J**	**1.3 J**
LM-SO93	0.5 - 1	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.23 J**	**0.23 J**
LM-SO94	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	**0.51 J**	**1 J**	**1.51 J**
LM-SO94	0.5 - 1	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.24 J**	**0.24 J**
LM-SO95	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	**0.12 J**	**0.21 J**	**0.33 J**
LM-SO96	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.54 J**	**0.54 J**
LM-SO97	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	**0.097 J**	**0.19 J**	**0.287 J**
LM-SO98	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	**0.061**	**0.16**	**0.221**
LM-SO098	0.5 - 1	8/10/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO99	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	**0.038**	**0.083**	**0.121**
LM-SO107	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.42 J**	**0.42 J**
LM-SO108	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO109	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.22 J**	**0.22 J**
LM-SO111	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	**0.14 J**	**0.32 J**	**0.46 J**
LM-SO112	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	**0.071 J**	**0.15 J**	**0.221 J**
LM-SO113	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**0.13**	**0.13**

See notes at end of Table

TABLE 2 (Continued)

Sample ID No.	Depth (feet)	Date	1016	1221	1232	1242	1248	1254	1260	1268	Total PCBs (mg/kg)
LM-SO115	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**0.6 J**	**0.6 J**
LM-SO116	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**0.69 J**	**0.69 J**
LM-SO117	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**1.5 J**	**1.5 J**
LM-SO117	0.5 - 1	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**0.25 J**	**0.25 J**
LM-SO118	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**4.8 J**	**4.8 J**
LM-SO118	0.5 - 1	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**0.2 J**	**0.2 J**
LM-SO119	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	**0.13 J**	**0.47 J**	**0.6 J**
LM-SO120	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	**0.14**	**0.1**	**0.24**
LM-SO120DUP	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	**0.17**	**0.11**	**0.28**
LM-SO121	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	**1.2 J**	**0.94 J**	**2.14 J**
LM-SO121	0.5 - 1	5/25/2005	ND	ND	ND	ND	ND	**0.14**	ND	**0.037**	**0.177**
LM-SO205	0 - 0.5	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**0.43**	**0.43**
LM-SO208	0 - 0.5	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**1.1**	**1.1**
LM-SO208	0.5 - 1	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**1.5**	**1.5**
LM-SO209	0 - 0.5	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**1.2**	**1.2**
LM-SO209	0.5 - 1	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**1.3**	**1.3**
LM-SO210	0 - 0.5	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**0.3**	**0.3**
LM-SO210	0.5 - 1	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**1.1**	**1.1**
LM-SO211	0 - 0.5	8/11/2005	ND	ND	ND	ND	ND	ND	**2.2**	**0.64**	**2.84**
LM-SO211	0.5 - 1	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**0.5**	**0.5**
LM-SO212	0 - 0.5	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**1.4**	**1.4**
LM-SO213	0 - 0.5	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**1.4**	**1.4**
LM-SO213	0.5 - 1	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**1.6**	**1.6**
LM-SO214	0 - 0.5	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**2.1**	**2.1**
LM-SO214	0.5 - 1	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**0.47**	**0.47**
LM-SO215	0 - 0.5	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**1.2**	**1.2**
LM-SO216	0 - 0.5	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**1.9**	**1.9**
LM-SO216	0.5 - 1	8/11/2005	ND	ND	ND	ND	ND	ND	ND	**0.85**	**0.85**

Notes:
PCBs = Polychlorinated biphenyls
mg/kg = Milligrams per kilogram
J = Estimated concentration, quantified below the reporting limit
ND = Not detected
DUP = Duplicate sample

TABLE 3

ON-PARCEL SOIL SAMPLES COLLECTED BENEATH PAVEMENT
AKRON AIRDOCK - AKRON, OHIO

Sample ID No.	Depth (feet)	Date	1016	1221	1232	1242	1248	1254	1260	1268	Total PCBs (mg/kg)
LM-SC1	0-0.25	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.17**	**0.17**
LM-SC1	1-2	7/27/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC2	0-0.25	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.0083 J**	**0.0083 J**
LM-SC2	1-2	7/27/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC3	0-0.25	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.89**	**0.89**
LM-SC3	1-2	7/27/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC4	0-0.25	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**2.9**	**2.9**
LM-SC4	1-2	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.47**	**0.47**
LM-SC4 DUP	1-2	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.56**	**0.56**
LM-SC4	2-4	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.24**	**0.24**
LM-SC5	0-0.25	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**1.1**	**1.1**
LM-SC5	1-2	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.019 J**	**0.019 J**
LM-SC5	2-4	7/27/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC6	0-0.25	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.47**	**0.47**
LM-SC6	1-2	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.4**	**0.4**
LM-SC6	2-4	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.016 J**	**0.016 J**
LM-SC7	0-0.25	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.16**	**0.16**
LM-SC7	1-2	7/27/2006	ND	ND	ND	ND	ND	ND	ND	**0.0099 J**	**0.0099 J**
LM-SC7	2-4	7/27/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC8	0-0.25	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**30**	**30**
LM-SC8	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**25**	**25**
LM-SC8	2-4	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.027 J**	**0.027 J**
LM-SC9	0-0.25	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**1.9**	**1.9**
LM-SC9	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.2**	**0.2**
LM-SC9 DUP	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.25**	**0.25**
LM-SC9	2-4	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.0095 J**	**0.0095 J**
LM-SC10	0-0.25	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.016 J**	**0.016 J**
LM-SC10	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC11	0-0.25	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.2**	**0.2**
LM-SC11	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC12	0-0.25	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**1.9**	**1.9**
LM-SC12	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.079**	**0.079**
LM-SC12	2-4	7/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND

See notes at end of Table

TABLE 3 (Continued)

Sample ID No.	Depth (feet)	Date	1016	1221	1232	1242	1248	1254	1260	1268	Total PCBs (mg/kg)
LM-SC13	0-0.25	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.047**	**0.047**
LM-SC13	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.0073 J**	**0.0073 J**
LM-SC13	2-4	7/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC14	0-0.25	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.058**	**0.058**
LM-SC14	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC14 DUP	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC15	0-0.25	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.069**	**0.069**
LM-SC15	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SC16	0-0.25	7/28/2006	ND	ND	ND	ND	ND	ND	ND	**0.014 J**	**0.014 J**
LM-SC16	1-2	7/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
PCBs = Polychlorinated biphenyls
mg/kg = Milligrams per kilogram
J = Estimated concentration, quantified below the reporting limit
ND = Not detected
DUP = Duplicate sample

TABLE 4

OFF-PARCEL SAMPLES COLLECTED FROM SOUTH AREA
AKRON AIRDOCK - AKRON, OHIO

Sample ID No.	Depth (feet)	Date Sampled	1016	1221	1232	1242	1248	1254	1260	1268	Total PCBs (mg/kg)
LM-SO122	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**1.7 J**	**1.7 J**
LM-SO122	0.5 - 1	5/25/2005	ND	ND	ND	ND	ND	**0.13**	ND	**0.11**	**0.24**
LM-SO123	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	**0.082 J**	**0.2 J**	**0.282 J**
LM-SO124	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	**0.051**	**0.083**	**0.134**
LM-SO125	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	**0.076**	**0.084**	**0.16**
LM-SO126	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO127	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO128	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**0.044**	**0.044**

Notes:
PCBs = Polychlorinated biphenyls
mg/kg = Milligrams per kilogram
J = Estimated concentration, quantified below the reporting limit.
ND = Not detected

TABLE 5

OFF-PARCEL SOIL SAMPLES COLLECTED FROM NORTH AREA
AKRON AIRDOCK - AKRON, OHIO

Sample ID No.	Depth (feet)	Date Sampled	1016	1221	1232	1242	1248	1254	1260	1268	Total PCBs (mg/kg)
LM-SO60	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	**0.14 J**	**0.51 J**	**0.65 J**
LM-SO61	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	ND	**0.29 J**	**0.29 J**
LM-SO62	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	ND	**0.39 J**	**0.39 J**
LM-SO63	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	ND	**0.22 J**	**0.22 J**
LM-SO64	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	**0.3 J**	**0.57 J**	**0.87 J**
LM-SO65	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	ND	**0.3 J**	**0.41 J**
LM-SO65 DUP	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	ND	**0.27 J**	**0.27 J**
LM-SO66	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	ND	**0.49 J**	**0.49 J**
LM-SO67	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	**0.38 J**	**0.36 J**	**0.74 J**
LM-SO68	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	ND	**0.24 J**	**0.24 J**
LM-SO69	0 - 0.5	5/23/2005	ND	ND	ND	ND	ND	ND	ND	**0.085**	**0.085**
LM-SO69A	0 - 0.25	11/9/2005	ND	ND	ND	ND	ND	ND	ND	**0.094**	**0.094**
LM-SO70	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.059**	**0.059**
LM-SO70A	0 - 0.25	11/9/2005	ND	ND	ND	ND	ND	ND	ND	**0.083**	**0.083**
LM-SO71	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.037**	**0.037**
LM-SO84	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.12**	**0.12**
LM-SO85	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.087**	**0.087**
LM-SO86	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO86 DUP	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO87	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO100	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.022**	**0.022**
LM-SO101	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.035**	**0.035**
LM-SO102	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.028**	**0.028**
LM-SO103	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.03**	**0.03**
LM-SO104	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.045**	**0.045**
LM-SO105	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.022**	**0.022**
LM-SO105 DUP	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND
LM-SO106	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**0.064**	**0.064**
LM-SO110	0 - 0.5	5/24/2005	ND	ND	ND	ND	ND	ND	ND	**0.07**	**0.25**
LM-SO114	0 - 0.5	5/25/2005	ND	ND	ND	ND	ND	ND	ND	**0.25 J**	**0.25 J**

Notes:
PCBs = Polychlorinated biphenyls
mg/kg = Milligrams per kilogram
J = Estimated concentration, quantified below the reporting limit.
ND = Not detected
DUP = Duplicate sample

TABLE 6

OFF-PARCEL SOIL SAMPLES COLLECTED BENEATH PAVEMENT
AKRON AIRDOCK - AKRON, OHIO

Sample ID No.	Depth (feet)	Date Sampled	1016	1221	1232	1242	1248	1254	1260	1268	Total PCBs (mg/kg)
LMC-SC105	0-0.25	5/10/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND
LMC-SC106	0-0.25	5/10/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND
LMC-SC107	0-0.25	5/10/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND
LMC-SC108	0-0.25	5/10/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
ND = Not detected
mg/kg = Milligrams per kilogram

TABLE 7

PROPOSED EXCAVATION DIMENSIONS AND VOLUMES
AKRON AIRDOCK - AKRON, OHIO

Cleanup Area	Sub-Area	Length (feet)	Width (feet)	Depth (feet)	Volume (cubic yards)
Southeast Area	**A**				**30.90**
	A-a	70	22.5	0.5	29.17
	A-b	5	10	0.5	0.93
	A-c	3.5	12.5	0.5	0.81
	B				**22.25**
	B-a	2	10	0.5	0.37
	B-b	52.5	22.5	0.5	21.88
	C1				**29.17**
	C1-a	25	15	2	27.78
	C1-b	25	1.5	2	1.39
	C2				**8.13**
	C2-a (trapezoidal)	16.75	5	0.5	1.55
	C2-b (trapezoidal)	13	15	0.5	3.61
	C2-c (trapezoidal)	8	20	0.5	2.96
SC8 Area	**D**	**5**	**5**	**2**	**1.85**

Volume (cubic yards)	92
Estimated Mass (tons)	138

Note: Conversion factor 1.5 x volume (cy) ≅ tons

TABLE 8

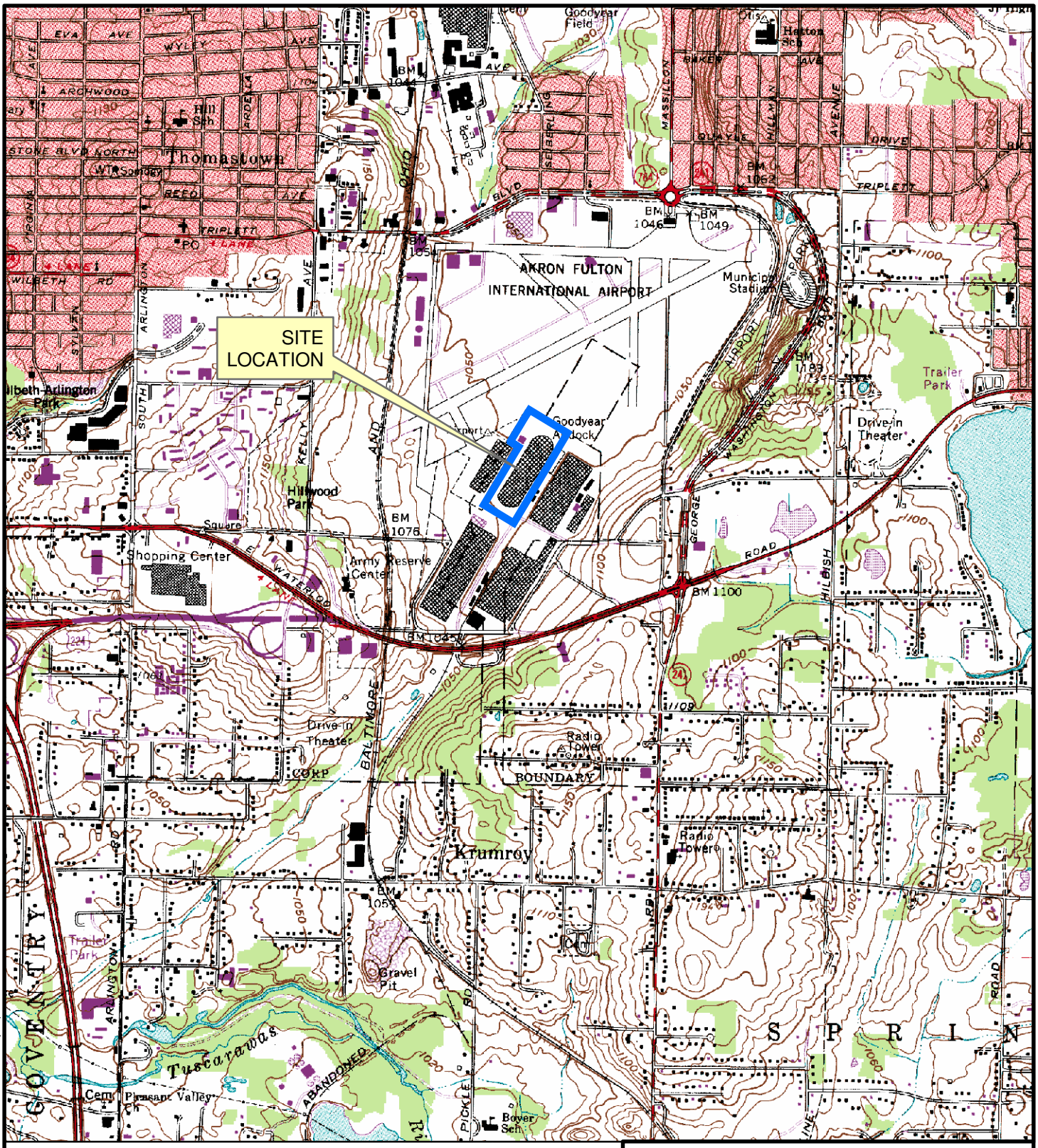
RISKS AND HAZARDS FOR INDUSTRIAL WORKERS
AKRON AIRDOCK - AKRON, OHIO

Exposure Pathway	On-Parcel		Off-Parcel	
	Carcinogenic Risk	Noncarinogenic Hazard	Carcinogenic Risk	Noncarinogenic Hazard
Industrial Worker				
Incidental ingestion of soil	6.3E-07	4.4E-02	1.2E-07	8.3E-03
Dermal contact with soil	1.7E-06	1.2E-01	3.3E-07	2.3E-02
Inhalation of fugitive dust	6.7E-09	--	1.3E-08	--
Totals	2E-06	1.7E-01	4E-07	3.1E-02

Notes:
"--" indicates incomplete pathway

FIGURES

(6 pages)



LEGEND

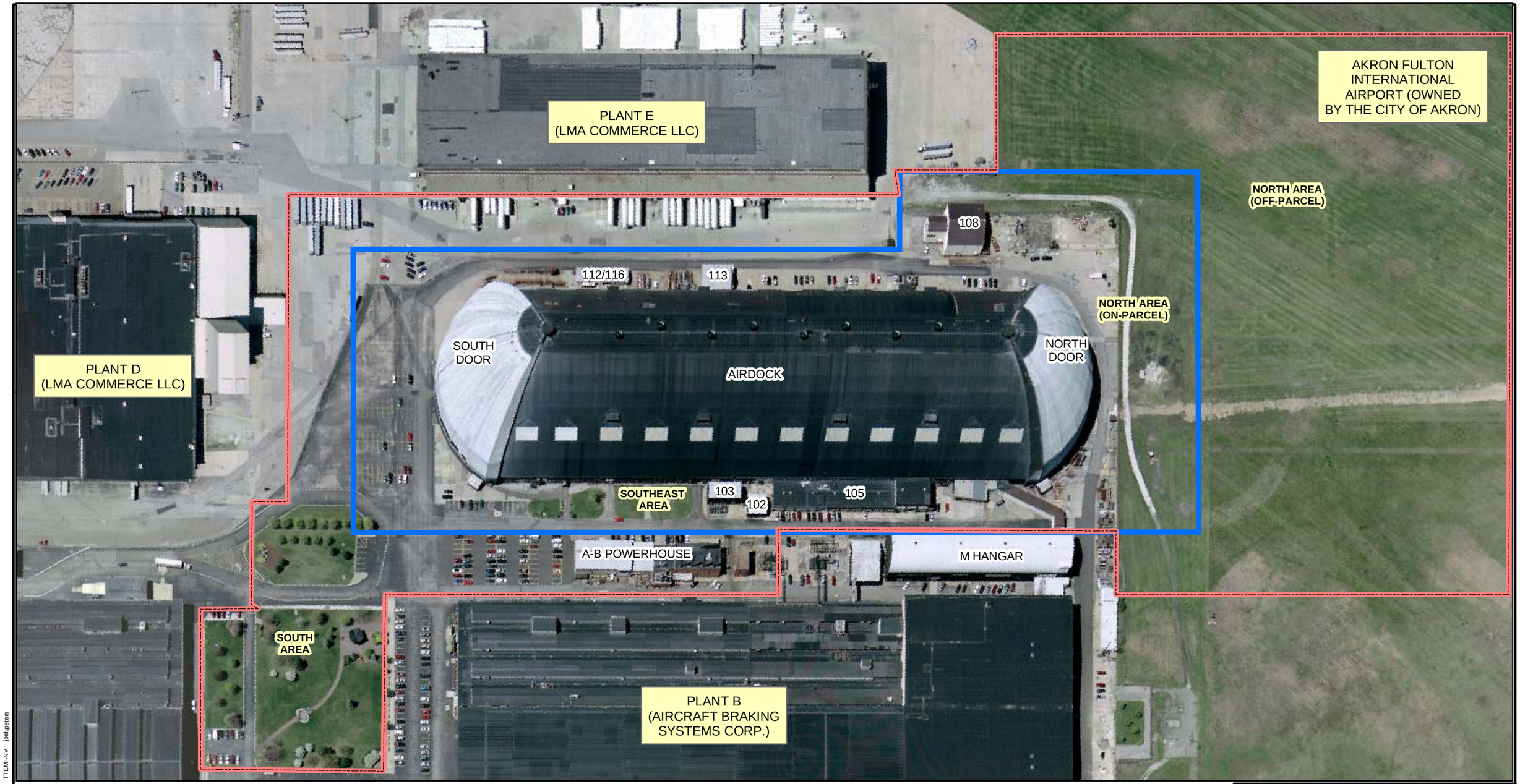
Approximate Site Boundary

SOURCE: MODIFIED FROM USGS, AKRON EAST, OHIO QUADRANGLE, 1967, PHOTOREVISED, 1984.

AKRON AIRDOCK FACILITY
AKRON, OHIO

FIGURE 1
SITE LOCATION MAP

2005-06-17 s:\cadd\jp382\01\mxd\vap_attachment_a7-1.mxd TTEMI-NV joel.peters



LEGEND

- Soil Assessment Area Boundary
- Approximate Airdock Boundary

PAW = Plant A West Storm Sewer Line

PAE = Plant A East Storm Sewer Line

Building Legend

102 - Helium Compressor/Fire Suppression
103 - Electrical Substation/Transformer House
105 - Outer Press Shop
108 - Motor Run-In
112 - Former Flame Cutting
113 - Former Acid/Alkali Waste Storage Facility
116 - Storage

0 75 150 Feet

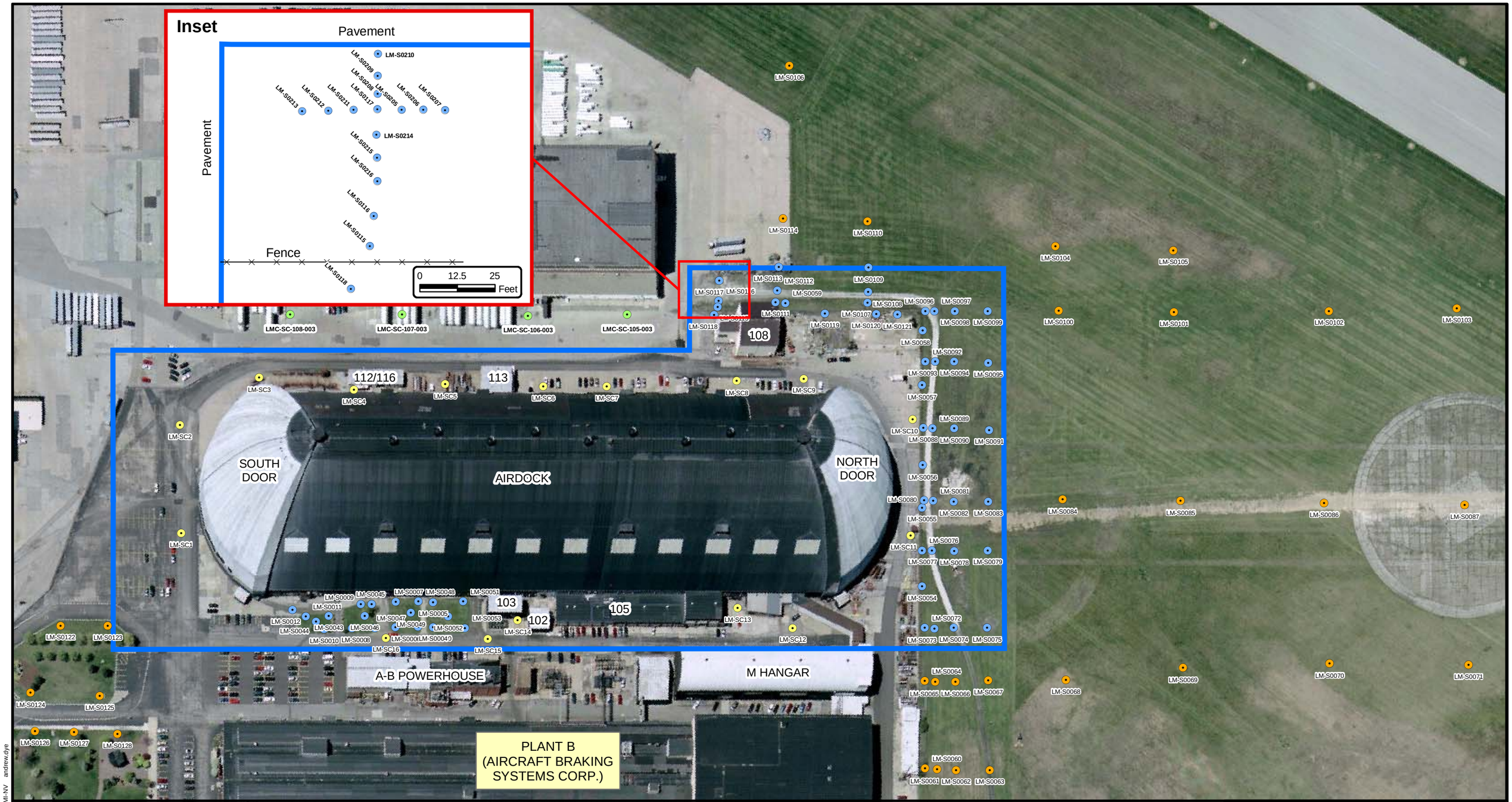
SOURCE: MODIFIED FROM SUMMIT COUNTY GIS, 2004.

AKRON AIRDOCK FACILITY
AKRON, OHIO

FIGURE 2
SITE BOUNDARY AREAS

TETRA TECH, INC.

2007-08-15 s:\cad\lp581\airdock_rap_figure 2.mxd TTEMI-NV joel.peters



LEGEND

- Off-Parcel Sub-Pavement Soil Sample
- Off-Parcel Surface Soil Sample
- On-Parcel Surface Soil Sample
- On-Parcel Sub-Pavement Soil Sample
- Approximate Airdock Boundary

Building Legend

102 - Helium Compressor/Fire Suppression
103 - Electrical Substation/Transformer House
105 - Outer Press Shop
108 - Motor Run-In
112 - Former Flame Cutting
113 - Former Acid/Alkali Waste Storage Facility
116 - Storage

SOURCES:

MODIFIED FROM SUMMIT COUNTY GIS, 2004.
WESTON (2004)
BBL (2005)
BBL (2006)
Tetra Tech 2007

0 75 150
Feet

AKRON AIRDOCK FACILITY
AKRON, OHIO

FIGURE 3
AIRDOCK SOIL SAMPLE
LOCATIONS: 2003-2007

TETRA TECH, INC.

2007-07-19 s:\cadd\lp5811airdock_ra_3.mxd TTEMI-NV andrew.dye

LM-S0045 (06/07/04)
*AROCLOR 1268 - 50.00 (mg/kg) (0-6")
*AROCLOR 1268 - 12.0 (mg/kg) (6-12")
*AROCLOR 1268 - 33.0 : 36.0 (mg/kg) (12-24")
*AROCLOR 1268 - 30.0 : 57.0 (mg/kg) (12-24" DUP)

LM-S0009 (9/03)
*AROCLOR 1268 - 130.00 (mg/kg)

LM-S0007 (9/03)
*AROCLOR 1268 - 460.00 (mg/kg)

LM-S0049 (06/07/04)
AROCLOR 1268 - 14.00 (mg/kg) (0-6")
AROCLOR 1268 - 0.11 (mg/kg) (6-12")
AROCLOR 1268 - (<)0.021 u (mg/kg) (12-24")
AROCLOR 1268 - (<)0.021 u (mg/kg) (12-24" DUP)

LM-S0048 (06/07/04)
*AROCLOR 1268 - 41.00 (mg/kg) (0-6")
AROCLOR 1268 - 1.80 (mg/kg) (6-12")
AROCLOR 1268 - 0.02 (mg/kg) (12-24")

LM-S0043 (06/07/04)
AROCLOR 1268 - 2.30 (mg/kg) (0-6")
AROCLOR 1268 - 0.39 (mg/kg) (6-12")
AROCLOR 1268 - 0.11 (mg/kg) (12-24")

LM-S0005 (9/03)
*AROCLOR 1268 - 290.00 (mg/kg)

LM-S0011 (9/03)
AROCLOR 1268 - 9.00 (mg/kg)

LM-S0051(06/07/04)
*AROCLOR 1268 - 150.00 (mg/kg) (0-6")
AROCLOR 1268 - 5.70 (mg/kg) (6-12")
AROCLOR 1268 - 0.077 (mg/kg) (12-24")

103

LM-S0052 (06/07/04)
AROCLOR 1268 - 3.60 (mg/kg) (0-6")
AROCLOR 1268 - 0.16 (mg/kg) (6-12")
AROCLOR 1268 - 0.74(mg/kg) (12-24")

105

102

LM-S0009 LM-S0045 LM-S0007 LM-S0048 LM-S0005 LM-S0051 LM-S0049 LM-S0052 LM-S0011 LM-S0043 LM-S0046 LM-S0044 LM-S0010 LM-S0008 LM-S0047 LM-S0006 LM-S0056 LM-S0004 LM-S0053

LM-S0044 (06/07/04)
AROCLOR 1268 - 0.37 (mg/kg) (0-6")
AROCLOR 1268 - 0.24 (mg/kg) (6-12")
AROCLOR 1268 -(<)10.011 u (mg/kg) (12-24")

LM-S0053 (06/07/04)
AROCLOR 1268 - 2.20 (mg/kg) (0-6")
AROCLOR 1268 - 0.23 (mg/kg) (6-12")
AROCLOR 1268 - 0.0036 (mg/kg) (12-24")

LM-S0010 (9/03)
AROCLOR 1268 - 0.75 (mg/kg)

LM-S0008 (9/03)
AROCLOR 1268 - 13.00 (mg/kg)

LM-S0004 (09/03)
AROCLOR 1268 - 2.90 (mg/kg)
AROCLOR 1268 - 3.10 (mg/kg) DUP

LM-S0046 (06/07/04)
AROCLOR 1268 - 3.80 (mg/kg) (0-6")
AROCLOR 1268 - 0.054 (mg/kg) (6-12")
AROCLOR 1268 - 0.018 (mg/kg) (12-24")

LM-S0050 (06/07/04)
AROCLOR 1268 - 9.50 (mg/kg) (0-6")
AROCLOR 1268 - 0.23 (mg/kg) (6-12")
AROCLOR 1268 - 0.063 J (mg/kg) (12-24")

LM-S0047 (06/07/04)
AROCLOR 1268 - 10.0 (mg/kg) (0-6")
AROCLOR 1268 - 0.60 (mg/kg) (6-12")
AROCLOR 1268 - 0.048 (mg/kg) (12-24")

LM-S0006 (9/03)
AROCLOR 1268 - 13.00 (mg/kg)

LEGEND

- Surface Soil Sample
- Excavation Area
- Approximate Airdock Boundary

Note: Sample Results in blue type and marked * will be removed during remediation.

SOURCES:

MODIFIED FROM SUMMIT COUNTY GIS, 2004.
WESTON (2004)
BBL (2005)
BBL (2006)

0 25 50 Feet

AKRON AIRDOCK FACILITY
AKRON, OHIO

FIGURE 4
SOUTHEAST AREA SOIL SAMPLING DATA AND PROPOSED EXCAVATION

TETRA TECH, INC.

2007-07-27 s:\cadd\up581\airdock figure 4.mxd TTEMI-NV andrew.dye

LEGEND

- Approximate Airdock Boundary
- Excavation Area
- On-Parcel Sub-Pavement Soil Sample

Note: Excavation area is 5 feet by 5 feet by 2 feet.

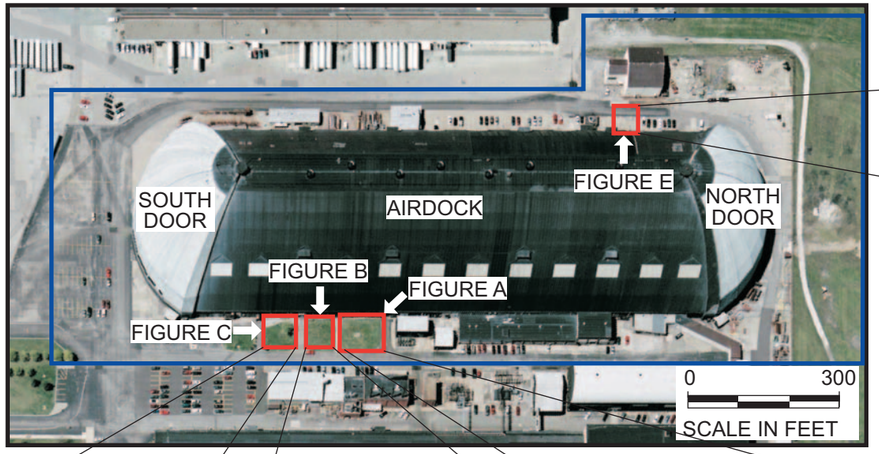
0 10 20 Feet

AKRON AIRDOCK FACILITY
AKRON, OHIO

FIGURE 5
PROPOSED EXCAVATION
AT LM-SC8

TETRA TECH, INC.

2007-07-25 s:\cadd\vip581\airdock_proposed excavation at lmsc8mxd.mxd TTEMI-NV andrew.dye



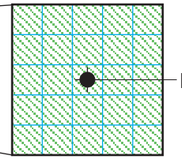


FIGURE D

0 5 10

APPROXIMATE SCALE IN FEET

Airdock

Trench Drain

C2 C1

B2 B1

ST A3 A2 A1

Electrical Substation/ Transformer House

FIGURE C

FIGURE B

FIGURE A

W Unknown Utility

Concrete Pad

e Existing Electric Meter

Grass

Grass

Asphalt

Grass

ST

Grass

ST

SN

e

e

e

LEGEND:

- Approximate Airdock Boundary
- Fence
- Sanitary Sewer Line
- Stormwater Line
- e Electric Line
- Remove 0.5 foot
- Remove 2.0 feet
- B1 Sub-Area for Verification Sampling
- Existing Water Valve
- ST Existing Storm Manhole
- SN Existing Sanitary Manhole
- Existing Catch Basin
- Existing Fire Hydrant

0 20 40

APPROXIMATE SCALE IN FEET

N E S W

AKRON AIRDOCK FACILITY
AKRON, OHIO

FIGURE 6
EXCAVATION AREAS AND
VERIFICATION SAMPLING PLAN

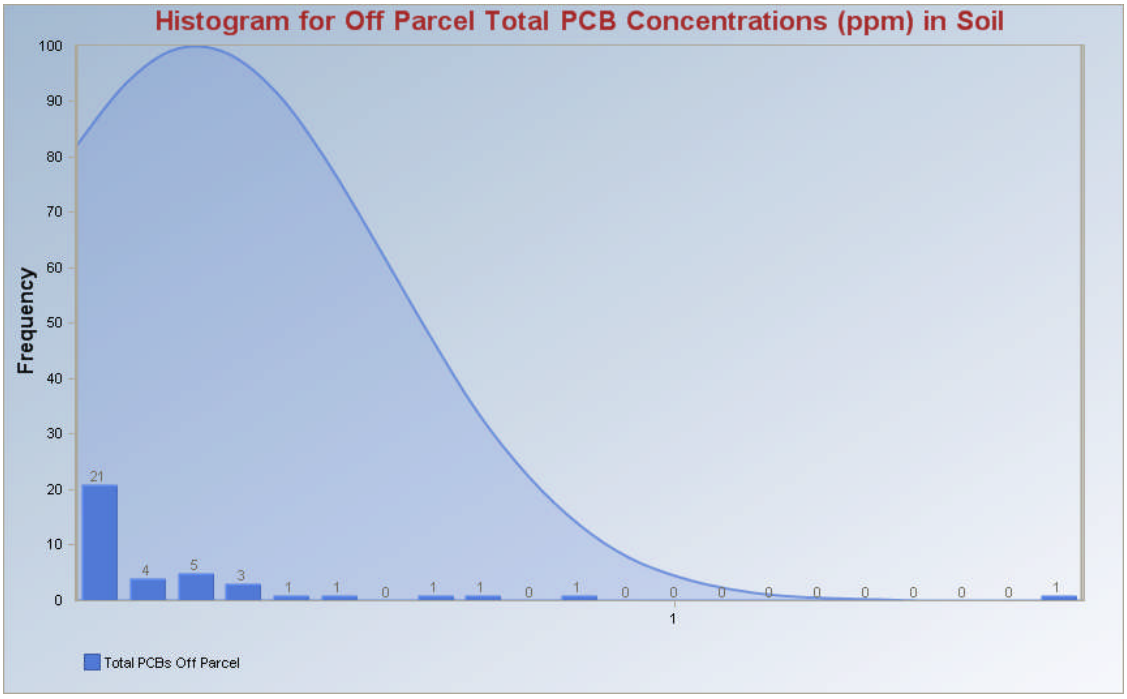
URS

JOB NO. 14947614

LOCKHEED MARTIN CORP – 14947614.02000 – AKRON, OHIO – CHECKED BY

APPENDIX A

SOIL STATISTICS FOR ON- AND OFF-PARCEL AREAS


Histogram for Off Parcel Total PCB Concentrations (ppm) in Soil
Frequency
100
90
80
70
60
50
40
30
20
10
0
21
4
5
3
1
1
0
1
1
0
1
0
0
0
0
0
0
0
0
0
1
1
Total PCBs Off Parcel

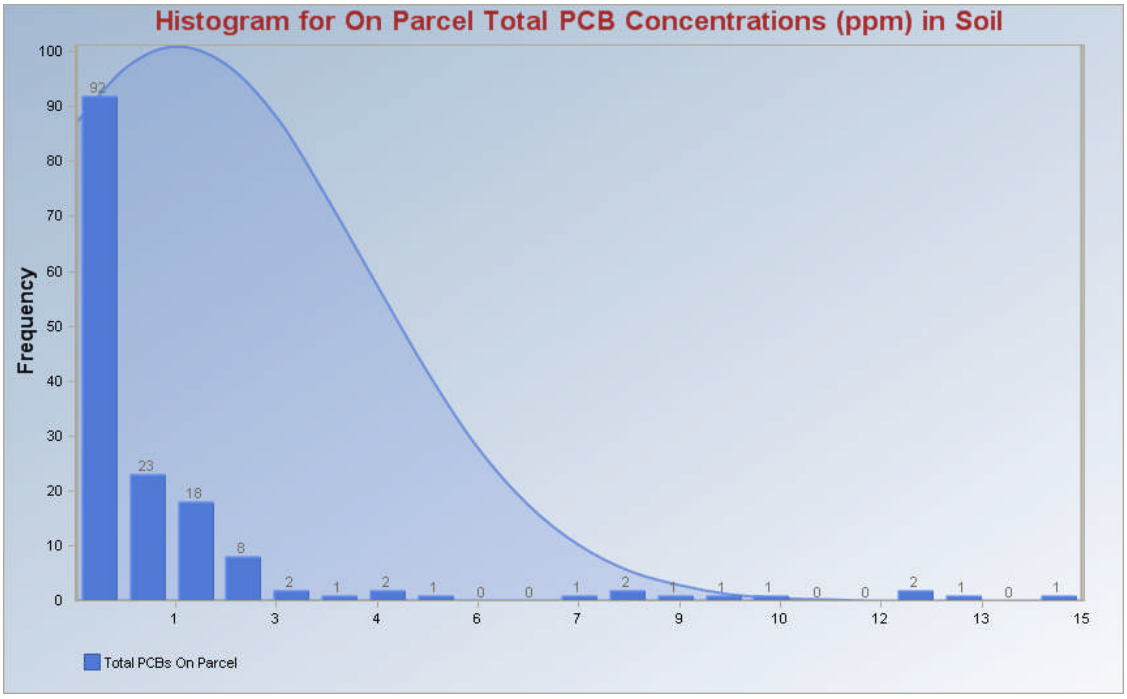

Histogram for On Parcel Total PCB Concentrations (ppm) in Soil
Frequency
100
90
80
70
60
50
40
30
20
10
0
92
23
18
8
2
1
2
1
0
0
1
2
1
1
1
0
0
2
1
0
1
1
3
4
6
7
9
10
12
13
15
Total PCBs On Parcel

TABLE A-1

EXPOSURE PONT CONCENTRATION CALCULATIONS
POLYCHLORINATED BIPHENYLS IN SOIL -- ON-PARCEL (NON-IA-SPECIFIC)
PROPERTY-SPECIFIC RISK ASSESSMENT
AKRON AIRDOCK
AKRON, OHIO

Raw Statistics		**Normal Distribution Test**		**PCB Concentration -- On-Site[a]**			
Number of Valid Samples	156	Lilliefors Test Statisitic	0.2891921	3	0.087	0.287	0.0185
Number of Unique Samples	106	Lilliefors 5% Critical Value	0.0709368	13	1.8	0.221	0.89
Minimum	0.0036	Data not normal at 5% significance level		13	0.036	0.01	0.0185
Maximum	15			0.75	0.018	0.121	2.9
Mean	1.4530103	**95% UCL (Assuming Normal Distribution)**		9	1.7	1.2	0.515
Median	0.465	Student's-t UCL	1.7985382	2.3	0.42	0.39	1.1
Standard Deviation	2.6080433			0.39	1.5	0.145	0.019
Variance	6.8018897	**Gamma Distribution Test**		0.11	2.1	0.42	0.47
Coefficient of Variation	1.7949242	A-D Test Statistic	1.7371828	0.37	0.084	0.0085	0.4
Skewness	3.201968	A-D 5% Critical Value	0.8262458	0.24	0.49	0.22	0.16
		K-S Test Statistic	0.0737416	0.0055	0.16	0.46	0.0099
Gamma Statistics		K-S 5% Critical Value	0.0796049	3.8	8	0.221	1.9
k hat	0.4735933	Data follow approximate gamma distibution		0.054	3.6	0.13	0.225
k star (bias corrected)	0.4687592	at 5% significance level		0.018	2.2	0.6	0.016
Theta hat	3.068055			10	0.26	0.69	0.018
Theta star	3.0996941	**95% UCLs (Assuming Gamma Distribution)**		0.6	0.82	1.5	0.2
nu hat	147.76111	Approximate Gamma UCL	1.7813122	0.048	2	0.25	0.0185
nu star	146.25288	Adjusted Gamma UCL	1.7846821	1.8	0.82	4.8	1.9
Approx.Chi Square Value (.05)	119.29798			0.02	1.6	0.2	0.079
Adjusted Level of Significance	0.0484615	**Lognormal Distribution Test**		0.11	0.93	0.6	0.047
Adjusted Chi Square Value	119.07271	Lilliefors Test Statisitic	0.0744558	0.0105	2	0.26	0.0073
		Lilliefors 5% Critical Value	0.0709368	9.5	4.8	2.14	0.058
Log-transformed Statistics		Data not lognormal at 5% significance level		0.23	0.77	0.177	0.021
Minimum of log data	-5.626821			0.063	0.26	0.43	0.069
Maximum of log data	2.7080502	**95% UCLs (Assuming Lognormal Distribution)**		5.7	0.59	1.1	0.018
Mean of log data	-0.978961	95% H-UCL	3.8345397	0.077	0.95	1.5	0.014
Standard Deviation of log data	1.9204981	95% Chebyshev (MVUE) UCL	4.7532086	3.6	2.19	1.2	0.0185
Variance of log data	3.6883131	97.5% Chebyshev (MVUE) UCL	5.8150023	0.16	3	1.3	
		99% Chebyshev (MVUE) UCL	7.9006902	0.74	2.12	0.3	
				2.2	0.03	1.1	
		95% Non-parametric UCLs		0.23	1.32	2.84	
		CLT UCL	1.7964731	0.0036	0.025	0.5	
		Adj-CLT UCL (Adjusted for skewness)	1.853672	2.3	0.3	1.4	
		Mod-t UCL (Adjusted for skewness)	1.8074601	0.17	0.79	1.4	
		Jackknife UCL	1.7985382	0.25	1.3	1.6	
		Standard Bootstrap UCL	1.7889555	8.7	11	2.1	
		Bootstrap-t UCL	1.8940012	3	0.075	0.47	
RECOMMENDATION		Hall's Bootstrap UCL	1.8550177	0.64	1.3	1.2	
Assuming gamma distribution (0.05)		Percentile Bootstrap UCL	1.7955929	2.9	0.23	1.9	
		BCA Bootstrap UCL	1.8454288	0.28	1.51	0.85	
Use Adjusted Gamma UCL		95% Chebyshev (Mean, Sd) UCL	2.3631945	0.048	0.24	0.17	
		97.5% Chebyshev (Mean, Sd) UCL	2.7570319	15	0.33	0.018	
		99% Chebyshev (Mean, Sd) UCL	3.5306493	0.41	0.54	0.0083	

Note:

[a] Sample identification (ID), depth, and collection date information for the samples associated with the listed PCB concentrations are presented in Tables 1-3.

TABLE A-2

EXPOSURE POINT CONCENTRATION CALCULATIONS
POLYCHLORINATED BIPHENYLS IN SOIL -- OFF-PARCEL
PROPERTY-SPECIFIC RISK ASSESSMENT
AKRON AIRDOCK
AKRON, OHIO

Raw Statistics		**Normal Distribution Test**		**PCB Concentrations -- Off-Parcel[a]**
Number of Valid Samples	34	Shapiro-Wilk Test Statisitic	0.6658569	0.65
Number of Unique Samples	31	Shapiro-Wilk 5% Critical Value	0.933	0.29
Minimum	0.009	Data not normal at 5% significance level		0.39
Maximum	1.7			0.22
Mean	0.2390382	**95% UCL (Assuming Normal Distribution)**		0.87
Median	0.107	Student's-t UCL	0.336712	0.34
Standard Deviation	0.3365305			0.49
Variance	0.1132528	**Gamma Distribution Test**		0.74
Coefficient of Variation	1.4078523	A-D Test Statistic	0.5946452	0.24
Skewness	2.9152049	A-D 5% Critical Value	0.7866367	0.085
		K-S Test Statistic	0.1208451	0.094
Gamma Statistics		K-S 5% Critical Value	0.1567625	0.059
k hat	0.7721083	Data follow gamma distribution		0.037
k star (bias corrected)	0.7235889	at 5% significance level		0.12
Theta hat	0.3095916			0.087
Theta star	0.3303509	**95% UCLs (Assuming Gamma Distribution)**		0.009
nu hat	52.503364	Approximate Gamma UCL	0.3449406	0.009
nu star	49.204048	Adjusted Gamma UCL	0.3513568	0.022
Approx.Chi Square Value (.05)	34.09761			0.035
Adjusted Level of Significance	0.0422	**Lognormal Distribution Test**		0.028
Adjusted Chi Square Value	33.474942	Shapiro-Wilk Test Statisitic	0.9771133	0.03
		Shapiro-Wilk 5% Critical Value	0.933	0.045
Log-transformed Statistics		Data are lognormal at 5% significance level		0.0158
Minimum of log data	-4.710531			0.064
Maximum of log data	0.5306283	**95% UCLs (Assuming Lognormal Distribution)**		0.25
Mean of log data	-2.203427	95% H-UCL	0.5022807	0.25
Standard Deviation of log data	1.319637	95% Chebyshev (MVUE) UCL	0.5599331	1.7
Variance of log data	1.7414418	97.5% Chebyshev (MVUE) UCL	0.6930937	0.24
		99% Chebyshev (MVUE) UCL	0.9546619	0.282
				0.134
		95% Non-parametric UCLs		0.16
		CLT UCL	0.3339702	0.05
		Adj-CLT UCL (Adjusted for skewness)	0.3648017	0.0475
		Mod-t UCL (Adjusted for skewness)	0.3415211	0.044
		Jackknife UCL	0.336712	
		Standard Bootstrap UCL	0.3324645	
		Bootstrap-t UCL	0.3977799	
RECOMMENDATION		Hall's Bootstrap UCL	0.5425751	
Data follow gamma distribution (0.05)		Percentile Bootstrap UCL	0.3413118	
		BCA Bootstrap UCL	0.3635	
Use Approximate Gamma UCL		95% Chebyshev (Mean, Sd) UCL	0.49061	
		97.5% Chebyshev (Mean, Sd) UCL	0.5994652	
		99% Chebyshev (Mean, Sd) UCL	0.8132904	

Note:

[a] Sample identification (ID), depth, and collection date information for the samples associated with the listed PCB concentrations are presented in Tables 4-6