UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

STATEMENT OF BASIS

FORMER CARBOLINE COMPANY
125 Fairgrounds Road
Xenia, OH 45385
EPA ID No.: OHD030963615

April 2017

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INTRODUCTION

This Statement of Basis for the Former Carboline Company (Carboline) facility in Xenia, Ohio discusses the past remedial actions that have taken place at the facility and explains the remedy proposed by the United States Environmental Protection Agency (EPA) to address residual contamination at the facility. EPA will select the final remedy for the facility only after the public comment period has ended and EPA has carefully reviewed and considered the information submitted by the public.

EPA is issuing this Statement of Basis as part of its public participation responsibilities under the Resource Conservation and Recovery Act (RCRA). The public comment period begins on _____ and ends on _____. This document summarizes information found in greater detail in the Report on Subsurface Investigation dated June 1992; the Preliminary Assessment and Visual Facility Inspection (PA/VSI) Report dated November 1992 completed by PRC Environmental Management (PRC), on behalf of EPA; the Ohio Cessation of Regulated Operations (CRO) Final Inspection Letter dated March 14, 2001; the Facility Inspection Letter Report dated April 2009 written by Hull and Associates, on behalf of Brownfield Restoration Group, LLC; the Final Field Sampling Activity Report for Carboline Company, Xenia, Ohio written by TechLaw, Inc., on behalf of EPA, in November 2011; and other documents in this facility's Administrative Record. EPA and the State of Ohio encourage the public to review these documents in order to gain a more comprehensive understanding of the facility and the corrective actions conducted by past owners Carboline and RPM, Inc. (RPM). Xenia Township Board of Trustees is the current owner of the property.

EPA may modify the proposed remedy or select another remedy based on public comments or new information. Therefore, EPA encourages the public to review and comment on the Statement of Basis. Documents upon which this proposal is based are available for public review at the EPA Region 5 in Chicago, Illinois, and locally at the Xenia Community Library. EPA has provided specific details on these locations and viewing hours at the end of this document. If citizens request a public meeting, EPA will publish a newspaper notice of the meeting prior to the meeting date.

PROPOSED REMEDY

EPA is proposing that the owner should implement the following remedy to address contaminated soils at the Facility:

- Establish institutional controls at the Former Carboline facility to limit current and future

land uses to those consistent with industrial or commercial activities and protect construction workers from exposure to contaminated subsurface soils at two areas of the Facility.

- Provide Financial assurance to ensure remedies are implemented and maintained.

FACILITY BACKGROUND

The Carboline facility is located in the northern portion of the City of Xenia, Greene County, Ohio. The entire Carboline facility comprises approximately 7.5 acres; it is relatively flat in the northeastern portion of the facility and slopes to the south in the southwestern portion of the facility. The facility is bordered on the north by the Greene County fairgrounds and a residential area, on the west by a residential area and Saint Brigid's School (K-8), on the southwest by Shawnee Creek, and on the east by Greene, Inc., a small nonprofit corporation providing vocational and rehabilitation services to the community.

The earliest available land use records for the Carboline facility indicate that a farm implement dealer conducted commercial activities on the facility between 1944 and 1950. In 1953, the Moran Paint Company of Xenia, Ohio (Moran) initiated operations involving manufacturing of paint finishes for the automotive and appliance industries. Carboline purchased the facility in 1963, and continued manufacturing products under the Moran name. A historic facility layout map can be found as Attachment A and a current facility map is Attachment B.

Carboline specialized in manufacturing epoxy coatings. The facility blended various grades of liquid and solid paint materials and solvents to match the specifications of a particular order. The manufacturing process consisted of milling and high speed dispersal of raw materials (i.e., pigments, fillers, solvents, resins, and other additives) into a liquid or paste. Carboline stored approximately 700 different virgin chemicals at the facility for production purposes.

Sun Chemical Company purchased Carboline in 1980, and later sold the Moran product line in 1982 (paint finishes for the automotive and appliance industries). Sun Chemical continued the same manufacturing operations at the facility for the remaining products. In 1986, Sun Chemical sold the assets of the Carboline Division to RPM, who continued manufacturing operations until it closed the facility in December 2000. RPM sold the property to Cherokee BBI, LLC (Cherokee) in July 2001. Mr. Ken Weaver bought the property from Cherokee on December 10, 2006. Xenia Township Board of Trustees, Greene County, OH, 8 Brush Row Rd, Xenia OH 45385, bought the six properties from Ken Weaver on July 28, 2017.

When in active operation, the Carboline facility consisted of four primary buildings: raw materials and product storage warehouse, a three-story manufacturing building, dry pigment warehouses, and an office building. The storage building on the northwestern side of the facility was destroyed by a tornado between 2005 and 2008.

The former tenants are Elsome Trucking and Seek & Destroy Paint Ball (SDPB) (Attachment B, Current Facility Layout). Elsome Trucking was in business from April 2005 through December 2008. Elsome Trucking utilized the front office building and the large parking area to the west of the office. SDPB was in business from June 2006 through October 2009. The paint ball company utilized the former dry pigment warehouse and western half of the facility. Heart of

Ohio All Stars utilized the former dry pigment warehouse. Heart of Ohio All Stars was a competitive cheerleading and dance training service. Heart of Ohio All Stars was in business at the facility from May 2010 through January 2014. Trophy Sports Center (TSC), was in business at the facility from September 2013 to June 2016. TSC customized sports apparel and products for business. TSC utilized the former dry pigment warehouse in the back of the facility for storage.

Hydrogeologic Setting

The soils at the facility consist of a clay rich glacial till that is approximately 20 to 40 feet thick with occasional sand and gravel lenses. The soils have low permeability and may have a seasonally high water table. These glacial outwash deposits are underlain by thin bedded limestones and calcareous shales of the upper Ordovician Richmond group. Precipitation, averaging approximately six inches annually, is the major recharge mechanism for groundwater in the area. People in the Xenia area use groundwater as a primary source for both industrial and municipal water. The City obtains its drinking water from well fields located approximately 1.8 miles northeast of the facility. Surface water at the facility drains to stormwater sewers that empty into Shawnee Creek.

Ecological Setting

The facility is 7.5 acres in size and used for industrial operations since 1944. The facility is relatively flat in the northeastern portion of the facility and slopes to the south in the southwestern portion of the facility. The ground surface, where not covered by roads, concrete pads, or buildings, has been disturbed and is of such poor quality the vegetation growing on-facility consists primarily of invasive and opportunistic herbaceous and wood plants. In general, the limited on-site habitats have been heavily influenced by historical land use. Although there are no permanent aquatic habitats on-site, Shawnee Creek borders the Facility to the southwest.

RCRA Regulatory History

During active manufacturing operations, the facility generated multiple RCRA hazardous waste streams, including waste paint thinners, waste paint materials, and dust from miscellaneous sources. At the peak of production, Carboline was generating approximately 180 tons of waste paint thinner and 95 tons of other waste paint materials per year.

In July 1981, Carboline submitted a Notification of Regulated Waste Activity form and Part A permit application indicating its status as a RCRA treatment, storage, or disposal facility (TSDF) to the EPA. RCRA hazardous waste codes ("codes") Carboline identified on the application included D001, D005, D007, D008, F003, F005, K078, K079, K081, K082, U002, U013, U031, U069, U088, U102, U112, U124, U125, U140, U154, U159, U160, U161, U169, U220, U238, and U239. According to the application, these wastes were occasionally stored at the Hazardous Waste Storage Area and in the D-Waste Storage Tank for longer than 90 days. On March 31, 1982, EPA sent a letter to the facility requesting that it prepare and submit a full RCRA Part B permit application. In late 1982, Carboline representatives notified EPA that Carboline removed hazardous wastes previously stored at the Hazardous Waste Storage Area, and that Carboline closed the unit in accordance with RCRA requirements. Carboline also stated that it removed all

accumulated waste paint from the facility and requested that its Part A permit application be withdrawn. On April 1, 1985, the Ohio EPA (OEPA) granted Carboline a change in its RCRA status from a TSDF to a hazardous waste large quantity generator, allowing for only less-than-90-day waste accumulation. Accordingly, EPA rescinded its request for submittal of the Carboline Part B permit application.

Interim Measures

Remediation work was performed in the past at six solid waste management units (SWMUs) and three areas of concern (AOCs) at the site:

SWMU 1: Baghouse
SWMU 2: Hazardous Waste Storage Area
SWMU 3: D-Waste Storage Tank
SWMU 4: F-Waste Storage Tank
SWMU 5: Kettle Cleaning Area
SWMU 6: Back Pad
AOC 1: Solvent Blending Tank Area
AOC 2: National Pollutant Discharge Elimination System (NPDES) Outfall
AOC 3: Burn Pit Area

Before the former owner of the Carboline facility, RPM Inc., ceased operation at the facility in December 2000, it conducted area-specific closure, corrective action, and inspection efforts in several locations. OEPA issued a Final Inspection Letter on March 14, 2001, that indicated that "all contaminated equipment, structures, and soil were properly disposed of or decontaminated" during the final closure period and that "hazardous wastes [generated during closure activities] were handled in accordance with all applicable [RCRA] requirements." The OEPA inspection did not identify any further violations of Ohio Cessation of Regulated Operations (CRO) laws.

INVESTIGATION RESULTS

Carboline and subsequent owners investigated and mitigated any risks posed by SWMUs 1, 3, 4, 5, 6 and AOC 1 and 2, and two other areas (two stormwater discharge outfalls and AOC 3). The EPA reviewed the facility files and determined that based upon sampling data collected at the facility surface water and groundwater were not a concern. Pursuant to EPA review, SWMU 2, a Hazardous Waste Storage Area, and AOC 3, a Burn Pit Area, were identified as areas of concern.

SWMU 2, Hazardous Waste Storage Area: According to available documentation, all hazardous wastes stored at SWMU 2 (150 feet by 175 feet) were removed in late 1982, and Carboline decommissioned and closed the unit in accordance with RCRA regulations. Hazardous waste that was stored included waste paint thinners/codes F001, F003, and F005; waste paint materials/codes F003, F005, D001, D005, D007, and D008; miscellaneous dust/chromium/code D007; and lead/code D008. Carboline secured a professional engineer who certified this closure and OEPA approved the closure in 1984.

OEPA issued a Final Inspection Letter on March 14, 2001, that indicated that "all contaminated equipment, structures, and soil were properly disposed of or decontaminated" during the final

closure period at SWMU 2, and that "hazardous wastes [generated during closure activities] were handled in accordance with all applicable [RCRA] requirements." The OEPA inspection did not identify any further violations of Ohio CRO laws. A subsequent inspection conducted by Hull and Associates in early 2009 at the facility's request found no stained soil, distressed vegetation, or other contamination indicators for the former storage area at SWMU2.

EPA soil sampling conducted in April 2011, at SWMU 2, did not find concentrations of contaminates of concern above EPA's RSL for industrial soils (Attachment C). One surface soil sample, CC-S2-SS-02, showed antimony at 58 milligrams per kilogram (mg/kg), which is above the EPA RSL for residential soils of 31 milligrams per kilogram, but below the RSL for industrial soils of 410 micrograms per kilogram. The area of SWMU-2 is well vegetated, which limits direct contact.

SWMU 3, D-Waste Storage Tank: RCRA D coded wastes, or D-wastes, are wastes that exhibit the characteristics of ignitability, corrosivity, reactivity, or toxicity. According to available documentation, Carboline emptied the tank associated with SWMU 3 and drummed and shipped the residuals to Envirosafe in Oregon, Ohio for disposal (Carboline Company Final Cessation of Regulated Operations Inspection, OEPA March 2001). Carboline then cut the tank into pieces, and shipped the scrap metal to Xenia Iron and Metal on April 29, 1993. Carboline contracted with IT Corporation to formally "clean close" the tank and surrounding area pursuant to the requirements of RCRA. Carboline submitted appropriate final closure documentation on removal of regulated substances and equipment from SWMU 3 to OEPA in November 2000. A Final Inspection Letter issued by OEPA on March 14, 2001, indicates that "all contaminated equipment, structures, and soil were properly disposed of or decontaminated" during the final closure period at SWMU 3, and that "hazardous wastes [generated during closure activities] were handled in accordance with all applicable [RCRA] requirements." The OEPA inspection did not identify any violations of Ohio CRO laws and no soil staining that "would warrant further investigation". A Hull and Associates subsequent inspection conducted in early 2009 found no stained soil, distressed vegetation, or other contamination indicators at the former SWMU 3 tank location. TechLaw in April 2011 collected surface soil and subsurface soil samples in SWMU 3 area; the contractor did not report any contaminants of concern above residential or industrial soil RSLs.

AOC 3, Burn Pit Area: In 1997, Carboline discovered a former burn pit on site during installation of new sewer lines. OHM Remediation Corporation (OHM) performed an environmental site investigation of the area in May 1997. OHM detected lead and polychlorinated biphenyls (PCBs) in soil samples at concentrations that exceeded OEPA Voluntary Action Program (VAP) cleanup standards. Carboline conducted four rounds of excavation to remove impacted soil and ash between May 15 and November 13, 1997. Carboline properly disposed of all excavated materials off site. OHM conducted confirmation soil sampling which showed that residual PCB of 2.6 parts per million (ppm) and lead concentrations were below detection limits and applicable OEPA VAP cleanup standards. The OEPA VAP industrial cleanup standard for PCBs is 18 ppm. Carboline backfilled and re-graded the area. EPA's industrial soil cleanup standard for PCB is up to 25 ppm without a barrier. The chemical highlighted in Table 1 indicates that the samples results were above the EPA Regional Screening Level.

After an initial review of the facility records, EPA conducted further sampling to investigate the areas of SWMUs 2 and 3, and AOC 3 (the Burn Pit Area) through its contractor, TechLaw, Inc. Specific details of this investigation are contained in the discussions below. EPA contractor TechLaw collected 18 soil samples at the former Carboline facility on April 26 and 27, 2011 (Attachment C). TechLaw collected samples to evaluate if releases to environmental media occurred as a result of historical operations at the Carboline facility, and whether contaminants of concern were present at concentrations which exceed applicable EPA Regional Screening Levels (RSLs), including both residential and industrial standards. In SWMU 2, the metal antimony was detected above the EPA RSL for residential use. In AOC 3, PCBs were detected above the EPA RSL for residential use. EPA contractor Booz Allen Hamilton re-sampled four locations in AOC 3 for dioxin and furans, where results from the 2011 sampling found PCB concentrations above the EPA RSL for PCBs. Dioxin and Furans were not detected above the EPA RSL. See Table 1, Soil Analytical Results, below for the results of TechLaw's and Booz Allen Hamilton's analysis.

Table 1: Regional Screening Levels Summary of Soil Sample Results

Location	Chemical or Metal	Sample Result	Residential Standard	Industrial Standard	Basis of Standard
SWMU 2	Antimony	58 mg/kg	31 mg/kg	410 mg/kg	EPA Regional Screening Level
AOC 3	PCB 1254	0.00463 mg/kg	0.001 mg/kg	Up to 25 ppm without a barrier	40 CFR§761.61(a)(4)(i)(A) and (B)
				For a routine worker, the limit is 18 mg/kg (Table II). For a construction worker it is 42 mg/kg (Table III).	15 OAC rule 3745-300-08(C)(3)
AOC 3	PCB 1260	0.00077 mg/kg	0.001 mg/kg	up to 25 ppm without a barrier	40 CFR§761.61(a)(4)(i)(A) and (B)
				For a routine worker, the limit is 18 mg/kg (Table II). For a construction worker it is 42 mg/kg (Table III).	15 OAC rule 3745-300-08(C)(3)
AOC 3	Dioxin/Furans	39.5ng/kg	50 ppt-TEQ	Under a future industrial land use only condition, the current EPA risk protective screening level is 640 ppt-TEQ which applies to an on-site worker.	EPA Regional Screening Level
AOC 3	Dibenz(a,h) Anthracene	302 ug/kg	0.015 mg/kg	0.210 mg/kg	EPA Regional Screening Level

mg/kg = milligram per kilogram

ppm = parts per million
µg/kg = micrograms per kilogram
ng/kg = nanogram per kilogram
TEQ = Toxic Equivalent
ppt = parts per trillion

SUMMARY OF FACILITY RISKS

EPA allows owners or operators of facilities regulated under RCRA to perform site-specific risk assessments to evaluate any human health risks posed by residual site contaminants, and to provide a basis for management of any risks found. The risk assessment will express the risk resulting from cancer-causing compounds as a probability; for example, a risk quantified as one in one million is a risk level at which one additional person in one million would develop cancer due to exposure to the compound. Risk assessments express non-cancer causing risks as a hazard quotient or hazard index, with the sum of the hazard quotients representing the total hazard.

Alternatively, owners or operators who detect concentrations of site contaminants can compare the concentrations to risk-based standards for soil, groundwater, surface water, and sediment under specific land use scenarios. Residential and industrial land uses are the two scenarios EPA most commonly considers for human health risk assessment purposes. Under the industrial land use scenario, EPA expects workers to be routinely exposed to contaminated media within a commercial area or industrial facility. EPA estimated levels of risk include the possibility of heavy equipment usage and traffic, and resultant dust generation and surface disturbance in the vicinity of contaminated soil. However, EPA generally limits industrial risks to adult receptors and considers a limited (albeit lengthy) exposure duration (i.e., exposures over a typical 40-hour work week and over the limited years associated with an individual's average lifetime work span). For residential land use scenarios, EPA expects residents to be more frequently and repeatedly exposed to contaminated media. Residential exposures consider potential impacts to both adults and children in daily contact with the contaminants over a lifetime. Residential scenarios commonly result in the highest levels of potential exposure and, accordingly, the most stringent cleanup criteria.

HUMAN HEALTH RISKS – SOIL – GROUNDWATER- SEDIMENTS - SURFACE WATER

EPA used risk based standards for the industrial scenario to support decision-making at the former Carboline facility. The current and anticipated future use of the facility is industrial. EPA summarized the risks associated with the former Carboline facility below by location.

SWMU 1 (Baghouse): The PA/VSI report recommended no further action for this area, and EPA's investigation and review of facility documentation did not identify any risks in SWMU 1. The current property occupants do not use this area.

SWMU 2 (Hazardous Waste Storage Area): The PA/VSI Report indicated that Carboline did not conduct a site-specific soil investigation. A Final Inspection Letter issued by OEPA on March 14, 2001, indicates that "all contaminated equipment, structures, and soil were properly disposed of or decontaminated" during the final closure period at SWMU 2, and that "hazardous wastes [generated during closure activities] were handled in accordance with all applicable [RCRA]

requirements." The inspection further identified no violations of Ohio CRO laws. In order to confirm the conditions at SWMU 2, in April 2011, EPA contractor TechLaw collected surface soil and subsurface soil from the SWMU 2 area. The area was observed to be well vegetated. These samples contained several analytes with concentrations above the laboratory reporting limits, with one metal and one SVOC detected above residential soil RSLs in two surface soil samples. Specifically, in surface soil sample CC-S2-SS-02, the result of 58 mg/kg antimony exceeded the residential soil RSL of 31 mg/kg. The industrial screening level for antimony is 410 mg/kg and was not exceeded in any soil sample. In surface soil sample CC-S2-SS-01, 87.6 ug/kg benzo(a)pyrene exceeded the residential soil RSL of 15 ug/kg. The industrial screening levels for benzo(a)pyrene is 2,100 ug/kg and was not exceeded in any soil sample. EPA's investigation and review of facility documentation identified residual risks applicable to residential uses in SWMU 2.

SWMU 3 (D-Waste Storage Tank): In April 2011, EPA contractor TechLaw collected surface soil and subsurface soil samples in SWMU 3. The area was observed to be well vegetated. These samples contained several analytes above the laboratory reporting limits, but no analytes were reported above residential or industrial soil RSLs. EPA's investigation and review of facility documentation did not identify any risks in SWMU 3.

SWMU 4 (F-Waste Storage Tank): The PA/VSI report recommended no further action for this area, and EPA's investigation and review of facility documentation did not identify any risks in SWMU 4.

SWMU 5 (Kettle Cleaning Area): The PA/VSI report recommended no further action for this area, and EPA's investigation and review of facility documentation did not identify any risks in SWMU 5.

SWMU 6 (Back Pad): Given satisfactory inspection results and Carboline's contention that Carboline never used the Back Pad for hazardous waste storage, EPA determined that no further RCRA action is necessary for this SWMU. EPA's investigation and review of facility documentation did not identify any risks in SWMU 6.

AOC 1 (Solvent Blending Tank Area): The only significant release of hazardous constituents from this AOC took place as a result of the March 1992 spill of MEK. The OEPA investigation conducted as part of the spill cleanup effort confirmed that there were no exceedances of OEPA VAP standards for the three VOCs detected in surface soil. Furthermore, Carboline did not detect VOCs in a groundwater sample collected in the vicinity of the spill. The investigation also determined that significant impacts to soil at depth (i.e., below 2.5 feet below ground surface) were unlikely. EPA's investigation and review of facility documentation did not identify any risks in AOC 1.

AOC 2 (NPDES Outfall): OEPA inspection results show that no spills were ever conveyed to Shawnee Creek through the NPDES Outfall. EPA's investigation and review of facility documentation did not identify any risks in AOC 2.

Underground Storage Tanks: Based on the lack of evidence suggesting previous releases from these tanks, and based on the fact that the tanks were removed prior to RCRA regulation, EPA determined that no further action was necessary.

Building No. 6: OEPA did not require further action in this area. EPA's investigation and review of facility documentation did not identify any risks in Building No. 6.

AOC 3 (Burn Pit Area): Confirmation soil sampling by Carboline conducted after excavation of contaminated soil and ash indicated concentrations below the OEPA VAP cleanup standards for soil. In April 2011, EPA's contractor TechLaw sampled surface and subsurface soils in the burn area. TechLaw collected four surface soil samples at 0-1 foot depth and two subsurface soil samples at two to three feet depth which had concentrations of PCBs above EPA's RSL for industrial soil of 0.7 ppm, but less than the 40 CFR§ 761.61(a)(4)(i)(A)(B) standard of up to 25 ppm, without a barrier. EPA found one surface soil and one subsurface soil sample to have Dibenz(a,h)anthracene above the RSL for industrial soil. The human health risk associated with an industrial worker for Dibenz(a,h)anthracene was calculated by using the maximum concentration of 0.3 mg/kg. Dibenz(a,h)anthracene has an excess cancer risks of 1.4^{-06} and does not have a hazard quotient number. EPA calculated the excess cancer risk from sample data with a result of 8.6^{-06} and a hazard quotient of 0.42. The cumulative excess cancer risk is below 1^{-05}, so therefore the risk due to exposure from residual contamination is acceptable if this area continues to remain in a commercial industrial land use.

On September 14, 2013, EPA's contractor Booze Allen Hamilton re-sampled four locations in AOC 3, the Burn Pit Area, for dioxin and furans. When PCBs burn, dioxins and furans can be produced during combustion. Four surface samples collected at 0-1 foot depth and two subsurface soils collected at two to three feet depth in the burn area showed concentrations of PCB's were above residential and industrial EPA's RSL for soils (See Attachment D).

EPA conducts risk assessment based on the future use, which in this case was assumed exposure to industrial workers at a frequency of 250 days for 25 years. EPA chose the maximum concentration it observed in surface soil and subsurface soil for each COC as the exposure point concentration for the facility so as to compensate for the uncertainty due to the number of sampling locations (four surface and two subsurface samples in AOC 3). Dioxin/furan data are analyzed and reported as a mixture of 17 toxic congeners. EPA does not have a numerical toxicity factor for each congener. Instead, the Agency uses a system in which each congener is assigned a "Toxic Equivalence Factor" (TEF) for comparison to the most toxic congener, which is 2,3,7,8-tetrachlorodibenzo–para–dioxin (2378-TCDD). 2378-TCDD has been assigned a TEF of 1.0 and the other congeners have been assigned TEF values ranging from 0.0003 up to 1.0. The mixture of congeners in a soil/waste sample is assigned a Toxic Equivalent (TEQ) Concentration by multiplying the reported concentration of each congener by its TEF value and summing up the results. The resulting TEQ concentrations were compared to EPA's risk screening concentration for soil under specific scenarios, for example, the residential land use and industrial land use scenarios.

The data was compared to the risk protective EPA soil screening level of 50 part per trillion (ppt) TEQ based on residential land use. The 50 ppt-TEQ level is considered protective for a child who could potentially be exposed to contaminated soil on a daily basis (i.e., 350 days/year) with

no consideration for reduced frequency due to local climate conditions. Under a future industrial land use only condition, the current EPA risk protective screening level is 640 ppt-TEQ and applies to an on-site worker. The surface and subsurface soil samples analyzed for dioxin/furan were not above the TEQs for residential land use and industrial land use scenarios.

ECOLOGICAL RISK

EPA used the soil sampling results for the facility and the ecological screening levels to determine the potential for adverse ecological risks at the facility. To do this, EPA compared the maximum level detected for each contaminant of potential ecological concern (COPEC) to the screening levels for contaminants in particular substances (soil, sediment, water) that are known to cause harmful effects in plants or animals. By comparing known, maximum concentrations of contaminants at a site to screening levels, the possibility of ecological risk can be estimated through a hazard quotient (HQ). If the numerical comparison results in a HQ that is greater than one (1.0), the potential for ecological risk by that COPEC is present and further study is needed to clarify that risk. The benchmark values are significantly conservative so that chemicals detected at concentrations below the benchmarks are not expected to exhibit significant ecological effects, even if fully bioavailable.

Table 2 includes the calculations of HQs. Those COPECs and HQs that are highlighted indicate HQs above 1.0. The areas found to have HQs higher than 1.0 are discussed in the "Risk Characterization" section below.

Table 2: Ecological Hazard Quotient Summary of Soil Sample Results

Area Name	Contaminant of Concern (OPEC)	Highest Level detected	Ecological Screening Level	Basis of Standard	Hazard Quotient
SWMU-2	Antimony	58 mg/kg	78 mg/kg soil invertebrates 10 mg/kg herbivores 0.27 mg.kg insectivore 4.9 mg/kg carnivore	Eco-SSLs	0.74 5.8 214.81 11.84
AOC 3	PCB 1254	4.63 ug/kg	0.332 ug/kg	R5 ESLs	13.95
AOC 3	PCB 1260	0.77 ug/kg	0.332 ug/kg	R5 ESLs	2.32
AOC 3	Dibenz(a,h) anthracene	302 ug/kg	18,400 ug/kg	R5 ESLs	0.016

mg/kg = milligram per kilogram
µg/kg = micrograms per kilogram
Eco-SSLs = Ecological-Site Screening Levels
R5 ESLs = Region 5 Ecological Screening Levels

Exposure Pathways and Potential Receptors

Soil

Based on the information provided, the facility appears to provide only low quality terrestrial (land) habitat that may be utilized by common urban/suburban wildlife (e.g., sparrows, robins, blue jays, field mice or voles, etc.). The primary potential receptors of organic contaminants in soil would be worm-eaters such as robins or raccoons. The exposure pathway includes ingestion of bioaccumulated substances in earthworms and incidental ingestion of soil. Insectivores (an air-breathing invertebrate animal arthropod with a body that has well-defined segments, including a head, thorax, abdomen, two antennae, three pairs of legs, and usually two sets of wings) could be exposed by eating the earthworms is another pathway for exposure to soil bioaccumulative contaminants. The facility is located by Shawnee Creek, so soil erosion could result in transport of particle-bound contaminants to the creek ecosystem.

Sediment

The use of the adjacent Shawnee creek by wildlife is possible. The primary receptors of creek sediment contaminants would be benthic invertebrates and rooted aquatic plants. Fish (if present) could be exposed through eating benthic invertebrates, consumption of plants, and ingestion of sediments. Terrestrial organisms (e.g., raccoons, herons, kingfishers) could be exposed to bioaccumulative contaminants through consumption of fish or larger benthic invertebrates; and insect-eating animals such as swallows and bats might be exposed through preying on emergent aquatic insects (i.e., insects that have aquatic stages in their life-cycles).

Surface Water

The primary pathways are direct exposure and bioaccumulation. Terrestrial receptors could be exposed directly through drinking, and indirectly through consumption of aquatic organisms. Historical spills into Shawnee Creek would have had minimal impact to the surface water due to the type of contaminates released (e.g., volatile compounds such as solvents), which would have volatized or photo decomposed soon after the spill.

Groundwater

Groundwater contaminants can become potential ecological concerns when they discharge to surface waters, the Shawnee Creek in this case. Groundwater samples at the facility, however, did not show any contaminants above the EPA's maximum contaminant levels.

Threatened and Endangered Species

A Section 7 review of the listed Threatened and Endangered (T&E) species in Greene County did list four endangered species and one candidate species. Three of the endangered species are mussels. Given the close proximity of Shawnee Creek to the facility, EPA contacted the United States Fish and Wildlife Service (U.S. FWS) and the Ohio Department of Natural Resources (ODNR) directly to obtain input on the potential presence of these species within site influences.

The U.S. FWS determined that the following endangered species and/or habitat were within two miles of the facility: Indiana bat (Myotis sodalist), rayed bean (Villosa fabalis), snuffbox ((Epioblasma triquetra), and Clubshell (Pleurobeme clava) mussels. The U.S. FWS determined that the following federal candidate species, the eastern massasauga (Sistrurus catenatus), a small rattlesnake, was in the range of the facility. The ODNR determined the Arnoglossum plantagineum-Fen Indian-plantain and Zigadenus elegans-White Wand-lily are the only rare species within one mile of the facility, and neither were found in Shawnee Creek.

Risk Characterization

As presented in Table 2 above, antimony and PCBs were the only constituents found to exceed their respective ecological soil screening levels. Antimony screening levels were exceeded in one area in SWMU 2, and the exceedance appears to present potential adverse risks to four ecological receptors. However, antimony was only detected in one surface soil sample on-site. Furthermore, in view of the limited size of the impacted area of concern (approximately 10 feet by 10 feet), EPA has determined that the potential risk is low. EPA also found that PCBs were detected in soil samples in the Burn Pit area. Likewise, EPA has determined that the potential risk is low due to the limited size of the impacted area of concern (approximately 100 feet by 100 feet).

SCOPE OF CORRECTIVE ACTION

EPA's short-term goals for this site are:

- All current human exposures to contamination at or from the Facility must be under control. That is, significant or unacceptable exposures do not exist for all media known or reasonably suspected to be contaminated with hazardous wastes or hazardous constituents above risk-based levels, for which there are complete pathways between contamination and human receptors.
- Migration of contaminated groundwater at or from the Facility must be stabilized. That is, the migration of all groundwater known or reasonably suspected to be contaminated with hazardous wastes or hazardous constituents above acceptable levels is stabilized to remain within any existing areas of contamination as defined by monitoring locations designated at the time of the demonstration. In addition, any discharge of groundwater to surface water is either insignificant or currently acceptable according to an appropriate interim assessment.

EPA's short-term goals have already been achieved. August 11, 2009, EPA determined that both RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA725) Current Human Exposures Under Control and RCRIS code (CA750) Migration of Contaminated Groundwater Under Control had been achieved.

EPA's long-term goals for the remedy being proposed are:

- Protecting human health and the environment and
- establishing and maintaining Institutional Controls

As a result of past cleanup actions described above, and the determination that the most likely future use scenario for the facility is industrial, EPA believes that no additional remediation is required at the former Carboline facility. Based on the remaining risks identified above, EPA determined that appropriate corrective action objectives for the former Carboline facility include maintaining industrial and/or commercial land uses across portions of the facility previously occupied by SWMU 2 and AOC 3, and preventing contact with and/or exposure to any residual contamination that may be present in subsurface soil in these locations above unrestricted, residential risk-based concentrations.

EPA's proposed remedy for the Carboline facility is establishing and maintaining institutional controls for the areas formerly occupied by SWMU 2 and AOC 3. For these portions of the property, the owner of the facility will design and implement institutional controls to: (1) ensure that the land use will remain industrial or commercial; (2) ensure that current and future owners or operators will not change the land use to residential unless they conduct further investigation and conduct any necessary cleanup actions; (3) prevent unauthorized excavation or disturbance of potentially impacted subsurface soil, and maintain a vegetative cover; and (4) ensure that access to the facility is restricted by maintaining the existing fence. EPA anticipates that the current owner will prepare a Declaration of Covenant and Restriction for these locations, and that the owner will record the deed in the Greene County Recorder's Office in Xenia, Ohio. EPA has determined that the remaining portions of the Carboline facility do not require land use controls because there was no release of hazardous constituents or because Carboline has already satisfactorily cleaned up the soils and EPA does not require additional corrective action in those areas. Similarly, EPA has not identified any contamination in groundwater, or surface water at the Carboline facility; therefore, EPA does not require corrective actions for these media.

SUMMARY OF ALTERNATIVES

EPA has not identified any reasonable alternatives to the proposed remedy due to the limited nature of any residual environmental contamination at the Carboline facility and the progress that Carboline and RPM has already made toward environmental cleanup.

No Further Action

The "No Action" alternative is not a reasonable option because it would fail to meet the corrective action objectives EPA identified above in the event that any residual contamination above unrestricted residential use levels remains in soil at this facility.

Proposed Remedy:

- Establish institutional controls at the former Carboline facility to limit current and future land uses to those consistent with industrial or commercial activities and protect construction workers from exposure to contaminated subsurface soils at two areas of the Facility.
- Financial assurance to ensure remedies can be implemented and maintained.

EVALUATION OF THE PROPOSED REMEDY (WITH NO ALTERNATIVES)

EPA has expectations for remediation against which corrective measures being considered are evaluated against prior to final remedy selection. As outlined below, the EPA proposed remedy for the Carboline facility adequately addresses these criteria.

1. Protect human health and the environment:

Carboline removed contaminated equipment, structures, soils and wastes from the facility during prior closure and corrective action activities (see above). Based on all available information, EPA determined that any residual soil contamination will not pose any unacceptable risk to human health and the environment if the land use remains industrial in the areas formerly occupied by SWMU 2 and AOC 3.

2. Achieve media cleanup objectives:

Investigations, monitoring and corrective actions taken by former owners of the facility resulted in OEPA's approval of closure of most of the facility's SWMUs and AOCs. EPA's sampling of on-site soils demonstrated that the contaminants found remaining at the facility were below the industrial RSLs, so media cleanup objectives have been met. EPA determined that no significant unevaluated areas of contamination remain at the Carboline facility. Therefore, implementation of EPA's proposed institutional controls is an appropriate approach for preventing unacceptable exposure to potential residual contaminant concentrations in subsurface soil at SWMU 2 and AOC 3. The proposed institutional controls will assure that these areas of the facility stay in industrial/commercial land usage only, and not for residential use.

3. Control the source of the release to prevent further releases at levels that may pose a threat to human health or the environment:

Carboline removed the most highly contaminated equipment, structures, and soils from the Carboline facility during historic RCRA closure and cleanup activities. Groundwater was sampled at AOC 1 and was found to contain no detectable VOCs. Based on the absence of groundwater contamination above media cleanup objectives, EPA does not consider any residual contamination in soil at the Carboline facility to be an ongoing source of groundwater impacts. The proposed institutional controls are adequate to control future releases and exposures at SWMU 2 and AOC 3 by assuring that the areas are vegetated, maintained, and restricted from residential use.

4. Compliance with Standards for Management of Wastes:

This criterion assesses how owners or operators will ensure that they utilize proper protective waste management techniques during required future corrective actions. Carboline has previously removed contaminated equipment, structures, and soils from the facility; EPA does not expect any additional waste generation due to future corrective action.

5. Long-Term Reliability and Effectiveness:

This evaluation criterion addresses the results of a remedial alternative in terms of the risks remaining to human health and the environment at the facility after the owner or operator meets remediation goals. EPA has concluded that the residual contamination in the soil at the facility is below OEP VAP residential standards, except for two areas, SWMU 2 and the Burn Pit Area. In these two areas, specifically, the owner must properly institute and maintain the proposed institutional controls to reliably and effectively prevent current or future owners or operators from converting those areas to residential land use and to prevent unauthorized disturbance of subsurface soil at SWMUs 2 and the Burn Pit Area. Maintain a vegetative cover at SWMUs 2 and the Burn Pit Area and existing fence and gates to limit access to the site. Implementation and maintenance of the institutional controls proposed for the facility will effectively control risks at the Former Carboline facility in the future. The requirement of financial assurance will insure that the controls remain in place.

6. Reduction of Mobility, Toxicity, or Volume of Wastes or Contaminants:

This evaluation criterion assesses the level to which the remedial alternative reduces the potential toxicity, mobility, or volume of wastes or contaminants. Carboline has already implemented corrective measures that have greatly reduced the toxicity and volume of wastes and contaminated media at the facility. Implementation and maintenance of the institutional controls proposed for the facility will assure reduction/control of the mobility and toxicity of the waste/contaminants at the facility.

7. Short-Term Effectiveness:

This criterion addresses the remedial alternative's effect on human health and the environment during the construction and implementation phase of the remedial action. The proposed remedy is consistent with current facility conditions and use. Implementation and maintenance of the institutional controls proposed for the facility will assure that these conditions consistent with industrial/commercial use are maintained. Based on the current facility usage and the administrative nature of the proposed remedy, EPA has not identified any short-term effectiveness concerns.

8. Implementability:

The proposed institutional controls to address potential risks associated with subsurface soil involve no further construction and incorporate common deed restrictions and covenants. The work required to implement the proposed remedy is primarily administrative and should not be difficult to implement.

9. Cost:

The proposed remedy is expected to incur only those administrative costs associated with preparation and filing of the deed restriction. Other costs will be associated with maintance of the fence and cover at SWMU 2 and AOC 3, the Burn Pit Area. These costs are on the lower end of those typical for corrective action at RCRA sites.

PUBLIC PARTICIPATION

EPA solicits input from the community on the proposed remedy. If requested, EPA will hold a public meeting in Xenia, Ohio, to present this Statement of Basis, answer questions, accept both oral and additional written comments, and discuss any additional corrective actions the public proposes. The public comment period is 30 days.

The Administrative Record for this Statement of Basis is available at:

U.S. Environmental Protection Agency, Region 5
Land and Chemical Division Records Center
77 West Jackson Boulevard, 7th Floor
Chicago, Illinois 60604
(312) 353-5821
Hours: Mon-Fri, 8:00 am to 4:00 pm

Xenia Community Library
76 East Market Street
Xenia, Ohio 45385
(937) 352-4000
Hours: Daily, but variable; refer to www.greenelibrary.info/Branches/Xenia-Community-Library.html for specific details.

After considering any comments received, EPA will summarize the comments and provide its responses to the comments, and formalize the selected remedy in a Final Decision and Response to Comments document. This document will be incorporated into the Administrative Record. To send written comments or obtain further information, contact:

John Nordine
U.S. Environmental Protection Agency
77 West Jackson Boulevard, LU-16J
Chicago, Illinois 60604
(312) 353-1243 or nordine.john@epa.gov

Administrative Record

Reference #	Document Date	Title	Author
1	August 15, 1980	Waste Report	Ardell E. Pitt
2	November 11, 1980	Letter From Carboline to EPA Region 5	W. J. Stewart, Carboline Co.
3	March, 30 1982	RE: Interim Status Acknowledgment	Karl Klepitsch Jr., EPA
4	August 26, 1982	Letter From Carboline to EPA Region 5	William J. Stewart Carboline Co.
5	December 17, 1982	Letter From Carboline to EPA Region 5	Thomas Carlisle, Carboline Co.
6	September 28, 1984	RE: Withdrawal of RCRA Part A Permit Application, Rescission of Part B Call-In	Karl Klepitsch, Jr. Carboline Co.
7	April 1, 1985	Letter From OEPA to Carboline	Thomas Crepeau, OEPA
8	June 22, 1992	Report on Subsurface Investigation of Carboline	Browser-Morner
9	November 6, 1992	Preliminary Assessment / Visual Site Inspection Final Report	PRC Environmental Management, Inc.
10	November 2, 1994	RE: Visual Site Inspection – Carboline Company	Carboline Company
11	March 14, 2001	Carboline Company Final Cessation of Regulated Operations Inspection	Cathy Altman OEPA
12	April 30, 2003	ASTM Transaction Screen Report	Brownfield Restoration Group, LLC
13	June 27, 2007	Letter from Carboline to EPA Region 5 Regarding "Your June 6, 2007 Letter to Carboline Co."	Ken Weaver, Owner
14	April 27, 2009	RE: RCRA 2020 Corrective Action Universe at RPM – Carboline Facility	Hull & Associates, Inc.
15	May 14, 2009	Booz Allen Teleconference With EPA Region 5	John Nordine, EPA
16	May 15, 2009	RE: RCRA Closure at RPM-Carboline Facility	Cherokee BGI, LLC

Reference #	Document Date	Title	Author
17	June 11, 2009	Phone Log of Conversation with Cathy Altman of OEPA	Christopher Rees, Booze Allen Hamilton
18	June 11, 2009	RCRA Info Facility Information for Carboline Co.	EPA RCRA Info Database
19	August 11, 2009	Environmental Indicator Current Human Health Under Control CA725, Migration of Contaminated Groundwater Under Control CA750	John Nordine, EPA
20	November 3, 2011	Final Field Sampling Activity Report for Carboline Company, Xenia, Ohio	Tech Law, Inc.
21	December 5, 2012	US FWS Review Letter to USEPA	Mary Knapp, US FWS
22	December 7, 2012	ODNR Wildlife Review Letter to USEPA	Greg Schneider, ODNR
23	September 12, 2013	Sampling Trip Report for Soil Sampling at Carboline Company, Xenia, Ohio	Booze Allen Hamilton
24	February 25, 2014	Carboline Site – Report on Dioxin/Furan congener analysis	Mario Mangino, EPA

ATTACHMENTS

Attachment A: Facility Layout

Attachment B: Current Facility Layout

Attachment C: Sample Location Map 1

Attachment D: Sample Location Map 2

Attachment A Historic Site Layout

LEGEND

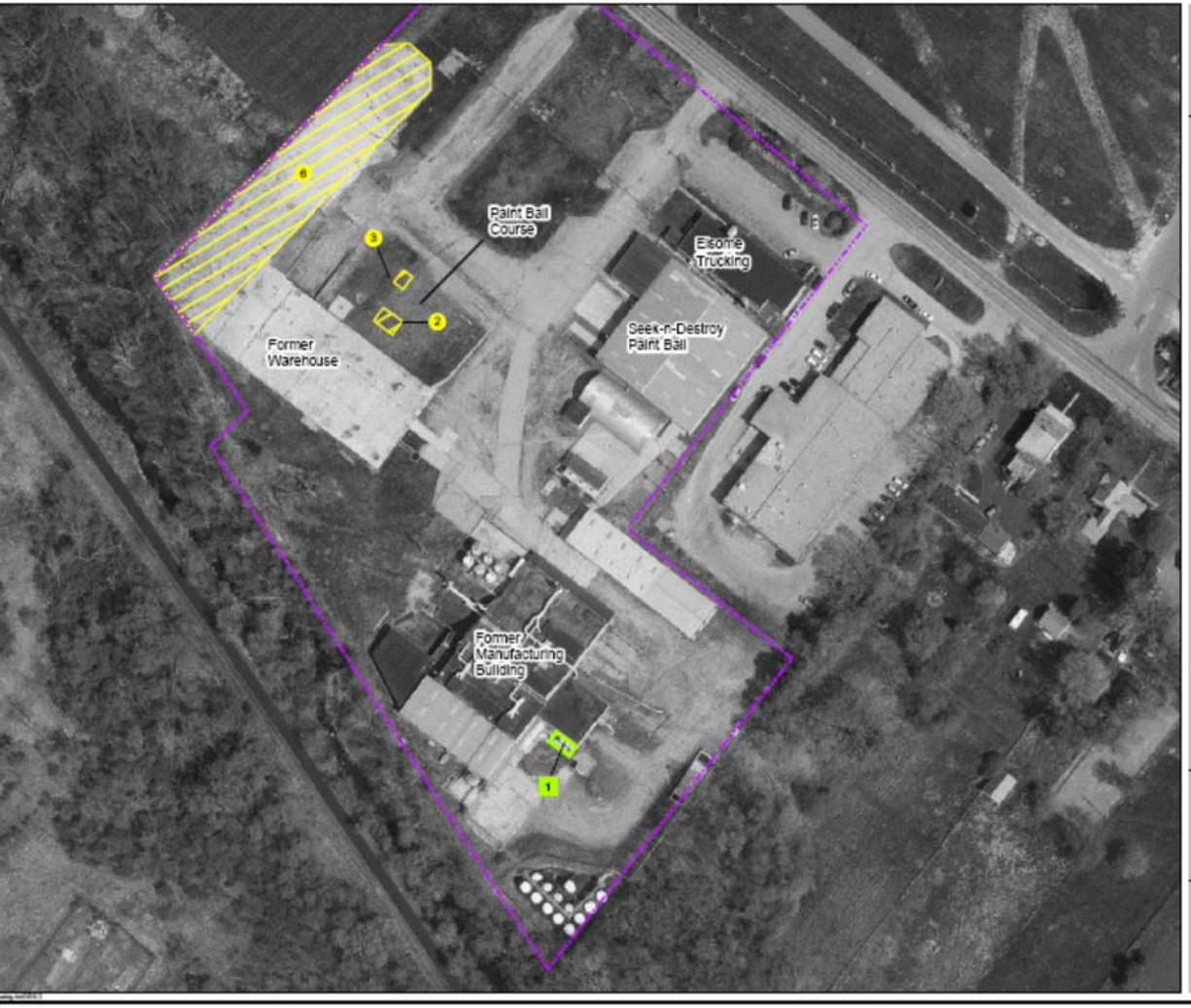
- SWMUs
- AOCs
- Production Well
- Fence
- Outfall
- Railroad

SWMU 1: Baghouse
SWMU 2: Hazardous Waste Storage Area
SWMU 3: D-Waste Storage Tank
SWMU 4: F-Waste Storage Tank
SWMU 5: Kettle Cleaning Area
SWMU 6: Back Pad

AOC 1: Solvent Blending Tank Area
AOC 2: National Pollutant Discharge Elimination System (NPDES) Outfall

AOC 3: Burn Pit

Source: Modified from Carboline Compaany 1992



Hull & Associates, Inc.

Solid Waste Management Units (SWMUs)
SWMU-2 Hazardous Waste Storage Area
SWMU-3 D-Waste Storage Tank
SWMU-6 Back Pad

Areas of Concern (AOCs)
AOC-1 Solvent Blending Tanks

Legend
Approximate Site Boundary
Solid Waste Management Units
Areas of Concern

N

Former Carboline Facility

Site Layout Plan

125 Fairground Road
City of Xenia, Greene County, Ohio

Ohio

Quadrangle Location

Date
April 2009

Figure
1

Attachment C
Sample Location Map 1

Final Field Sampling Activity Report
Carboline Company
125 Fairground Road, Xenia, Ohio

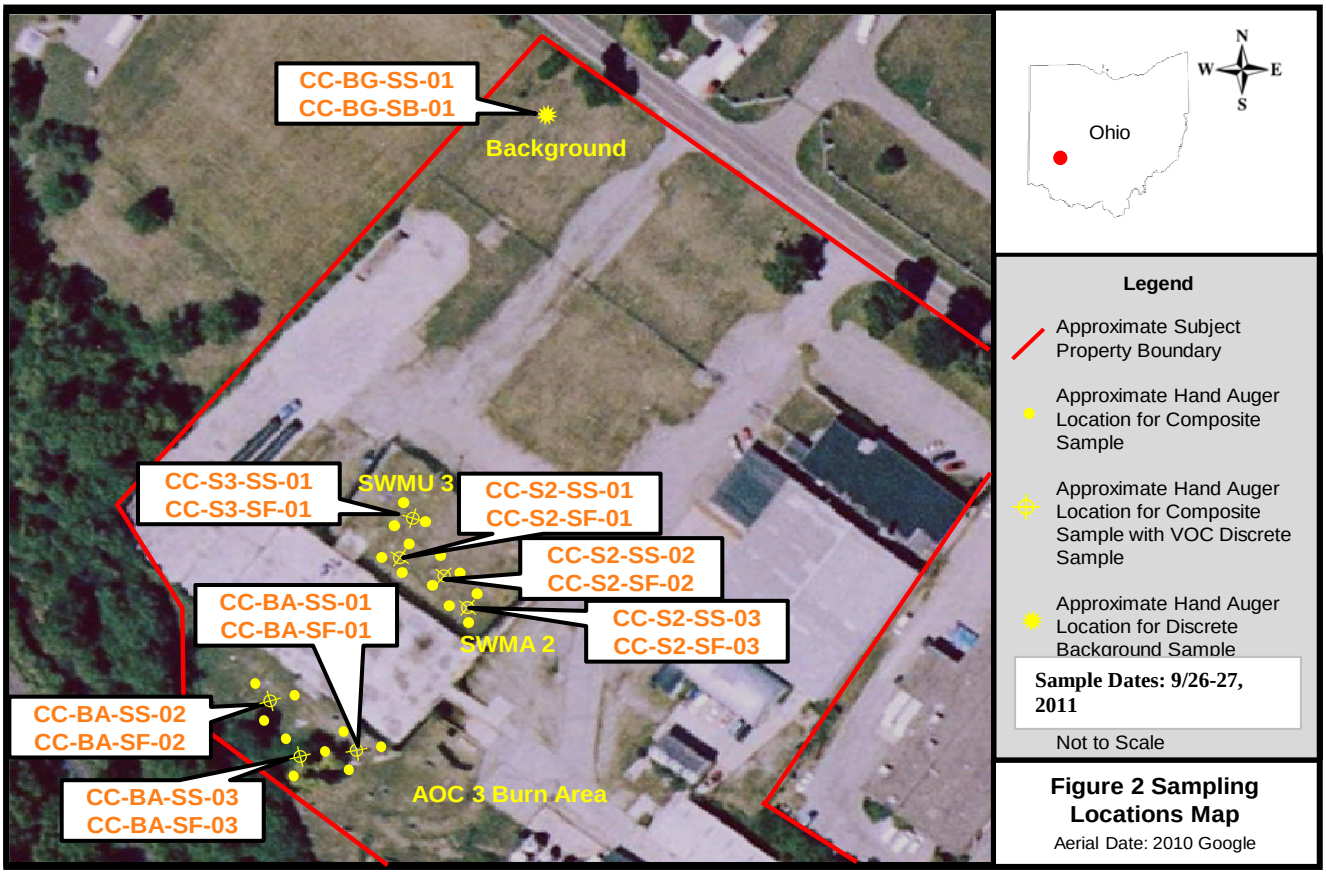


Figure 2 Sampling Locations Map
Aerial Date: 2010 Google

Attachment D
Sample Location Map 2

Booze Allen Hamilton
Field Sampling, September 14, 2013
Carboline Company
125 Fairgrounds Road, Xenia, Ohio