UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

I-2

SEP 28 2007

REPLY TO THE ATTENTION OF

MEMORANDUM

SUBJECT: **ENFORCEMENT ACTION MEMORANDUM** – Determination of Threat to Public Health, Welfare, or the Environment to Conduct a Non-Time-Critical Removal Action at the Garland Road Landfill, Miami County, Ohio
Site ID# 05WA

FROM: Matthew J. Ohl, Remedial Project Manager
Remedial Response Section 2

TO: Richard Karl, Director
Superfund Division

THRU: Linda Nachowicz, Chief
Emergency Response Branch #2

I. PURPOSE

The purpose of this memorandum is to document the determination of an imminent and substantial threat to public health, welfare or the environment posed by contaminated soils and groundwater at the Garland Road Landfill Site ("Site"), Miami County, Ohio, and to document approval of the proposed non-time critical removal action for the Site. This action is necessary to abate or mitigate releases of hazardous substances that may present an imminent and substantial endangerment to public health and the environment posed by the presence of soils and groundwater that are contaminated with hazardous substances as defined pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") section 104. This action is necessary to reduce the actual and potential exposure to the nearby human population and the food chain (potential future drinking water source) to hazardous substances from the Site. The action is expected to result in capping of contaminated materials at or near the surface which present a threat to trespassers or workers on the Site and adjacent properties and on-site treatment of contaminated groundwater. Due to the availability of at least a six month planning period before on-site activities must begin, the action is proposed as a non-time critical removal action. This action will be conducted by potentially responsible parties ("PRPs") with oversight by the United States Environmental Protection Agency ("U.S. EPA").

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID# OHD981537582

A. Physical Location

The Site is located along the west bank of the Stillwater River south of Frederick-Garland Road, near West Milton, Miami County, Ohio. The City of West Milton is located less than 1 mile northwest of the Site. The City of Union is located approximately 2 miles to the south.

B. Site Description and Background

The Site includes approximately 15 acres. The property is approximately 2,500 feet long and varies between 300 and 500 feet in width. The Site is bounded on the north by Frederick-Garland Road, on the east by the Stillwater River, a State Scenic River, and on the south and west by farmland. The Site is located within the 100-year flood plain of the Stillwater River, and the Site is flooded annually.

The Site was used as a landfill during the early 1960s, by then property owner Harold Ostrov. Ostrov sold the property to B&W Realty Co. in 1966. In late 1966 or in 1967, B&W Realty Co. leased the property to Charles E. Boos, who operated the landfill until 1970, doing business as B&W Landfill. The landfill received both household and industrial wastes. Landfill operations ceased in 1970, and B&W Realty Co. sold the property to Paul and Martha Theis, in or about 1974. Paul and Martha Theis transferred the property to Waterwheel Farm, Inc., in or about 1980, a company owned and operated by Mr. Theis. Waterwheel Farms transferred a small portion of the property back to Mr. Theis in 1980.

The Site is located in a rural area where some residents depend upon groundwater as their potable water supply and City of Union uses groundwater as its public water supply. Groundwater at and near the Site to the south has been contaminated. There is documented potable use of groundwater through private wells in the vicinity of the Site, and private residential use wells have been identified. These wells are currently isolated from the contaminated groundwater by depth and/or distance.

According to the Region 5 Superfund Environmental Justice Analysis for Ohio, the low income percentage is 30% and the minority percentage is 16%. To meet the Environmental Justice (EJ) concern criteria, the area within one mile of the Site must have a population that is twice the state low income and/or twice the state minority percentage. That is, the area must be at least 60% or greater low income and/or 32% or greater minority. There are approximately 2,368 people who live within one mile of the Site. The low income population is 38% and the minority population

is 2%. Therefore, this Site does not meet the Region's EJ criteria based on demographics as identified in Region 5's "Interim Guidelines for Identifying and Addressing a Potential EJ Case", (June, 1998) (See Attachment 1).

C. Previous Site Investigations and Response Actions

Anonymous citizen complaints prompted an inspection by the Ohio Environmental Protection Agency ("Ohio EPA") in March 1991. Ohio EPA noted numerous drums protruding from the ground surface and the river bank, and estimated that at least 400 drums were present at the Site. A follow-up visit was conducted by Ohio EPA in July 1992, to collect samples of drum materials and surrounding soil for analysis. Results of the analysis of drum and soil samples indicated the presence of chlorinated and non-chlorinated organic solvents, semi-volatile organic compounds("SVOCs"), polychlorinated biphenyls ("PCBs"), and heavy metals.

U.S. EPA's Field Investigation Team ("FIT") from PRC Environmental Management and others from U.S. EPA conducted a site reconnaissance and assessment in January 1993, and in April 1993. The FIT collected six soil samples, four sediment samples, and one groundwater sample from a nearby residential well. In March 1993, U.S. EPA's Technical Assistance Team ("TAT") contractor collected samples of drum contents, and surface soil from the Site. The results of analysis of samples collected during both the FIT and TAT assessments revealed the presence of organic solvents, metals, PCBs, and SVOCs in soil and waste samples.

U.S. EPA issued a Unilateral Administrative Order for a time-critical removal action at the Site on November 8, 1993. General Motors ("GM") conducted the removal activities that included excavation of approximately 13,000 drums, and over 14,000 tons of soil and debris associated with the drum removal. Excavated soil was screened to remove debris and then processed in a Low Temperature Thermal Desorption Unit ("LTTD") stabilized and disposed of on-site. Some debris exhibiting the characteristic of toxicity for vinyl chloride was placed in an excavation pit (#P-9) on-site. Most of the time-critical activities were completed by the fall of 1997.

Soil samples collected by Conestoga-Rovers & Associates ("CRA") in July 1995 (following the surficial container removal) from soil borings and monitoring well borings indicate that residual surface soil contamination exists at the Site. Among the contaminants detected in surface soil on-site were metals (detected in all samples), Aroclor 1254 (and detected less often, Aroclor 1248), poly-aromatic hydrocarbons ("PAHs"), 4,4'-DDD, dieldrin, phthalates, and volatile organics.

On-site groundwater sampling was also conducted at the Site in July 1995. Chlorinated VOCs were detected at maximum concentrations 46 times (cis-1,2-dichloroethene) to more than 1300 times (trichloroethene) the Safe Drinking Water Act's Maximum Contaminant Levels ("MCLs") for these compounds. Other compounds detected included numerous non-chlorinated volatile organic compounds ("VOCs"), SVOCs, and PAHs. No metals were reported above MCLs and no pesticides were reported in any sample.

U.S. EPA and GM signed an Administrative Order by Consent ("AOC"), effective June 7, 1995, under which GM agreed to perform an Engineering Evaluation/Cost Analysis ("EE/CA") to further characterize the Site and to propose response actions to address the remaining contamination at the Site.

Several rounds of monitoring well sampling were conducted at the Site between August 1996 and September 1997. The chlorinated VOCs trichloroethene (maximum concentration 1,200 ug/L) and 1,2-dichloroethene (maximum concentration 1,100 ug/L) were consistently detected in all monitoring wells at the Site. Numerous other VOCs were also detected. Several SVOCs were detected, but only bis(2-ethylhexyl)phthalate exceeded the MCL. The pesticides 4,4'-DDD and Aldrin were reported in three of the September 1997 samples. Several metals were detected, although none were above MCLs.

Sediment samples were collected from the Stillwater River in August 1996. Results of analysis indicates the presence of metals, PAHs, aldrin, Aroclor 1221, bis (2-ethylhexyl) phthalate, and methylene chloride in sediment upstream of the Site. Samples collected adjacent to the Site were found to contain SVOCs, PAHs and metals. Downstream samples contained acetone, Aroclor 1221, PAHs, and metals.

Surface water samples were not collected from the Stillwater River. A potential exists, however, that VOCs detected in sediment and groundwater are being released into surface water.

Additional groundwater sampling was conducted in 1999, 2000, 2001, and 2002, as part of the Deep Overburden Groundwater Investigations ("DOGI") to characterize contamination in deep off-Site groundwater south of the Site and to determine whether Site contaminants were migrating under the Stillwater River.

In 1999, no VOCs were detected above MCLs in the shallow upgradient on-site monitoring well S-1, but trichloroethene was detected close to or above MCLs in all the other four shallow on-site monitoring wells (ranging from 3.7 ug/L to 300 ug/L) and in all three deep on-site monitoring wells (ranging from 31 ug/L to 360 ug/L). Vinyl chloride was detected above MCLs in two shallow on-site monitoring wells (ranging from 2.4 ug/L to 22 ug/l). In addition, five soil borings were advanced in locations south of the Site, including three borings southeast of the Site, one boring southwest of the Site, and one south of the Site and just north of the Stillwater River. Trichloroethene was detected above MCLs in the soil boring south of the Site, but no trichloroethene was detected in the soil borings southeast of the Site or southwest of the Site, suggesting a narrow plume of TCE migrating south of the Site.

During the DOGI sampling in 2000, no VOCs were detected above MCLs in the shallow upgradient well S-1, but trichloroethene was detected above MCLs in three shallow on-site monitoring wells (ranging from 11 ug/L to 150 ug/L), and in all three deep on-site wells (ranging from 32 ug/l to 210 ug/l). Vinyl chloride was detected above MCLs in two shallow on-site wells(ranging from 6.9 to 37 ug/L) . Cis-1,2-dichloroethene was detected above MCLs in one shallow on-site wells (170 ug/L) and one deep on-site well (350 ug/L), and benzene was

discovered above MCLs in one shallow on-site well. No metal concentrations exceeded MCLs. In addition, three monitoring wells were installed southeast of the Site across the Stillwater River. Trichloroethene was not detected in any of these wells. Monitoring wells were also installed in soil borings south and southwest of the Site. Another monitoring well was also installed near the well south of the Site. Tri-chloroethene (6.5 ug/L) and cis-1,2-dichloroethene (96 ug/L) were detected above MCLs in one of the two monitoring wells south of the Site and north of the Stillwater River. This suggests a narrow, but persistent plume of VOCs above MCLs migrating south of the Site.

In 2001, three additional monitoring wells were installed south of the Site and just south of the Stillwater River and additional groundwater samples were taken. Trichloroethene was detected in one of the wells south of the Site and north of the River above MCLs (6.5 ug/L), but no VOCs were detected above MCLs in the three wells south of the Site and south of the River.

In the last round of groundwater sampling, conducted in 2002, no VOCs were detected at concentrations above MCLs in the shallow upgradient on-site well S-1. However, trichloroethene was detected above MCLs in the other four shallow on-site wells (ranging from 7 ug/L to 190 ug/L), and in all three deep on-site wells (ranging from 120ug/L to 170ug/l). Cis-1,2,-dichloroethene was detected above MCLs in one shallow on-site well (84 ug/L) and in one deep on-site well (350 ug/L). Vinyl chloride was detected in three shallow on-site wells above MCLs (ranging from 12 ug/L to 27 ug/L). In addition, trichloroethene was detected in one of the off-site wells south of the Site, but north of the Stillwater River above MCLs (12 ug/L).

Ohio EPA conducted additional soil and sediment sampling in April 2003. Several chlorinated VOCs were detected in the Site soil samples, including trichloroethene (ranging from non-detect to 250 ug/L), methylene chloride (one sample at 22 ug/L) and cis-1,2-dichloroethene and tetrachloroethene, for which only estimated concentrations were available. Numerous SVOCs were detected; as well as the pesticides dieldrin, endosulfan II, endrin aldehyde, 4,4-DDE endrin, 4,4-DDD; and the PCB Aroclor 1254. Inorganics were reported in all the soil samples. Sediment samples contained toluene (non-detect to 720 ug/L) and cis-1,2-dichloroethene and trichloroethene, for which only estimated concentrations were available. River sediments also contained the SVOC 4-methylphenl (non-detect to 3,000 ug/kg) and several other SVOCs for which only estimated concentrations were available. Several inorganics were detected, as well as the pesticides 4,4-DDT (non-detect to 44 ug/L), alpha chlordance (non-detect to 14 ug/L), and beta-BHC (non-detect to 4.6 ug/L), and gamma-chlordane, for which only estimated concentrations were available.

D. Streamlined Risk Evaluation

U.S. EPA's contractor, Ecology and Environment, Inc., prepared a streamlined risk evaluation ("SRE") for the Site, dated November 13, 1997. The SRE evaluated potential risks posed to human and environmental receptors from exposure to the contaminants detected in soils on the Site, sediment in the Stillwater River, which flows along the east side of the Site, and contaminated groundwater if no further removal action is undertaken. The SRE focused on

evaluating risks associated with two exposure pathways under current conditions: (1) direct contact with sediment by recreational users; (2) direct contact with Site surface soils by Site trespassers. Two potential future use scenarios were also evaluated including direct contact with Site soils by recreational users; and use of Site ground water as potable water by future residents. In addition, the SRE included a qualitative assessment of risks from the Site to people who eat fish from the river.

1. Human Health Evaluation

Groundwater. The SRE included a qualitative risk assessment that identified an elevated risk from exposure to contaminated source-area groundwater, based on the finding that concentrations in Site groundwater for some contaminants, mainly VOCs, exceeded MCLs.

Soil. The SRE's calculations of the potential carcinogenic risks from exposure to the soils of the landfill to trespassers and recreational users of the landfill generally did not exceed the CERCLA target risk range. However, calculations for non-carinogenic risk indicated a slightly elevated risk under certain exposure scenarios for child and adult trespassers at the Site.

Sediment. Calculations for carcinogenic and non-carcinogenic risks from exposure to river sediments for recreational users of the river generally did not exceed the CERCLA target risk range.

Fish. Mercury and pesticides were detected in fish samples collected upstream, adjacent to, and downstream from the Site. Since the Site is surrounded by farmlands, however, the pesticides were attributed to surface water run-off from area farmlands, and not to the Site. Most of the fish samples contained mercury, but FDA limits were exceeded in only one sample; in addition, mercury levels in that sample only slightly exceeded the FDA limits. Since this fish was caught seven miles upstream from the Site, the SRE concluded that the mercury in the sample could not be attributed to the Site.

Conclusion. The SRE's human risk evaluation concluded that both groundwater and soils at the Site exhibit concentration levels that exceed potential ARARs and/or risk based criteria.

2. Ecological Risk Evaluation.

The SRE indicated that the ecological risk associated with the contaminants of potential concern in sediment was low. In addition, the high quality fish and benthic macro-invertebrate analysis results from the Stillwater River indicate that the Site soil contaminants are not adversely impacting the ecology of the Stillwater River. The SRE indicated that contaminants of concern in Site soils likely present a moderate risk to ecological receptors. The greatest ecological risk associated with Site soil contaminants is potential migration of

the contaminants to the Stillwater River, where they may potentially impact its ecological system. The SRE concluded, however, that although several contaminants in soil are present above ecological concern levels, the low contaminant concentrations in sediments and the high quality fish and benthic macro-invertebrate analysis results from the Stillwater River indicate that Site soil contaminants are not negatively impacting the ecology of the Stillwater River.

E. NPL Status

The Site is not listed on the National Priorities List ("NPL").

F. 2007 EE/CA Report

In accordance with the 1995 AOC between U.S. EPA and GM (See II.C above), GM submitted a final EE/CA report to U.S. EPA in May 1998, which U.S. EPA disapproved. GM initiated dispute resolution under the provisions of the AOC challenging U.S. EPA's disapproval. As part of an effort to resolve the dispute, U.S. EPA and GM agreed to undertake additional investigations to address data gaps from the initial investigation. U.S. EPA approved and modified GM's revised draft EE/CA on March 7, 2007, and GM submitted its final EE/CA report in April 2007. GM's final EE/CA report and U.S. EPA's letter of March 7, 2007, together constitute the final EE/CA report for the Site. The EE/CA report includes recommendations for the selected response action at the Site.

G. Current Site Conditions

From 1994 to 2006, U.S. EPA, Ohio EPA and GM have conducted various investigations at the Site to obtain data to support the completion of the time-critical removal action and an approvable EE/CA report. These investigations included samples taken from soil, sediment, and groundwater, surveying, seismic refraction, and studying the erosion patterns of the Stillwater River. Alternatives to cleanup the Site were evaluated in the 2007 EE/CA report.

While the removal action in 1994 through 1997 removed thousands of drums from the Site and resulted in the thermal treatment of thousands of tons of contaminated soil, sampling has verified the continued presence of contaminants in the soil, including trichloroethene, methylene chloride, cis-1,2-dichloroethene, tetrachloroethene, PCB arochlor 1254 and others, all of which are hazardous substances as defined by CERCLA Section 101(14).

Elevated levels (exceeding MCLs) of TCE, cis-1,2-dichloroethene, vinyl chloride, all of which are hazardous substances as defined by CERCLA Section 101(14) are found in groundwater at the Site, and groundwater contamination is known to extend to the south from the Site exceeding MCL concentrations for VOCs which are the main contaminants of concern. No private or public water supply wells are currently impacted by the groundwater contamination emanating from the Site.

The Stillwater River has eroded a portion of the Site exposing waste and some slope failure has

occurred on the riverbank.

H. State and Local Authorities Roles

1. State and Local Action to Date

   The Ohio EPA has actively participated in all stages of government response activities at the Site, including: (i) early site investigations, (ii) as support agency during the 1994 – 1997 drum and contaminated soil removal action, and (iii) as support agency during all phases of the recently concluded EE/CA process.

2. Potential for Continued State/Local Response

   While Ohio EPA has not accepted the response action selected in this memorandum, U.S. EPA anticipates that Ohio EPA will continue its active involvement at the Site, assisting U.S. EPA in overseeing the design and construction of the selected response action in a support agency role. The parties performing the response action are expected to provide the Post Removal Site Control ("PRSC")/Operation and Maintenance ("O&M") measures necessary to ensure the success of the removal action.

III. THREAT TO PUBLIC HEALTH OR ENVIRONMENT; STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site present an imminent and substantial endangerment to public health, or welfare, and the environment, and meet the criteria for a non-time critical removal action provided for in the NCP, 40 CFR 300.415(b)(2).

A. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

Human populations and animals are exposed or potentially exposed to pollutants associated with the Site in the form of contamination in the soils and groundwater. Potential risks were documented in the following investigations and analyses:

- The human health evaluation in the SRE documented elevated non-carcinogenic risk from Site soils to trespassers at the Site; and qualitatively documented elevated risks to potential consumers of drinking water at the Site. The SRE's ecological risk assessment concluded that contaminants of concern in Site soils likely present a moderate risk to ecological receptors.

- Sampling events since the SRE was prepared continue to show high concentrations of TCE, cis-1,2-dichloroethene, vinyl chloride in groundwater on-site and down-gradient from the Site in excess of MCLs. Sampling has also shown the continued presence of

VOCs, SVOCs, PCBs, and metals in the soil.

No drinking water wells currently exist at the Site. However, borings completed at and near the Site indicate that it is underlain by sand and gravel. Information from the Ohio Department of Natural Resources, including their report titled, "Groundwater Pollution of Miami County, Ohio," dated October 1995, indicates that the Site is located above the same sand and gravel aquifer that the City of Union uses several thousand feet to the south. U.S. EPA has identified this aquifer as a "sole-source aquifer." Given that the Site is located above this productive aquifer, there is the potential for future groundwater use at or near the Site. Due to the presence of volatile organic compounds in groundwater above MCLs, adverse health risks are reasonably anticipated in the event that groundwater at or down gradient of and near the site is used as a drinking water source.

B. Actual or potential contamination of drinking water supplies or sensitive ecosystems

The SRE and several site investigations since then have documented high concentrations of TCE, cis-1,2-dichloroethene, vinyl chloride in groundwater on-site and down-gradient from the Site in excess of MCLs. While no drinking water wells currently exist at the Site, the groundwater under and down-gradient of the Site are part of an aquifer that provides drinking water for the City of Union to the south and has been identified by U.S. EPA as a sole-source aquifer. Given that the Site is located above this productive aquifer, there is potential for future groundwater use at and near the Site.

C. Weather conditions that may cause hazardous substances or pollutants of contaminants to migrate or be released.

The Site is subject to significant precipitation and is prone to frequent flooding which may cause contaminants to migrate or be released due to infiltration of precipitation and flood waters into the waste and contaminated soils.

Therefore, conditions at the Site meet the following three criteria for a removal action as stated in 40 C.F.R. Section 300.415 (b)(2): i) an actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants; ii) an actual or potential contamination of drinking water supplies; and iii) weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

IV. ENDANGERMENT DETERMINATIONS

Given the Site conditions, the nature of the hazardous substances, and the potential exposure pathways described above, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS

A. Description of Proposed Actions

The objective of this non-time critical removal action is to mitigate the imminent and substantial threats posed to human health from hazardous substances in soils and ground water at and near the Site that have the potential to migrate from the Site. Based on the nature and extent of contamination at the Site and on the response action objectives, the EE/CA evaluated four alternatives for Site contamination including the "no action" option.

The response actions proposed for the Site include all response actions included in Alternative 4, as described in the final EE/CA report, dated April 4, 2007, and as modified by U.S. EPA's letter of March 7, 2007. Some of the main features of Alternative 4 of the EE/CA report and U.S. EPA's letter are summarized below.

Alternative 4 includes: 1) completely covering all landfill waste with an impermeable cap consisting of 2 ft. of clay with a maximum permeability of 1×10^{-7}, or a geosynthetic clay liner, or a combination of the two; and a frost protection/vegetative layer; 2) riverbank stabilization; 3) *in situ* source area groundwater treatment; 4) long term site and ground-water monitoring; 5) waste reconsolidation under the cap and construction of a treatment wetlands; 6) landfill gas collection; and 7) institutional controls. All components of the response action selected by this memorandum shall be designed, constructed, implemented and maintained as more fully described in the EE/CA report and U.S. EPA's letter for Alternative 4.

Site cap. The landfill cap included in the selected response action does not comply with Ohio Administrative Code ("OAC") 3745-27-08, which has been identified by the Ohio EPA as a State ARAR. A waiver of OAC 3745-27-08 to permit the alternate cap to be installed instead of the ARAR compliant cap is justified based on the equivalent performance of the selected response action with response actions required by ARARs. (See Section V.D, below).

Groundwater treatment - performance standards. As noted in U.S. EPA's letter, groundwater treatment will be conducted within the waste management area to ensure that performance standards are met, including that MCLs are achieved:

a) at the waste management boundary within 8.5 years from the initiation of full-scale treatment (or within 9.5 years from the initiation of the initial pilot test, whichever is earlier), and

b) at all monitoring points beyond the waste management boundary within 20 years from the initiation of full-scale treatment (or within 21 years from the initiation of the initial pilot test, whichever is earlier).

Compliance with these performance standards will be measured at and beyond the waste

management boundary in locations necessary or appropriate to determine whether contaminants are migrating or accumulating south of the Site in concentrations exceeding MCLs. The technology used initially for full-scale *in situ* treatment will be ozone sparging (as more fully described in the EE/CA report and U.S. EPA's letter of March 7, 2007). Success in achieving and maintaining these performance standards will be determined by U.S. EPA based on analytical data from actual samples, and not on the results of modeling.

A pilot test would be run to determine whether the performance standards could be met using the proposed ozone sparging methods. Upon conclusion of the pilot study, the pilot study data will be analyzed and reported to U.S. EPA and Ohio EPA and full-scale implementation will be initiated upon U.S. EPA concurrence and approval.

The pre-design groundwater investigation activities may reveal circumstances that require additional *in situ* treatment in areas of the Site north of the proposed limit of ozone sparging depicted in Figure 5.10 of the EE/CA report. As part of the design process following the conclusion of the pre-design groundwater investigation, U.S. EPA will evaluate the proposed extent of ozone sparging and may include treatment outside the proposed limit of ozone sparging in Figure 5.10, as determined by U.S. EPA.

Contingencies to ensure attainment of groundwater performance standards. Alternative 4 as described in the EE/CA report and U.S. EPA's letter of March 7, 2007, includes several contingencies to ensure that the performance standards for the groundwater are attained, including the following.

- Each calendar year following the initiation of full-scale treatment, the party conducting the response action shall estimate (using computer software modeling tools acceptable to U.S. EPA and using a methodology reviewed and approved by U.S. EPA) the remaining time necessary for concentrations of contaminants to meet the performance standards. If the modeled time exceeds any performance standard, additional treatment including *in situ* chemical oxidation or other treatment as determined by U.S. EPA (after consultation with Ohio EPA and the party performing the response action) will be conducted on an accelerated basis to meet this requirement. The annual modeling must be based on analytical data from groundwater samples collected at and near the Site. Analytical data from samples collected before the pre-design groundwater investigation may not be used in such annual modeling, except as specifically approved by U.S. EPA.

- If the annual modeling described does not show adequate progress (as determined by U.S. EPA based on analytical data from groundwater sampling and the results of annual modeling) from year to year in achieving the performance standards, additional treatment including in-situ chemical oxidation and other treatment as required by U.S. EPA (after consultation with Ohio EPA and the party performing the response action) will be conducted on an accelerated basis to achieve and maintain the cleanup goals.

- If results of the pilot study indicate, as determined by U.S. EPA, that the performance standards cannot be met through *in situ* ozone treatment, additional treatment options including in-situ chemical oxidation or other treatment or actions, as approved by U.S. EPA (after consultation with Ohio EPA and the party performing the response action) will be evaluated and field pilot-tested as appropriate on an accelerated basis to determine whether they could meet the standards. Following accelerated field pilot testing, pilot study data will be analyzed and reported to U.S. EPA and Ohio EPA. If the data demonstrate that using the alternative technology to meet the performance standards would be practicable, full-scale implementation will be initiated upon U.S. EPA concurrence and approval.

- If any of the performance standards are not met, additional treatment including in-situ chemical oxidation or other treatment or actions as required by U.S. EPA (after consultation with Ohio EPA and the party performing the response action) will be conducted on an accelerated basis to achieve and maintain the requirement. Such treatment shall be designed to meet the performance standards.

- Once a performance standard has been achieved, compliance with MCLs shall be maintained from year to year, as demonstrated based on groundwater data collection during the monitoring program. Additional treatment including in-situ chemical oxidation and other treatment may be required by U.S. EPA (after consultation with Ohio EPA and the party performing the response action) as necessary or appropriate to maintain compliance with MCLs.

Groundwater monitoring program. U.S. EPA will evaluate and determine the parameters of the quarterly groundwater monitoring program for the selected response action in the Post Removal Site Control Plan that will be subject to approval, modification and approval, or disapproval by U.S. EPA. Quarterly monitoring following termination of treatment would involve monitoring more wells and other monitoring points than the monitoring wells just outside the waste management boundary.

U.S. EPA will evaluate and determine the parameters of the long-term groundwater monitoring program, including the number and location of monitoring wells and other monitoring points (including the need for additional monitoring wells and other monitoring points south of the Site on the south side of the river), staff gauges, and piezometers, as part of the Post Removal Site Control plan. Groundwater may need to be monitored for up to 30 years or longer after the completion of the cap to satisfy federal and state regulations. Long-term groundwater monitoring shall be consistent with the requirements of CERCLA, the NCP, and other applicable state and federal laws, if any.

U.S. EPA will evaluate and determine the criteria for abandonment of monitoring wells and other monitoring points and the termination of the long-term groundwater monitoring program as part of the Post Removal Site Control plan.

Waste consolidation and construction of wetland. The selected response action includes excavation of the waste from the southern portion of the Site and reconsolidation of this waste under the cap. To help ensure that the groundwater performance standards are achieved, a functional wetland will be created in this area to provide treatment for any residual contamination that may remain after waste consolidation. Compliance with the groundwater performance standards will be measured at the waste management boundary. The waste management boundary encompasses the waste management areas that include the capped landfill, the treatment wetland, and any portions of the Site between the cap and wetland. The party performing the response action must demonstrate ownership or control of the property through enforceable institutional controls. Principal threat wastes, e.g., drums with TCE, that are discovered during waste reconsolidation will be transported off-site for appropriate disposal.

Off-Site Disposal. Off-site disposal of any wastes from the Site or the response action shall comply with the U.S. EPA's off-site policy.

Institutional Controls. Institutional controls will be needed to supplement the engineered controls as an integral part of the response action. The institutional controls will be designed to reduce the potential for exposure to wastes, contaminated soil and groundwater and protect the integrity of the remedy. The institutional controls will need to be applied to areas of the Site where waste/contaminated soils will remain in place and to areas (whether on-site or off-site) where site-linked contaminants have contaminated the underlying groundwater. The consent of the property owner will be necessary for the imposition of such institutional controls. Such areas will include "buffer areas" referred to in the EE/CA report. Institutional controls may include property use restrictions. The State of Ohio enacted the Uniform Environmental Covenants Act in 2004, which is expected to simplify the task of imposing institutional controls at the Site. To supplement the property use restrictions, a local ordinance may be sought to prevent the use of the contaminated groundwater at or near the Site.

Work plans. Prior to commencing any removal activities at the Site, a work plan will be developed to guide the design and construction of the remedy. As part of the work plan the following plans will have to be developed and approved by U.S. EPA:

- Site health and safety plan, including but not limited to, perimeter air monitoring and dust control procedures.

- Site sampling plan for monitoring ground water wells on-site and off-site, residential wells, and site surface soils.

Summary. As noted in Section II. C, U.S. EPA conducted an SRE as part of the EE/CA to evaluate the actual or potential threats to human health and the environment posed by the Site. When evaluating the most appropriate response alternative(s) for a Site, an EE/CA must consider the criteria of effectiveness, implementability, and cost. Based upon the EE/CA support sampling results and the SRE, the EE/CA recommends the proposed response action. The

response action will be effective because it will significantly reduce the source area groundwater contamination and isolate the waste to prevent direct contact, inhalation and incidental ingestion of contaminants. Finally, the cost of implementing the response action is reasonable when compared to the associated reduction in risk.

B. Project Schedule

The EE/CA report suggests that on-site work will take about 6 months to complete; however, this time estimate may be optimistic. Based on the time frame required for construction and operational shake down, on-site work is expected to take 12-24 months. A detailed project schedule will be developed as part of the design and subsequent work plans.

C. Contribution to Remedial Performance

The selected response action will significantly reduce any long-term threats posed through ingestion, inhalation and direct contact with the hazardous substances which are attributable to the Site. Performance monitoring of the various components of the remedy will allow U.S. EPA to evaluate the potential need for any further remedial investigation or remedial action. Furthermore, if the selected response action operates as expected, it will adequately address the threats described in Section III above, and U.S. EPA would not expect future remedial action to be necessary. To the extent additional action would be necessary at the Site, however, based upon available information, the selected response action will not impede such future response actions.

Given that the response action will result in waste left in place that will not allow unrestricted use and unlimited exposure, U.S. EPA intends to conduct discretionary five-year reviews of the selected response action at the Site.

D. Applicable or Relevant and Appropriate Requirements

Pursuant to Section 300.415 (j) of the NCP, the proposed action will comply with Federal and/or, where more stringent, State applicable or relevant and appropriate requirements ("ARARs") listed in Table 3.1 of the EE/CA, with the exception of the state capping requirements for landfills in OAC 3745-27-08, which the Ohio EPA has idenitified as a State ARAR.

Therefore a waiver of or a variation from these requirements is necessary to implement the selected response actions. As discussed below, an ARAR waiver is appropriate based upon an equivalent standard of performance.

OAC 3745-27-08 requires a closing landfill to have a multilayer cap that is composed of a soil barrier (eighteen inches of clay or geo-synthetic clay layer), a flexible membrane liner ("FML"), a drainage layer, and a cap protection layer (vegetative layer). Considered in combination with the source area groundwater treatment, this cap would minimize the exposure of Site trespassers and future recreational users from contaminants in Site soils, and would minimize the migration of

contaminants in groundwater.

The selected response action includes an alternate cap (*i.e.*, one that does not fully comply with OAC 3745-27-08) consisting of either (i) 2 feet of clay, 24 inches frost protection, and 6 inches top soil, or (ii) a GCL with a geonet for drainage, plus 1 foot of soil and 6 inches top soil, for a resulting permeability no greater than 1 x 10-7 cm/sec. U.S. EPA believes that the alternate cap, used in combination with source area groundwater treatment will attain a standard of performance that minimizes threats to Site trespassers and future recreational users from soil contaminants at the Site, and minimizes the migration of contaminants in groundwater, that is equivalent to the cap that fully complies with OAC 3745-27-08 when considered in conjunction with treatment of source area groundwater.

Minimizing threats to Site trespassers and future recreational users of the Site. With proper cap maintenance, both the cap in OAC 3745-27-08 and the alternate cap in the selected response action would completely cover the surface of wastes in the landfill with a cap and thus would perform equally well in minimizing the exposure of Site trespassers and recreational users to soil contamination at the Site.

Minimizing migration of source area contaminants in groundwater. One way of reducing migration of source area contaminants in groundwater is to minimize the infiltration of precipitation through the landfill contents. Rain, melted snow or other precipitation that hits the landfill surface and percolates down through the landfill contents picks up contaminants and transfers them to the groundwater where they could migrate. An impermeable cap is often used to minimize the formation of such contaminated leachate where waste is located above the water table.

The alternate cap included in the selected response action, which includes either a clay layer with low permeability or a GCL with even lower permeability, is expected to be very effective in minimizing the formation of the contaminated leachate from waste above the water table that contributes to the migration of source area contaminants in groundwater. The cap system in OAC 3745-27-08 includes an FML along with either a clay layer or a GCL. The FML would be expected (depending on construction technique) to make the overall permeability of the ARAR-compliant cap lower than the alternate cap and thus also potentially more effective in minimizing the formation of contaminated leachate than the alternate cap. Nonetheless, U.S. EPA believes that the selected response action would be equally as effective in minimizing the migration of source area contaminants in groundwater for the following reasons.

1. Contaminated leachate from precipitation as a factor that contributes to contaminant migration with groundwater is much less important at this Site than at other sites for several reasons:

a. The Site is subject to flooding several times per year and is completely inundated by flood water at least every other year. Thus, no matter what kind of cap is used for the landfill, floodwaters percolating through landfill contents from above or rising ground water

levels from below will pick up contaminants and result in additional contamination of groundwater;

b. A significant portion of the waste in the landfill is located up to 10 ft. below the water table, resulting in production of contaminated leachate no matter what kind of cap is used for the landfill;

c. The majority of the Site's principal threat waste, *i.e.*, approximately 10,000 drums, were removed for off-site disposal and the associated contaminated soils were excavated, treated, and covered with up to 8 ft. of soil thereby reducing the amount of contaminants that would be transferred to groundwater through contaminated leachate;

d. The landfill's surface area is relatively small, *i.e.*, less than 17 acres, and leachate outbreaks have not been identified at the Site under current conditions without any cap system.

2. Source area groundwater treatment, which is included in the selected response action and which is paired with the ARAR compliant cap in OAC 3745-27-08 for purposes of this waiver analysis, is the determining factor at this Site in minimizing migration of contaminants with groundwater and in achieving performance standards in groundwater. Under the selected response action, regardless of the performance of the cap system, source area groundwater will be treated to reduce the time required to meet MCLs at the waste management boundary to 8.5 years from initiation of full-scale treatment (or 9.5 years from initiation of the initial test pilot, which ever is earlier), and throughout the plume of contaminated wastewater beyond the waste management boundary within 20 years from initiation of full-scale treatment (or 21.5 years from initiation of the initial test pilot, whichever is earlier). If the selected treatment is not effective, or if insufficient progress toward meeting these performance standards is being made, the selected response action includes a number of contingencies that take effect to ensure that the performance standards are met.

Therefore, under CERCLA Section 121(d), 40 CFR §§ 300.415(j), and 300.430(f)(1)(ii)(c)(4), a waiver of the cap requirement in OAC 3745-27-08 is justified at this Site based upon equivalent performance, as described below.

Degree of protection and level of performance. The selected response action, including the alternate cap and source area groundwater treatment, achieves a degree of protection and level of performance that is equivalent to that achieved by the cap in OAC 3745-27-08 considered in conjunction with source area groundwater treatment. Whichever cap is used, the selected response action requires that MCLs in groundwater be met at the waste management boundary and throughout the contaminated groundwater plume (degree of protection) and that these MCLs be met within the same specified time periods.

Potential to be protective into the future. Both cap systems include cap protection layers that will protect the cap systems from the effects of freeze/thaw cycles.

Time required to achieve beneficial results. Source area groundwater will be treated to reduce the time required to meet groundwater treatment goals to the same specified periods, regardless of the performance of the cap system.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed action or non-action would result in an increased likelihood of dermal contact, ingestion, and inhalation of hazardous substances by the human population trespassing on the Site or future users of groundwater contaminated by the Site. Delayed action will also result in an increased likelihood of increased amounts of contaminated materials migrating off-site.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues for the Site.

VIII. ENFORCEMENT

See Enforcement Confidential Memorandum Attachment.

IX. RECOMMENDATIONS

This decision document represents the selected removal action for the Garland Road Landfill Site in Miami County, Ohio, developed in accordance with CERCLA, as amended, and it is not inconsistent with the NCP. This decision is based on the Administrative Record for this Site (see Attachment C). Conditions at the Site meet NCP Section 300.415(b)(2) criteria for a removal action, and I recommend your approval of the proposed non-time critical removal action. You may indicate your decision by signing below:

APPROVE: _____ 9/28/07

for Richard C. Karl, Director
Superfund Division

DISAPPROVE: _____

Richard C. Karl, Director
Superfund Division

Attachments: A. Responsiveness Summary
B. Enforcement Confidential Memorandum
C. Admistrative Record Index
D. EJ Analysis

cc: K. Mould, U.S. EPA 5202G
M. Chezik, U.S. Department of Interior, w/o Enf. Addendum
Chris Korleski, Director, Ohio EPA, w/o Enf. Addendum
Heidi Sorin, Ohio EPA, w/o Enf. Addendum
Mark Allen, Ohio EPA, w/o Enf. Addendum
Joe Smindak, Ohio EPA, w/o Enf. Addendum

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(REDACTED 1 PAGE)

NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION

ATTACHMENT A

Responsiveness Summary

In accordance with the CERCLA Section 117, the U.S. EPA made the EE/CA report available for public comment and placed an advertisement on June 19, 2007 announcing a public comment period from June 20, 2007 to July 20, 2007 to allow interested parties to comment on the proposed removal action. The Responsiveness Summary (Attachment A) documents U.S. EPA's response to comments received during the comment period and the June 26, 2007 public meeting. These comments were evaluated prior to the selection, and considered in the determination of, the non-time critical removal action for the Site.

City of Union's Comments

1. ***Limited monitoring wells in the northern portion of the site.***

During pre-design phase, the United States Environmental Protection Agency ("U.S. EPA") will assess the need for additional wells to ascertain groundwater flow in the northern portion of the Site. In addition, U.S. EPA expects a monitoring program will be instituted during the response action to collect groundwater data and other information at a regular frequency.

2. ***Discrepancies in the depth to bedrock in the central and southern areas of the site and recommendation of drilling technique.***

The need to refine the depth to bedrock will be evaluated during pre-design phase. Appropriate drilling techniques will be selected depending on the geology of the Site and the depth of drilling.

3. ***Groundwater sampling protocol for VOCs during vertical groundwater profiling.***

A sampling and analysis plan will be prepared for any pre-design activities. If vertical groundwater profiling is necessary, appropriate methods and SOPs would be provided in the sampling and analysis plan. The sampling and analysis plan will be reviewed and approved by U.S. EPA for appropriateness of the methods and procedures.

4. ***Proposed wetland in the removal area.***

The information regarding estimated removal depth, the correct depth to groundwater in the area and the engineering plans for construction will be determined during pre-design and design phase of the response action. The City of Union will have access to the pre-design and design reports when they are publicly available.

Miami Conservancy District's Comments

The issues identified by Miami Conservancy District are mainly related to maintaining flood plain storage and will be considered during the design. Under CERCLA § 121(d) and 40 CFR 300.415(j), the response action at the Site must, to the extent practicable considering the exigencies of the situation, comply with laws and requirements established by Federal and State governments that qualify as "applicable or relevant and appropriate requirements" ("ARARs"). Requirements established by local or regional bodies are not generally considered to be ARARs under CERCLA §121(d). There are limited circumstances, however, when requirements established by local or regional bodies could quality as ARARs (e.g., if the local or regional standard is both adopted and legally enforceable by the State, or where the requirements have become part of a legally enforceable state plan). To the extent that the flood plain storage requirements qualify as ARARs, the response action at the Site will comply with the requirements to the extent required under 40 CFR § 300.415(j). Even if the flood plain storage requirements are not ARARs, however, those requirements as well as State advisories, guidance, non-binding guidelines, or other standards that are not legally binding or of general applicability may nevertheless be considered ("to be considered" rules or "TBCs") in fashioning a protective remedy for a site. Consistent with the treatment of Federal criteria that are to be considered, the scientific basis for State TBCs should be evaluated.

The Miami Conservancy District will have opportunity to review the design when it is publicly available. The design phase of the project will ensure that the cap is designed to withstand the flooding without loss of integrity. In addition, a Post Removal Site Control Plan will be in place to ensure the cap is properly maintained and any damage to the cap caused by the flooding is promptly repaired.

Community Member's Comments

1. ***Is there any danger to the residential wells?***

The monitoring wells installed at the Site have shown that the groundwater plume from the Site does not extend near any residential wells. Therefore, there appears to be no danger to the residential wells at this time.

2. ***Are there any plans to check residential wells?***

There are no plans at this time to check residential wells because the data and information collected at the Site indicate that the plume is not threatening any residential wells.

3. ***Where can residents get their wells checked if they have concern?***

Residents could contact the local or State health department regarding sampling of their wells. In addition, if residents want to check their wells immediately, they can contact a private laboratory to arrange for sampling of their wells at their own expense.

4. ***The cleanup options overview states "three...options prohibit... new drinking water wells" — what and where are these restrictions?***

The restrictions are expected to include enforceable environmental covenants established under Ohio Revised Code §§ 5301.80 -5301.92 and filed with the county recorder that will restrict the use of the Site for drinking water wells and other purposes. The restrictions could also include zoning or other requirements established by local ordinance prohibiting installation of water wells within the impacted area. The areal extent of the restrictions would be determined in conjunction with surveying the impacted area after an agreement is reached with the parties implementing the response action.

5. ***No plan addresses contamination of the Stillwater River in event of flooding (an annual event). Since PCB's and heavy metals remain in the environment for decades, has the impact on ecosystems downstream (ie, Englewood Metropark, Aullwood) been assessed?***

The flooding of the Site and its impact to the cap and landfill is a design issue and will therefore, will be addressed during the design.

The Streamlined Risk Evaluation ("SRE") performed as part of the EE/CA for the Site includes an ecological risk evaluation. The SRE concluded that the Site is not negatively impacting ecological receptors of the Stillwater River. Therefore, further studies in downstream areas such as of the Englewood Metropark and Aullwood were not conducted.

6. ***Which heavy metals are contaminants at the site?***

Heavy metals found in the landfill soil include: aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, cyanide, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, sodium, vanadium and zinc

7. ***What significance is there to the expectation that the state of Ohio will not accept/support any cleanup alternatives?***

In spite of having had significant involvement with the EE/CA process and the proposed cleanup plan, Ohio EPA disagreed with the preferred alternative identified in the EE/CA report. Nevertheless, U.S. EPA and Ohio EPA are in general agreement about many issues regarding Site cleanup. In addition, while Ohio EPA's formal acceptance of the selected response action for the Site is not necessary for implementing the selected response action, U.S. EPA appreciates the contributions made by the Ohio EPA at the Site thus far. U.S. EPA expects to have continued dialogue with the Ohio EPA in regards to the implementation of the selected response action.

Community Member's Comments

1. ***How do the seasonal fluctuations in the water table (fluctuations due to flooding, snow melt, and precipitation) impact the pollutant migration patterns? Is this data available in the Engineering Evaluation and Cost Analysis (EE/CA) or other site-related report?***

The analysis of groundwater flow response to seasonal fluctuations is expected to be completed during the pre-design and design. The information will be used for designing the response action alternative.

2. ***In U.S. EPA's comment No. 9 on the draft EE/CA report, it states that ..."hazardous waste (vinyl chloride) was placed back in the landfill"... It was unclear why the hazardous waste was placed back into the site. Please clarify the intent of the comment and the intent of the described action.***

Section 2.3.1.2 of the EE/CA report (Waste Sampling) explains that U.S. EPA's results from the sample of debris exhibiting the toxicity characteristic of hazardous waste for vinyl chloride was received after the debris had been placed back in the landfill. GM's sample results came back before U.S. EPA's results and indicated that the debris was non-hazardous. The debris was placed back in the landfill to contain it, since it was too large to pass through the treatment system (and according to the analytical results from GM's sample was not hazardous). U.S. EPA expects that the debris will be addressed by the selected response action.

3. ***The EE/CA states that a public meeting will be held after USEPA selects a remedy for the site. There has already been a public meeting to introduce the options (June 26, 2007). As I understand the statement in the EE/CA, when the final alternative is selected, there will be another public meeting, please clarify. What are the mechanisms for notifying the public?***

The public meeting that was held June 26, 2007, is the only public meeting that U.S. EPA expects to hold for the Site. U.S. EPA also uses a variety of tools to keep the public informed e.g., newspaper ads, fact sheets, meetings, and press releases. U.S. EPA expects to provide fact sheets and updates to its website and the information repositories to keep the public informed about the implementation of the selected response action at the Site.

4. ***Do the regulations, CERCLA, etc. specify the timeframe for notifying the public, i.e. 2 weeks prior to the meeting? If so, this timeframe was not met with the notice of the meeting held on June 26, 2007. The notice I received was postmarked June 19. It is my opinion one week is insufficient time for the general public and concerned citizens to review the material and develop comments. Please advise of the timeframe for public notices.***

The regulations at 40 CFR § 300.415(n)(4) do not specifically require U.S. EPA to hold a public meeting, but do require U.S. EPA to publish a notice of availability of the EE/CA report and to provide a 30-day period for submission of written and oral comments. In this case, U.S. EPA

published a notice in the Dayton Daily News on June 19, 2007, announcing a public comment period for a period of thirty days, i.e, June 20 to July 20, 2007, and also announced a public meeting for June 26, 2007. A summary of the proposed response action for the Site was mailed to 256 parties several days before the newspaper announcement on June 15, 2007. U.S. EPA notes that residents, including this commenter, and other interested parties were able to attend the meeting and provide detailed comments within the comment period.

5. ***The information contained in the Milton-Union Public Library is poorly organized and information is not easily found. When this project moves forward, it would be advantageous for all of the public documents be available electronically (USEPA, OHIO EPA websites). In the age of technology, this is not uncommon and is expected by the citizens interested in the progress of the Garland Road Landfill Remediation.***

All of the documents were organized in labeled folders prior to the start of the public comment period at the two information repositories, *i.e.*, Milton-Union Public Library and the Union City Hall. In response to the commenter's request that documents be electronically available, compact discs containing electronic copies of the documents are available at both repository locations. Due to the size of the Site's files and the level of public interest at this Site, U.S. EPA does not expect to place all of the site-related documents on its website.

6. ***The EE/CA states (Section 2.1.2) that USEPA and General Motors "entered into the Order in June 1995"... Why has it taken so long for the project to progress? Please provide an explanation for this delay.***

GM disputed U.S. EPA's disapproval of a previous version of the EE/CA report and the parties agreed to conduct additional investigations to address data gaps from the initial investigation. These investigations, spanning several years, included installing and sampling groundwater monitoring wells, conducting a seismic survey, studying the flooding of the Stillwater River and riverbank erosion, developing potential response action alternatives, etc.. These investigations produced a significant amount of additional data that was reviewed and discussed by the parties. U.S. EPA used this data to facilitate the completion of an approvable EE/CA report. U.S. EPA provided significant regulatory and technical review of the EE/CA culminating in the modification and approval of the EE/CA report.

7. ***In Figure G.1 of the EE/CA, the sediment sample (SED-04-1993) indicates a methylene chloride concentration of 75,000 mg/kg. The sample was collected upstream of the landfill footprint. Was this sample taken to identify background concentrations of methylene chloride in the sediment of the Stillwater River? Why was sampling conducted north of the Garland Road Bridge?***

Samples were taken upstream of the bridge to provide background concentrations for comparison purposes. The collection of background samples is a standard procedure in sediment sampling.

8. ***Have the contaminants of concern (COC) been established and if so, how have they been established?***

The Streamlined Risk Evaluation included a discussion of COCs.

9. ***Have background levels of the COCs been established?***

Yes, background or up-gradient samples were collected indicating background or upgradient levels.

10. ***Have clean up levels for the COC been established, if so, how have they been derived?***

The selected response action requires that contaminants in groundwater be cleaned up to MCLs at the waste management boundary and beyond. Cleanup levels have not been formally established for contaminants in the soils or in the landfill since threats from such contaminants will be addressed by installing an impermeable cap over the surface area of the landfill.

11. ***Has a Human Health Risk Assessment and Ecological Risk Assessment been performed, if so what were the dates of the report and what were the findings? Do the proposed remedial alternatives address the risk assessment data, if available?***

U.S. EPA's contractor Ecology and Environment, Inc. prepared the "Streamlined Risk Evaluation for the Garland Road Landfill Site, dated November 13, 1997, which includes a human health risk evaluation and an ecological risk evaluation. Conclusions can be found in Section 2.4 of the EE/CA report and the entire SRE is included as Appendix I of the EE/CA report. U.S. EPA believes the selected response action addresses the risks identified in the SRE.

12. ***A brief review of the metals data for the sediment sample (provided in the EE/CA, Appendix G) indicate numerous discrepancies between the samples collected by GM and by USEPA. Why do the pollutant concentrations of the samples differ as much as an order of magnitude, in some of the samples? It was my understanding from the information presented in the EE/CA, these were split samples.***

It is not surprising that some of the metals data vary by an order of magnitude. Metals are distributed as particulates in the sediment or soil matrices and the data can be and often is variable. Even split sample concentrations can vary greatly. Looking briefly at several of the split samples where some parameters varied by an order of magnitude, and comparing between the two, the other parameters were remarkably similar to each other. This could be due to sample variability and/or the sample matrix.

13. ***The metals data for the sediment is very high for lead and total chromium. I would not expect these metals to be naturally occurring at elevated concentrations in the sediment. The levels of these metals are higher than what is acceptable in a landfill. If the sediment was***

dredged from the river, it has the potential to meet the criteria of a hazardous waste (40 CFR Part 261.24). I understand these are two different circumstances, but for comparison, is it okay for it to be in the river but not in a landfill, especially if it is in the river as a result of the landfill?

Data for metals detected in sediment is summarized in Figure G.3 of the EE/CA report. With one exception, the data summarized in the figure has all been derived from laboratory test methods that reflect the total concentration of the metals in the sediment methods. For lead and chromium, the figure shows that past investigations of the sediment have detected lead in sediments at concentrations up to 34,000 ug/kg (approximately 34 parts per million or ppm) and total chromium at concentrations up to 16,700 ug/kg (16.7 ppm).

The definition of hazardous waste under the Resource Conservation and Recovery Act regulations in 40 CFR § 261.24, by contrast, relies on analysis of the extract of the waste following the Toxicity Characteristic Leaching Procedure ("TCLP") Test Method 1311 and not a totals analysis method. The TCLP laboratory method includes adding extraction fluid to the sample. The amount of the added fluid is twenty times the weight of the laboratory sample resulting in a twenty-fold dilution of the laboratory sample prior to analysis. Analytical results from these two methods (*i.e.*, TCLP and totals) differ dramatically and cannot be compared meaningfully. The one sample summarized in Figure G.3 that uses an extractive laboratory method (probably TCLP, however, it's not clear if it is a different extractive procedure) is sample SED-I-1993, taken by U.S. EPA. The metals results for this sample were all very low, and for lead in particular, the result was 0.05 mg/L. By comparison, a waste is not a RCRA hazardous waste unless the result of TCLP analysis on a waste sample exceeds 5 mg/L.

In addition, the highest chromium total result reported in Figure G.3 and the second highest lead result are for a sample that was taken by U.S. EPA upstream from the Site. This may suggest that these metals found in river sediments are not related to the Site.

Finally, the Streamline Risk Evaluation shows that the lead and chromium detected in river sediments are not adversely affecting the ecosystem of the river.

14. ***What is the direction of groundwater flow across the landfill? Please indicate the report where this information can be easily accessed.***

The direction of groundwater flow across the landfill is generally south or towards the river. Appendix B of the EE/CA contains groundwater contour maps showing estimated groundwater flow directions.

15. ***The announcement for the June 26, 2007 public meeting states "sediment in the Stillwater River has not been affected by the site contamination yet". The most recent sediment data was collected in 2003. In order to substantiate this claim by the USEPA, I would expect the sediment data be more recent than 4 years ago. Pollutant migration and***

seasonal flooding since the 2003 data most likely have impacted the concentrations of metals in the sediment, as well as other pollutants and media. Perhaps it has washed the contamination downstream.

The SRE concluded that site soil contaminants are not negatively impacting the Stillwater River. In addition, given that conditions in the river have been evolving for more than 36 years since landfill operations ceased in 1970, U.S. EPA would not expect to see a significant change in sediment in the 4 years since the last sampling event. However, sediment and surface water contaminants will be monitored to ensure that the river is not being degraded by the Site constituents.

16. ***Will there be additional sampling (VOCs, SVOCs, metals, other inorganics) of the contaminated media (surface soil, subsurface soil, bedrock groundwater, shallow groundwater and sediment)? If so, when and where will the work plan be available for review?***

During the response action, groundwater, sediment and surface water samples will be collected either for design or for monitoring purposes. Design documents will be placed in the repositories when they are made publicly available. The Post Removal Site Control plan will outline sampling requirements and will be available at the repositories.

17. ***Is there as proposed work plan for this project?***

During response action several documents including work plans will be prepared and placed in the repositories when they are made publicly available.

18. ***Do you foresee multiple phases of this project?***

In general there will be three phases, design phase (includes pre-design), construction phase and Post Removal Site Control phase (includes long term operation & maintenance).

19. ***What is the expected timeframe for implementing the selected alternative?***

U.S. EPA will begin negotiations for an agreement with Potentially Responsible Parties ("PRPs") in the autumn of 2007. The agreement and required submittals under the agreement will include a schedule for implementation of the response action. The response action requires that groundwater treatment will be conducted within the waste management area to ensure that Maximum Contaminant Levels of the Safe Drinking Water Act are achieved:

a) at the waste management boundary within 8.5 years from the initiation of full-scale treatment (or within 9.5 years from the initiation of the initial pilot test, whichever is earlier), and

b) at all monitoring points beyond the waste management boundary within 20 years

from the initiation of full-scale treatment (or within 21 years from the initiation of the initial pilot test, whichever is earlier).

20. ***Briefly reviewing the alternatives presented in the EE/CA, I am in agreement that Alternative 1 and 2 are not acceptable. Alternative 3 is the strongest in preventing or reducing the impact of seasonal flooding on the impermeable cap. Alternative 4 does not provide sufficient protection against riverbank destabilization due to seasonal flooding. I highly doubt USEPA representatives nor the agency's current contractors have seen the Stillwater River during flood stage. The area of the landfill is completely underwater and the water is turbulent due to hydraulics caused by the accumulation of debris under the bridge. Floating debris will wash away the clay cap material and dislodge the synthetic cap like a plastic bag circling the drain.***

The cap will be designed to take into account all environmental conditions, including flooding. If U.S. EPA determines that a proposed cap design will not withstand all environmental stressors such that its integrity is maintained for the project lifetime, the design will be reconfigured as necessary. In addition, long term operation and maintenance is vital to ensuring the integrity of the selected response action.

21. ***I believe Alternative 3 provides the highest level of protection from flood waters.***

Each alternative has relative strengths and weaknesses. The EE/CA report compares the alternatives using three broad criteria (including effectiveness, implementability and cost) and the following nine detailed criteria: 1) overall protection of human health and the environment; 2) compliance with ARARs; 3) long-term effectiveness and permanence; 4) reduction of toxicity, mobility, or volume through treatment; 5) short-term effectiveness; 6) implementability; 7) cost; 8) state acceptance; and 9) community acceptance. U.S. EPA has selected a response action after evaluating all four alternatives and applying the evaluation criteria.

22. ***Why was removal of the source of contamination not considered in the evaluation of alternatives?***

In order to address immediate danger to human health and environment, substantial numbers of drums and thousands of tons of contaminated soil were removed from the Site for either off-site disposal or on-site treatment. For landfills, U.S. EPA normally considers containment in place as an appropriate remedy after addressing any immediate threats. In this case, U.S. EPA did consider that most of the principal threat waste, e.g., drums, were removed from the Site in determining appropriate response action alternatives for the Site.

23. ***Was encapsulation of the source using betonite or other barrier material to prevent the inflow of groundwater through the landfill considered as an option?***

Complete encapsulation of the landfill mass was not considered as an alternative; however, the low permeability cap selected to fully cover the waste will minimize the amount of surface water that can infiltrate the landfill.

24. ***With regard to groundwater treatment, how will the efficiency of the treatment be monitored?***

The efficiency of the treatment will be monitored through a network of groundwater monitoring wells. The response action design and the Post Removal Site Control Plan will specify the locations of the monitoring well network. Water samples will be collected periodically along with other operational parameters to monitor the progress of the treatment for operational and compliance purposes.

25. ***Where will the treated water be discharged?***

The current selected response action for groundwater treatment is an in-situ technology where groundwater will not be pumped out of the aquifer for treatment, but will be treated in place. Therefore, there are no current plans for a direct discharge.

26. ***Will a National Pollutant Discharge Elimination System (NPDES) Permit be required to discharge the treated groundwater?***

A NPDES permit will not be required because the selected response action does not include a direct discharge of treated groundwater. Please also note that CERCLA §121(e) states that no Federal, State or local permit (e.g., a permit for a direct discharge to surface waters) is required for the portion of any removal or remedial action conducted entirely on-site. A direct discharge of Superfund wastewaters would be "on-site" if the receiving water body is in the area of contamination or is in very close proximity to the site even if the water body flows off-site.

27. ***What is the expected duration of treatment? What contingencies are in place in the event of treatment system failure?***

Treatment is required on an ongoing basis to ensure that the Maximum Contaminant Levels of the Safe Drinking Water Act are achieved: 1) at the waste management boundary within 8.5 years from the initiation of full-scale treatment (or within 9.5 years from the initiation of the initial pilot test, whichever is earlier); and 2) at all monitoring points beyond the waste management boundary within 20 years from the initiation of full-scale treatment (or within 21 years from the initiation of the initial pilot test, whichever is earlier).

If the system fails to meet this requirement, additional treatment and/or alternative treatment will be implemented.

28. ***Will the treatment system be located at a sufficient elevation to prevent being washed away in flood conditions?***

The location of the treatment system is a design issue and flood levels will be taken into consideration during the selection of the location.

29. What impact will the air-stripping system have on the aesthetics of the Stillwater River?

The selected response action has an in-situ treatment system to reduce VOCs in groundwater. Air-stripping is not included in the selected response action as discussed in the proposed cleanup plan.

30. ***What will the emissions be from the air-stripping process? What will the concentrations be and will they present a hazard to local residents?***

The selected response action has an in-situ treatment system to reduce VOCs in groundwater. Air-stripping is not included in the selected response action as discussed in the proposed cleanup plan.

31. ***Will the discharge of the treated groundwater impact Total Maximum Daily Loads (TMDL) for the conventional pollutants, and reduce the permit discharge limits to the municipal treatment systems downstream?***

The selected response action is not expected to directly discharge water to the stream and therefore, the TDML is not applicable.

32. ***What are the expected discharge parameters and the corresponding pollutant concentration?***

For the selected response action described in the proposed cleanup plan, no direct discharge is anticipated.

33. ***Will a Restoration Advisory Board (RAB) or comparable group be developed to act as liaisons between USEPA and the general public, and to also serve as project observers to ensure the agency is acting in the best interest of the local communities and the Stillwater River, for now for generations to come.***

U.S. EPA does not anticipate the formation of a restoration advisory board or a comparable group.

Ohio EPA Comments

1. ***The RAR states that Alternatives 2, 3 & 4 will require Ohio Environmental Protection Agency's (Ohio EPA) waive certain applicable or relevant and appropriate requirements (ARARs) including Ohio EPA's solid waste requirements. However, the specific state requirements which U.S. EPA proposes to waive and the basis for waiver are not identified. Ohio EPA requests that U.S. EPA provide this information and allow Ohio a reasonable opportunity to comment once the information is received.***

Ohio EPA has identified OAC 3745-27-08, which requires an impermeable, engineered cap for the landfill, as a state ARAR. This regulation requires a closing landfill to have a multilayer cap that is composed of a soil barrier (eighteen inches of clay or geo-synthetic clay layer), a flexible membrane liner ("FML"), a drainage layer, and a cap protection layer (vegetative layer). Considered in combination with the source area groundwater treatment, this cap would minimize the exposure of Site trespassers and future recreational users from contaminants in Site soils, and would minimize the migration of contaminants in groundwater.

The selected response action includes an alternate cap (*i.e.*, one that does not fully comply with OAC 3745-27-08) consisting of either (i) 2 feet of clay, 24 inches frost protection, and 6 inches top soil, or (ii) a GCL with a geonet for drainage, plus 1 foot of soil and 6 inches top soil, for a resulting permeability no greater than 1 x 10-7 cm/sec. U.S. EPA believes that the alternate cap, used in combination with source area groundwater treatment will attain a standard of performance i) in minimizing threats to Site trespassers and future recreational users from soil contaminants at the Site, and ii) in minimizing the migration of contaminants in groundwater, that is equivalent to the cap that fully complies with OAC 3745-27-08 when considered in conjunction with treatment of source area groundwater.

Minimizing threats to Site trespassers and future recreational users of the Site. With proper cap maintenance, both the cap in OAC 3745-27-08 and the alternate cap in the selected response action would completely cover the surface of wastes in the landfill with a cap and thus would perform equally well in minimizing the exposure of Site trespassers and recreational users to soil contamination at the Site.

Minimizing migration of source area contaminants in groundwater. One way of reducing migration of source area contaminants in groundwater is to minimize the infiltration of precipitation through the landfill contents. Rain, melted snow or other precipitation that hits the landfill surface and percolates down through the landfill contents picks up contaminants and transfers them to the groundwater where they could migrate. An impermeable cap is often used to minimize the formation of such contaminated leachate where waste is located above the water table.

The alternate cap included in the selected response action, which includes either a clay layer with low permeability or a GCL with even lower permeability, is expected to be very

effective in minimizing the formation of the contaminated leachate from waste above the water table that contributes to the migration of source area contaminants in groundwater. The cap system in OAC 3745-27-08 includes an FML along with either a clay layer or a GCL. The FML would be expected (depending on construction technique) to make the overall permeability of the ARAR-compliant cap lower than the alternate cap and thus also potentially more effective in minimizing the formation of contaminated leachate than the alternate cap. Nonetheless, U.S. EPA believes that Alternative 4 would be equally as effective in minimizing the migration of source area contaminants in groundwater for the following reasons.

1. Contaminated leachate from precipitation as a factor that contributes to contaminant migration with groundwater is much less important at this Site than at other sites for several reasons:

a. The Site is subject to flooding several times per year and is completely inundated by flood water at least every other year. Thus, no matter what kind of cap is used for the landfill, floodwaters percolating through landfill contents from above or rising ground water levels from below will pick up contaminants and result in additional contamination of groundwater;

b. A significant portion of the waste in the landfill is located up to 10 ft. below the water table, resulting in production of contaminated leachate no matter what kind of cap is used for the landfill;

c. The majority of the Site's principal threat waste, *i.e.*, approximately 10,000 drums, were removed for off-site disposal and the associated contaminated soils were excavated, treated, and covered with up to 8 ft. of soil thereby reducing the amount of contaminants that would be transferred to groundwater through contaminated leachate;

d. The landfill's surface area is relatively small, *i.e.*, less than 17 acres, and leachate outbreaks have not been identified at the Site under current conditions without any cap system;

2. Source area groundwater treatment, which in included in the selected response action alternative and which is paired with the ARAR compliant cap in OAC 3745-27-08 for purposes of this waiver analysis, is the determining factor at this Site in minimizing migration of contaminants with groundwater and in achieving performance standards in groundwater. Under the selected response action, regardless of the performance of the cap system, source area groundwater will be treated to reduce the time required to meet MCLs at the waste management boundary to 8.5 years from initiation of full-scale treatment (or 9.5 years from initiation of the initial test pilot, which ever is earlier), and throughout the plume of contaminated wastewater beyond the waste management boundary within 20 years from initiation of full-scale treatment (or 21.5 years from initiation of the initial test pilot, whichever is earlier). If the selected treatment is not effective, or if insufficient progress toward meeting these performance standards

is being made, the selected response action includes a number of contingencies that take effect to ensure that the performance standards are met.

Therefore, under CERCLA Section 121(d), 40 CFR §§ 300.415(j), and 300.430(f)(1)(ii)(c)(4), a waiver of the cap requirement in OAC 3745-27-08 is justified at this Site based upon equivalent performance, as described below.

Degree of protection and level of performance. The selected response action, including the alternate cap and source area groundwater treatment, achieves a degree of protection and level of performance that is equivalent to that achieved by the cap in OAC 3745-27-08 considered in conjunction with source area groundwater treatment. Whichever cap is used, the selected response action requires that MCLs in groundwater be met at the waste management boundary and throughout the contaminated groundwater plume (degree of protection) and that these MCLs be met within the same specified time periods.

Potential to be protective into the future. Both cap systems include cap protection layers that will protect the cap systems from the effects of freeze/thaw cycles.

Time required to achieve beneficial results. Source area groundwater will be treated to reduce the time required to meet groundwater treatment goals to the same specified periods, regardless of the performance of the cap system.

2. U.S. EPA's preferred remedy as described in Alternative 4 of the RAR proposes a "special cap" which relies on compacted clay to reduce infiltration. The responding parties should be required to construct a test pad during design in accordance with the substantive requirements of OAC 3745-27-08 (E), Test Pad Construction and Certification, and certify through the testing procedures that the materials and construction methods proposed for the "special cap" meet the required performance standards.

This is a design issue and Ohio EPA will have an opportunity to review and comment on the design documents. Ohio EPA should raise any concerns they may have at the time of the design review regarding the substantive requirements of OAC 3745-27-08 (E), if any exist.

3. All of the alternatives result in waste left in place. U.S. EPA's March 14, 2007 response to October, 17, 2006 correspondence stated that U.S. EPA believed a discretionary policy five year review was appropriate for the Garland Road Landfill Site. However, the five year review is not discussed in the proposed cleanup plan nor was it addressed in U.S. EPA's March 7, 2007 modification and approval of the draft EE/CA Report. U.S. EPA should memorialize the decision to conduct five year reviews in the final action plan memorandum.

The selected response action for the Site is a non-time critical removal action. If the removal action operates as expected, no remedial response may be necessary. While five-year reviews are not required for removal actions at Sites that are not on the National Priorities List ("NPL") either

by statute or by Agency policy, the Action Memorandum recommends that discretionary five-year reviews be conducted at Site.

4. ***Ohio EPA notes that U.S. EPA's preferred remedy requires that source area ground water meet MCLs at the waste management boundary (WMB) within 8.5 years of initiation of full scale operation of the ozone sparging system, and that the ground water contaminant plume extending beyond the WMB must attenuate to MCLs within 20 years of initiation of full scale operation.***

As U.S. EPA is aware, the Garland Road Landfill sits immediately adjacent to the Stillwater River and is subject to periodic flooding. Wastes which act as a source of ground water contamination exist below the water table and are thought to be further inundated on a periodic basis as the site floods and the water table rises and falls with the river stage. The use of ozone sparging alone as a source area ground water control has not been demonstrated under these circumstances, and while U.S. EPA appears to be confident that it will work, Ohio EPA continues to have reservations about the ability of this technology to maintain the ground water remediation goals over the long term. Due in part to these concerns, U.S. EPA required in their approval with modifications of the EE/CA Report that ground water sampling and annual modeling be performed by the responding party to demonstrate that the ozone sparging system is on track to achieve the remediation goals. If it is not, contingencies involving additional in-situ treatment or other unspecified actions will be triggered to ensure that the remediation goals are met.

While Ohio EPA appreciates the inclusion of additional in-situ treatment if the ozone sparging should prove to be unable to meet the ground water remediation goals, we continue to believe that a proven source area ground water containment technology should be included as a contingency to be implemented if in-situ treatment is unable to meet and maintain ground water remediation goals.

The inclusion of a specific remediation technology as a contingency at this time would unnecessarily limit response options in the future. It is very likely that with operation of the proposed system over a period of years, new information will be gathered which could be useful in evaluating any contingency technology in the event that the in-situ treatment system proves to be ineffective.

5. ***Due to identified weaknesses in the current monitoring well network, ground water contaminant concentrations and flow conditions are not well understood, particularly in the northern and central fill areas, and in some areas of the off-site plume. Given that the success of the ground water remediation will be measured by a combination of ground water sampling and modeling, it is important that the pre-design investigation resolve the weaknesses associated with the current monitoring well network. Ohio EPA proposed locations for additional monitoring wells in our October 17, 2006 correspondence. We believe that these proposed locations (and depending on the results, perhaps others) would be useful in resolving the weaknesses inherent in the current monitoring well network, and we ask that U.S. EPA include them in the pre-design investigation.***

The monitoring network will be evaluated during the pre-design investigation to better understand groundwater flow, and additional monitoring wells may be added as necessary or appropriate. Furthermore, Ohio EPA will have opportunity to review design documents prepared for the Site.

6. ***It remains unclear how the functional wetland will in actuality be that. Intuitively, only a small fraction of the contaminated ground water would be expected to naturally flow through the wetland, and, even then, there is no indication that any mechanism other than volatilization will remove VOCs from the ground water as it moves through or evaporates from the wetland. It appears that the proposed wetland serves no purpose other than to avoid the expense of backfilling the excavated area and artificially extending the ground water line of compliance significantly beyond the waste management area. U.S. EPA should reconsider GM's claim that the wetland will serve any meaningful ground water treatment function and reset the ground water line of compliance at the edge of the actual waste management area.***

The parties performing the response action will develop a Post Removal Site Control ("PRSC") plan. The PSRC plan will provide for monitoring, among other things, whether the wetland is providing treatment as designed. If it is determined that the wetland is not providing treatment, U.S. EPA expects to re-evaluate whether the wetland can be modified to provide treatment, and if not, what additional response actions or other actions would be appropriate.

ATTACHMENT B

ENFORCEMENT ADDENDUM
GARLAND ROAD LANDFILL SITE
MIAMI COUNTY, OHIO

(REDACTED 4 PAGES)

ENFORCEMENT CONFIDENTIAL
NOT SUBJECT TO DISCOVERY

ATTACHMENT C

ADMINISTRATIVE RECORD INDEX

GARLAND ROAD LANDFILL SITE
MIAMI COUNTY, OHIO

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR
GARLAND ROAD LANDFILL SITE
WEST MILTON, MIAMI COUNTY, OHIO

UPDATE #5
SEPTEMBER 2007

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	01/00/95	Hallfrisch, M., M. Angle Ohio Dept. of Natural Resources	File	Ground Water Pollution Potential of Montgomery County, OH-Ground Water Pollution Potential Report No. 28	115
2	10/00/95	Spahr, P., Ohio Dept. of Natural Resources	File	Ground Water Pollution Potential of Miami County, OH-Ground Water Pollution Potential Report No. 27	60
3	06/19/07	Dougherty, K., Weston Solutions, Inc.	Gonzalez, R., U.S. EPA	Letter re: Delivery of Copies of June 2007 Fact Sheet Detailing Proposed Cleanup Plan for the Garland Road Landfill Site to the U.S. EPA Mailroom w/Attached Fact Sheet	6
4	06/25/07	Dougherty, K., Weston Solutions, Inc.	Gonzalez, R., U.S. EPA	Letter re: Placement of the June Public Meeting Advertisement for the Proposed Cleanup Plan for the Garland Road Landfill Site in the June 19th Edition of the Dayton Daily News w/Attached Advertisement	2
5	06/26/07	Resident of West Milton	Pope, J., U.S. EPA	Public Comment Sheet re: Recommended Cleanup Plan for the Garland Road Landfill Site w/Attached E-mail Message	2
6	07/03/07	Applegate, J., City of Union	Pope, J., U.S. EPA	Letter re: City of Union Comments to the EE/CA Report for the Garland Road Landfill Site	3
7	07/16/07	Smindak, J., Ohio EPA	Pope, J., U.S. EPA	Letter re: Comments to the June 2007 Response Action Recommendation for the Garland Road Landfill Site	3

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
8	07/17/07	Resident of West Milton	Ohl, M., U.S. EPA	E-mail Transmittal of Comments to the EE/CA Report for the Garland Road Landfill Site	4
9	07/20/07	Rinehart, K., Miami Conservancy District	Pope, J., U.S. EPA	Letter re: Comments on the Proposal to Mitigate Threats Associated with the Garland Road Landfill Site	9
10	00/00/00			Action Memorandum: **(PENDING)**	

NOTE: This update incorporates by reference all documents in the original Administrative Record Index for this Site and all subsequent updates to that Index through the date of this Update #5.

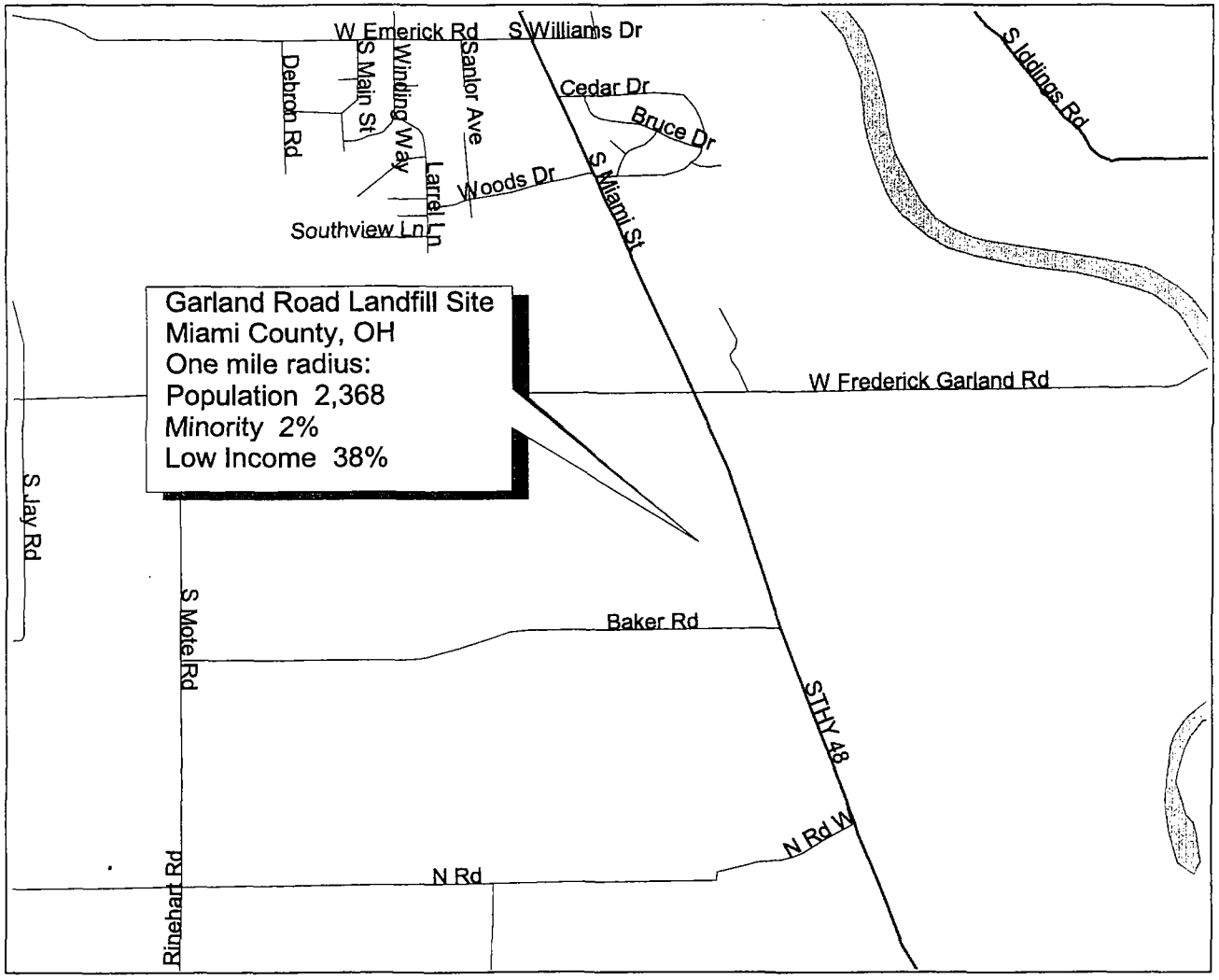
ATTACHMENT D

REGION 5 SUPERFUND EJ ANALYSIS

GARLAND ROAD LANDFILL SITE
MIAMI COUNTY, OHIO

Region 5 Superfund EJ Analysis

Garland Road Landfill Site West Milton, OH



State of Ohio averages:
Minority: 16%
Low Income: 30%

U.S. EPA Region 5
Environmental Justice Case Criteria
for State of Ohio

Minority: 32% or greater

Low Income: 60% or greater

Date of Map: 9/28/07

Source of Map: Census 2000 Database/
ArcView 3.0