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COMMENT(S)

000432

118961

RECORD OF DECISION AMENDMENT

INDUSTRIAL EXCESS LANDFILL SUPERFUND SITE
UNIONTOWN, STARK COUNTY, OHIO

MARCH 2000

PREPARED BY
THE U.S. ENVIRONMENTAL PROTECTION AGENCY

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RESPONSIVENESS SUMMARY

RECORD OF DECISION AMENDMENT
INDUSTRIAL EXCESS LANDFILL SUPERFUND SITE
DECLARATION

SITE NAME AND LOCATION

Industrial Excess Landfill Superfund Site ("IEL" or "the Site"); Uniontown, Stark County, Ohio (EPA ID# OHD000377911)

STATEMENT OF BASIS AND PURPOSE

This decision document represents the United States Environmental Protection Agency's (EPA or "the Agency") selected final remedial action for the Site located in Uniontown, Ohio. This decision document was developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. §§ 9601 et seq., and to the extent practicable, with the National Oil and Hazardous Substances Contingency Plan (NCP), 40 C.F.R. Part 300. The decisions contained herein are based on information contained in the Administrative Record for this Site. EPA is the lead agency on this action. The support agency, the Ohio Environmental Protection Agency (OEPA), has provided comments during the public comment period and has expressed no objections to the remedy changes, with the condition that a long-term monitoring program be implemented on this site that includes limited radiation testing. EPA has found this condition to be acceptable and will be implemented as part of the remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response action selected in this Record of Decision (ROD) Amendment, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The EPA, in consultation with the OEPA, is modifying the original selected remedy to address contaminated groundwater, contaminated soil, and wastes buried at the site. This remedy is intended to

be the final action for the site and addresses all contaminated media, including: contaminated soil and groundwater, landfilled wastes, and emission of landfill gases. The selected remedy consists of the following major components:

- Construction of a modified landfill cap in compliance with the specifications set forth in this ROD Amendment;
- Implementation of monitored natural attenuation (MNA) to reduce contaminant levels in the groundwater;
- Expansion of existing methane venting system (MVS) to collect and treat landfill gases;
- Monitoring the cap, groundwater, and MVS to ensure the remedy is effective. The existing groundwater monitoring well network will be upgraded by installing new wells and abandoning others, as needed;
- Placing deed restrictions on the future use of the site property; and
- Installing a fence around the perimeter of the site.

EPA is eliminating as unnecessary the requirement to construct a groundwater pump-and-treat system to address organic and metal contamination in the groundwater within and immediately downgradient of the landfill. Also, the need for pumping groundwater to maintain the water level beneath the bottom of the wastes will no longer be required, based on the findings from a study conducted by the Agency subsequent to the issuance of the July 1989 ROD.

STATUTORY DETERMINATIONS

The final selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. To the extent that natural attenuation processes observed to be occurring are recognized as *in situ* "treatment", the selected remedy satisfies, in part, the statutory preference for treatment as a principal element. The remedy does utilize permanent solutions and alternative treatment technologies to the maximum extent practicable. Because this remedy may result in hazardous substances remaining on-site above health-based levels, a review will be conducted at least every five years after commencement of

the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Wm. E. Muno

William E. Muno, Director
Superfund Division
Region 5

3/1/00
Date

RECORD OF DECISION AMENDMENT
INDUSTRIAL EXCESS LANDFILL
UNIONTOWN, OHIO

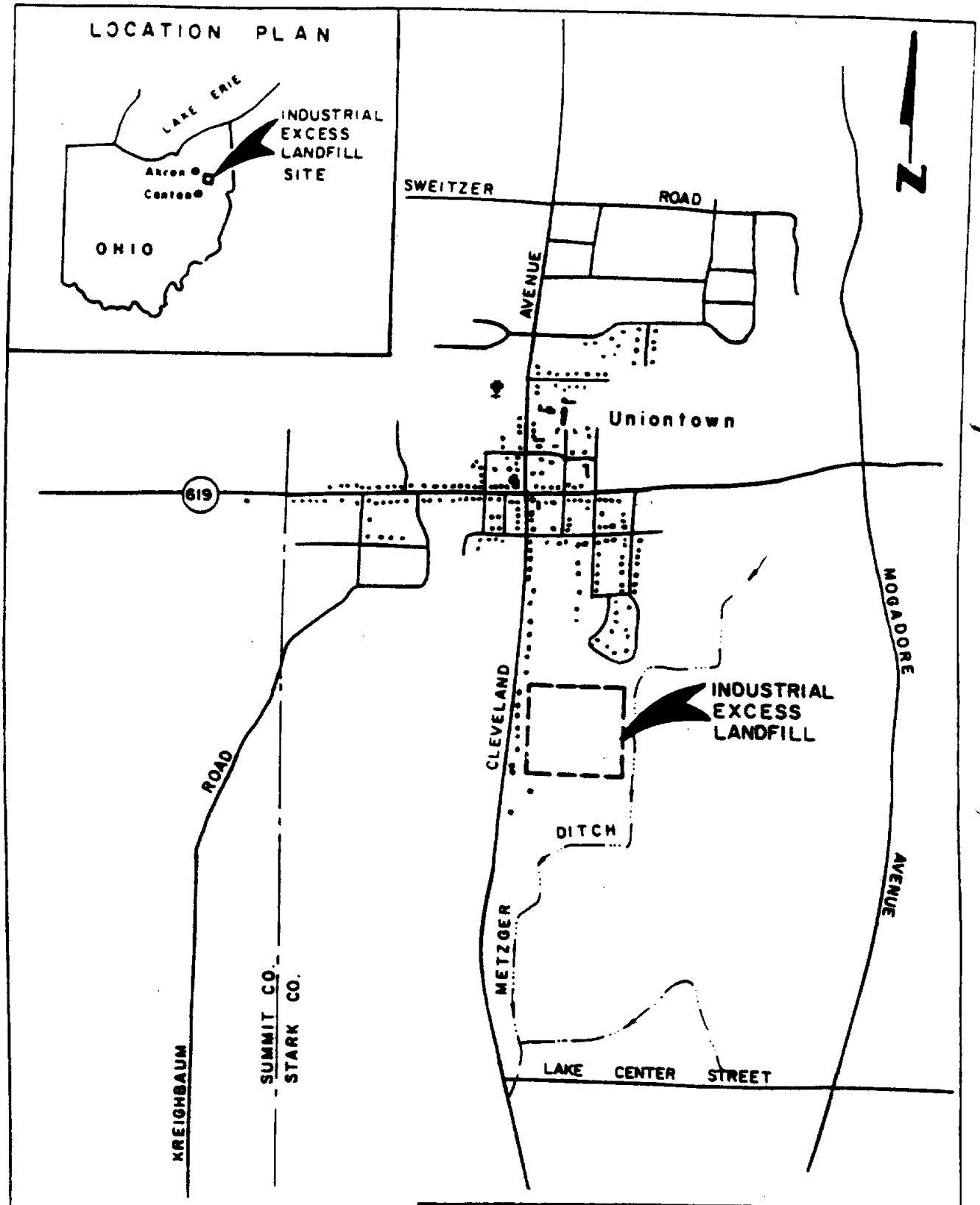
I. INTRODUCTION

This document amends the Record of Decision (ROD) issued on July 17, 1989 for the Industrial Excess Landfill Superfund Site ("IEL" or the "Site") located in Uniontown, Stark County, Ohio (see Figure 1). EPA is revising the original cleanup plan as follows: 1) Elimination of the groundwater pump and treat system 2) Addition of monitored natural attenuation (MNA) and 3) Modification of the specifications for the landfill cap. The bases for these changes are summarized below. All other components of the 1989 ROD, such as landfill gas control, fencing, long-term monitoring, and institutional controls, have been retained. In amending the 1989 ROD, EPA has followed the procedures set forth in Section 117 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9617, and in Section 300.435(c)(2)(ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR § 300.435(c)(2)(ii).

The lead agency for the remedial action at this Site is EPA. The Ohio Environmental Protection Agency (OEPA) is the support agency and has verbally supported the changes to the remedy.

The Agency believes the amended remedy is protective of human health and the environment, complies with federal and state applicable or relevant and appropriate requirements (ARARs), and is cost-effective. The selected remedial action utilizes permanent solutions and considered the use of alternative treatment technologies to the maximum extent practicable. Since wastes will be left in place on-site, the Agency will conduct periodic reviews, beginning within five years after commencement of the remedial action, to ensure that the remedy continues to provide adequate protection of human health and the environment, in accordance with CERCLA and the NCP (40 C.F.R. Part 300). EPA will determine, in connection with the five-year review process, whether the amended remedy will achieve cleanup goals in a timely manner or if changes to the remedy will be needed to achieve these objectives.

The decision to eliminate the pump and treat system is based primarily upon the Agency's finding that a plume of contamination outside of the site boundaries no longer exists. For example, sampling results from nearby residential wells in 1998 detected few inorganic contaminants that could be attributed to IEL, all of them significantly below their respective federal maximum



scale approximate
1" : 1,550'

INDUSTRIAL EXCESS LANDFILL
STARK COUNTY, OHIO
FIGURE 1
LOCATION PLAN

contaminant levels (MCLs) for drinking water. This contrasts with the situation described in the 1988 Remedial Investigation (RI) Report, when a contaminant plume extended approximately 1,000 feet west of the site. The 1989 ROD also gave as a reason for a pump-and-treat system the need to lower the water table. At that time, EPA thought that pumping would be necessary to ensure that the water table did not come into contact with buried wastes. Based on the data it has collected since 1989, however, EPA no longer considers a reduction in the water table to be essential. Over the past decade, the water table appears to have remained below the waste in the landfill, and will fall still lower, once the new landfill cap is constructed.

EPA believes that any contamination outside the source area, i.e., outside the landfill itself, will continue to diminish due to natural attenuation. Data collected since 1989 suggest that one or more natural attenuation processes are at work at the site. For example, EPA has found organic compounds such as chloroethane, vinyl chloride, and dichloroethane. These compounds are associated with the biodegradation of longer-chain (i.e., parent) compounds such as 1,1,1-trichloroethane, trichloroethene, and BTEX, all of which were present at IEL prior to 1989.

The decision to modify the landfill cap is primarily based on the additional experience the Agency has gained over the past 10 years in this field, particularly in the use of synthetic materials and performance of compacted clay under repeated freeze thaw cycles. Using a computer model commonly used to determine the performance of a particular cap design ("HELP"), the chosen modified cap is expected to perform as well as the original design at a substantial cost savings.

This ROD amendment will become part of the administrative record prepared by EPA for this Site, in accordance with §300.825(a)(2) of the NCP. An index to the administrative record is attached to this ROD amendment for convenience. The administrative record, including the Responsiveness Summary containing responses to comments received during the public comment period, is available for viewing at the Site information repositories whose addresses are provided in Section VIII.

II. LOCATION AND DESCRIPTION

IEL is a privately-owned 30-acre mixed-waste landfill located at 12646 Cleveland Avenue, Uniontown, Ohio, approximately 10 miles southeast of Akron (see Figure 1). The landfill closed in 1980.

Homes are located principally to the north, west, and southwest of the site. A sod farm is located to the east of the landfill, across from a rather narrow stream called Metzger Ditch. Covered with overgrown grasses, small trees, and shrubs, the site itself is gently sloping, with the highest elevation towards the northwest corner. The area around IEL is rural/residential - a mixture of residential, agricultural, commercial, and light industrial use. Since the July 1989 ROD was signed, the area has become increasingly residential with many new homes being built nearby.

Sections 1 and 3 of the Remedial Investigation (RI) report which EPA issued in July 1988 described, in detail, the contaminant problems found by EPA prior to issuance of the 1989 ROD. The 1988 RI report indicated the following:

- Landfilling of municipal, commercial, and industrial wastes occurred over approximately 80-85 percent(%) of the Site property. EPA estimated that approximately 1,000,000 gallons of liquid waste materials were disposed at IEL. A total of 780,000 tons of wastes were disposed at IEL before it closed in 1980. Tables 3-1 and 3-2 of the 1988 RI provides a listing of waste materials, including solvents, disposed at the landfill;

- Off-site contaminant migration posing a threat to public health and the environment was associated with the groundwater. Sampling of residential and groundwater monitoring wells showed minor to significant groundwater contamination from organics and metals including benzene, vinyl chloride, 1,2-dichloroethane, barium, and nickel. Vinyl chloride was found in three residential wells downgradient of the Site. Benzene and 1,2-dichloroethane were found at elevated levels in certain monitoring wells, while nickel was present at higher than ambient water quality criteria levels in eight downgradient residential wells (see Table 1). The groundwater contamination extended from within the landfill to several hundred feet downgradient (west) of the Site and was confined to the sand and gravel aquifer. At the time the RI was conducted, there was no evidence of landfill-associated substances in the deeper bedrock aquifer; and

- The most extensive body of contaminated materials consisted of wastes and waste-soil mixtures on-site (see Table 2). The contamination principally originated from two small leachate seep areas in the landfill and in the sediments of

the on-site ponds. Sampling of soils and sediments indicated that contamination of these media was limited to the area encompassed by the Site.

III. SITE HISTORY

For a history of the IEL Site up to 1989, see the "Industrial Excess Landfill Superfund Site Record of Decision and Responsiveness Summary," July 1989, pp. 1-4.

July 17, 1989 Record of Decision

On July 17, 1989, EPA signed a ROD for IEL, selecting the final remedial action to address the contamination problems associated with the site. The selected remedy consisted of the following major components:

- Installation of a multi-layer, RCRA-Subtitle-C-compliant cap over the entire surface of the landfill;
- Expansion of the existing methane gas venting system;
- Extraction and treatment of contaminated groundwater beneath and near the landfill until cleanup levels are achieved;
- Extraction of groundwater to maintain the water table level beneath the bottom of the wastes to protect groundwater from further contamination;
- Installation of a fence around the perimeter of the site;
- Placement of deed restrictions on the future use of the site property; and
- Monitoring of the cap, groundwater pump and treat system, and methane venting system to ensure that the remedy is effective.

Interim Measures to Protect Nearby Community

At the same time as EPA proceeded toward implementation of the remedy, the Agency took steps to protect public health during the period before the final remedy could be fully effective. The most important of these was the provision of municipal water to homes near the site where drinking water wells were affected or threatened by IEL contamination. This action was carried out through a separate ROD issued in 1987 and was eventually

implemented by the responsible parties. By early 1991, nearly 100 homes in the vicinity of IEL had been connected to a new municipal water line. EPA also continued to operate and maintain the methane venting system it installed in 1986. The methane venting system prevents off-site migration of landfill gases that might otherwise threaten nearby homes and businesses. On April 1, 1994, the Ohio EPA took over responsibility for operation and maintenance of this system. Other interim measures taken by EPA include: 1) the temporary relocation of some residents whose homes were being outfitted with air strippers to remove vinyl chloride from their well water; and 2) the installation of a fence on the western and southern boundaries of IEL to restrict site access.

Remedy Design

Design of the overall remedy began in 1990 and proceeded slowly, primarily due to public concern about the possibility of radioactive waste being buried in the landfill. EPA responded to this concern by testing groundwater for radiation and asking the Agency's Science Advisory Board (SAB) to review the data. the SAB concluded that there was no evidence of radioactive contamination at IEL and that no further delay in implementing the IEL remedy was warranted. Accordingly, EPA resumed work on the design, including additional groundwater sampling.

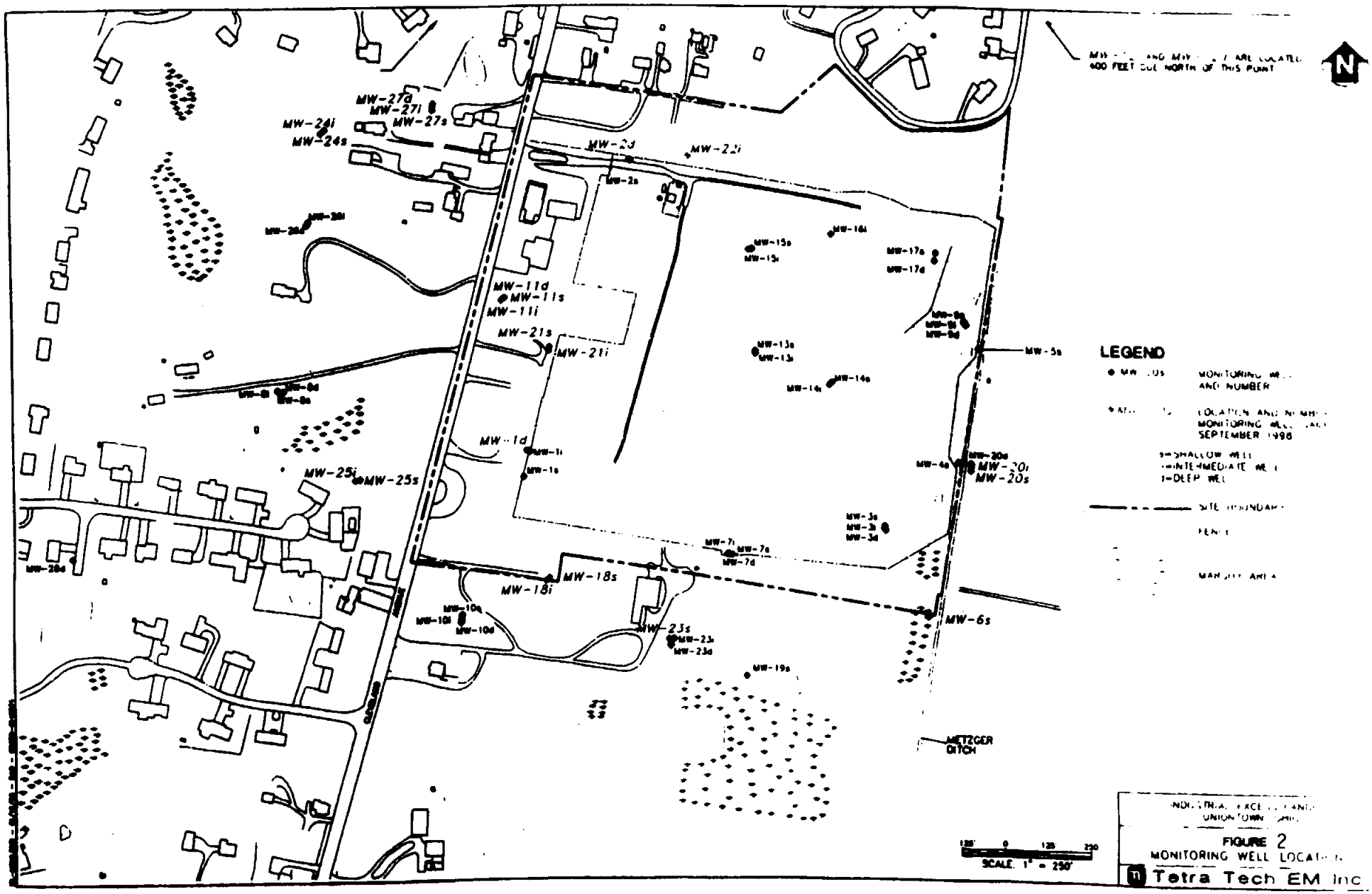
IV. BASIS FOR ROD AMENDMENT

The 1989 ROD called for EPA to collect some additional data to supplement the Remedial Investigation. In fulfillment of this directive, the Agency undertook 7 additional groundwater surveys from 1990 to 1993. Two more surveys were conducted by the PRPs in 1997 and 1998. Thus, a total of 9 rounds of sampling data were generated after the 1989 ROD was signed. Based primarily on a review of these data, the Agency concluded that modifications to the original cleanup plan were appropriate. Summaries of data reviewed by EPA can be found in various documents submitted as part of the administrative record for this site. The rationale for the changes is as follows:

Elimination of the Pump and Treat System - At the time the 1989 ROD was being prepared, a plume of groundwater contamination attributable to IEL was observed to extend approximately 1,000 feet west of the site. This finding was based on sampling nearby residential wells and the 28 monitoring wells (nested wells designated as MW-1 through MW-12)constructed by EPA during the 1988 RI. Subsequent to issuance of the 1989 ROD, EPA continued

to monitor the groundwater (with the addition of 30 new monitoring wells designated as MW-13 through MW-28), the last survey being conducted in September 1998 (see well locations in Figure 2). A comparison of groundwater data collected in the 1988 RI with recent data shows that levels of contaminants of interest shown in Table 1 have gone down. Also, the recent groundwater data showed organic compounds such as benzene and vinyl chloride were no longer detected above federal maximum contaminant levels (MCLs) for drinking water outside of the landfill boundaries (see Table 3). There are, however, elevated levels of benzene in the north-central portion of the landfill which have been observed in the last two surveys. Also, certain metals were detected above MCLs outside the landfill. However, the total number detected were fewer, the concentrations were lower on average, and the exceedances appeared to be sporadic in nature. In addition, sampling of nearby residential wells in 1998 detected few metals, and those found were at concentrations well below MCLs (see Table 4). Given the current site conditions as described above, the Agency concluded that a pump-and-treat system was no longer justifiable, and that this component of the 1989 remedy should be eliminated. Groundwater monitoring data and technical evaluations conducted by the Agency in making this decision are included in the administrative record (Nos. 2,11, 12,15,and 16 in the index).

Evidence of Natural Attenuation Processes Occurring The lack of a contaminant plume would have been a sufficient basis for eliminating the pump-and-treat system. But, in addition, EPA believes that natural attenuation is occurring at IEL such that contamination outside the landfill source area will continue to decline. Evidence that natural attenuation is at work include the following: 1) Reduction in both the number of contaminants detected and their respective concentrations over time, possibly through dilution, sorption, or other natural attenuation processes and 2) Presence of "daughter compounds" (e.g., vinyl chloride, chloroethane) of known organic contaminants of concern such as 1,1,1 trichloroethane, 1,2 dichloroethane, and 1,2 dichloroethene, possibly indicating reductive dechlorination processes at work. The ability of these natural processes to maintain groundwater quality outside the landfill will be enhanced by the installation of a new landfill cap that will prevent any further release of contamination from the source area. The Agency's and OEPA's technical evaluation of natural attenuation at IEL is included in the administrative record. While evidence suggests that natural attenuation processes may be degrading groundwater contaminants around the Site, additional monitoring is necessary to determine the *rate* of degradation.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MW-7s
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MW-18s
MW-18i
MW-10s
MW-10i
MW-10d
MW-23s
MW-23i
MW-23d
MW-19s
MW-6s
METZGER DITCH
LEGEND
MONITORING WELL AND NUMBER
LOCATION AND NUMBER OF MONITORING WELL PLACED SEPTEMBER 1998
S=SHALLOW WELL
I=INTERMEDIATE WELL
D=DEEP WELL
SITE BOUNDARY
FENCE
MARSHY AREA
SCALE: 1" = 250'
FIGURE 2
MONITORING WELL LOCATIONS
Tetra Tech EM Inc

This and other pertinent data will be collected as part of the long-term monitoring program for IEL.

Construction of Modified Landfill Cap:

The original remedy called for the construction of a conventional hazardous waste cap for the site - one that would include both clay and synthetic liners. EPA has proposed to eliminate the clay layer for the following reasons:

Agency Experience with Synthetic Materials: Since the issuance of the ROD in 1989, the Agency has gained significant experience in using synthetic materials in landfill covers. The Agency has included synthetic materials in the designs for many capping remedies, and has had an opportunity to evaluate their performance at various Superfund sites. Recent studies conducted by EPA, other federal agencies, and academia have shown that a cover employing synthetics can provide the same degree of protectiveness as a cap using natural material such as clayey soil, with appreciable savings in cost. Other benefits in using synthetics include the ease with which these materials can be applied at a site and excellent resistance to damage caused by repeated freeze/thaw cycles. The ability to resist frost damage makes it possible for synthetics to be placed above the frost line, a key cost consideration for a large site such as IEL, located in the northern part of Ohio. Documents relevant to characteristics of synthetic materials are included in the administrative record.

Lack of a Nearby Borrow Source: An important factor which weighs against the use of compacted clay at IEL is the absence of nearby borrow sources. This would result in the need for the material to be trucked into the site from a distant location (some estimates put the closest source approximately 30 miles away). It has been calculated that it would take about 27,000 truckloads to meet the original cap design requirements (24 inches of compacted clay/12 inches engineered base/12 inches of gravel/24 inches fill/6 inches topsoil), versus the estimated 13,000 required if a synthetic rather than a clay liner is used. Given the close proximity of homes to IEL and the relatively narrow access roads (Cleveland Avenue) to the site, risks from truck-related accidents would be greatly reduced by minimizing the number of truckloads of clay needed to construct the cap over the site.

Based upon the arguments presented above, EPA proposed to modify the original cap design by eliminating the compacted clay liner.

The modified design calls for the use of 1) the existing soil cover 2) 12-inch engineered base/gas collection layer 3) a geomembrane liner, preferably very low density polyethylene (VLDPE), having a minimum thickness of 40-mil 4) a drainage layer and 5) 24 inches of top cover. EPA estimates that this modified cap will provide a degree of impenetrability comparable to the original cap design (i.e., hydraulic conductivity of less than or equal to 10^{-7} centimeters/second). This level of performance was confirmed using the U.S. Army Corps of Engineers' Hydrologic Model of Landfill Performance ("HELP") model simulation. The results of the HELP analysis are included in the administrative record for the ROD amendment.

I. DESCRIPTION OF ALTERNATIVES

Alternative #1: The Original Selected Remedy

The July 1989 Record of Decision consisted of the following major components:

- Installation of multi-layer RCRA Subtitle C compliant cap over the entire surface of the landfill;
- Expansion of the existing methane venting system;
- Groundwater pump-and-treat system to treat contaminated groundwater until cleanup levels are achieved;
- Pumping groundwater to maintain the water table beneath the bottom of the wastes;
- Installation of a fence around the perimeter at the site;
- Deed restrictions on the future use of the site property; and
- Monitoring the cap, groundwater pump and treat system, and methane venting system to ensure the remedy is effective.

Total Capital Cost: $14,007,000 (1996 Dollars)

Annual O&M Cost: $1,361,000 @ Year=1, $923,000 @ Years=2-5, and $858,000 @ Years=6-30

Present Worth of O&M over 30 years: $11,324,000 (1996 Dollars at 7% interest)

Net Present Worth of Project: (30 Years)	Capital Cost + Present Worth of O & M = $14,007,000 + $11,324,000 = <u>$25,331,000</u> (1996 Dollars)
	= $25,964,000 (1997 Dollars*)

* Using MEANS 30-city construction cost index (2.3% from 4/96 to 4/97)

ARARs for this alternative are listed on pages 28 through 31 of the July 1989 ROD.

Alternative #2: The New Proposed Remedy

- Installation of a cap with performance characteristics similar to the originally prescribed RCRA Subtitle C cap. The alternative cap would encompass the following layers:

  Use of the existing soil layer, approximately 1 to 1.5 feet thick, suitably recompacted and augmented by additional soil as needed, as the bottom layer;

  12 inches of engineered sub-base and gas collection layer;

  A geomembrane liner, preferably very low density polyethylene (VLDPE) at least 40 mil thick or equivalent, over the entire landfill area;

  A drainage layer using a geonet having a minimum hydraulic conductivity of 10^{-2} cm/sec;

  Geotextile fabrics directly above both the 12-inch engineered base/gas collection layer and drainage layer;

  18 inches of top fill; and

  6 inches of topsoil.

- Expansion of the existing methane gas venting system;

- Treatment of contaminated ground water outside the landfill through natural attenuation;

- Installing fencing around the perimeter of the site;

- Deed restrictions on the future use of the site property;

- Monitoring the cap, the progress of natural attenuation, and the methane venting system to ensure that the remedy is effective; and

- Monitoring ground water near residential wells and implementation of additional measures to protect public health in the event monitoring indicates unacceptable levels of contamination threaten residential wells.

Total Capital Cost: $8,468,300 (1997 Dollars)

Annual O&M Cost: $541,000 @ Year=1, $411,000 @ Years=2-5, $408,000 @ Years=6-30

Present Worth of O&M over 30 years: $5,196,409 (1997 Dollars at 7% discount rate)

Net Present Worth of Project: Capital Cost + Present Worth of O & M = $8,468,300 + $5,196,409 = $13,664,709 (1997 Dollars)

ARARs for this alternative are presented in the attached Table 5 of this document.

The remedial action objectives of the original remedy were to contain contamination within the landfill, restore ground water outside the landfill to drinking water standards, and to eliminate any hazards posed by landfill gases. The objectives of the new proposed remedy are the same.

VI. EVALUATION OF ALTERNATIVES

The NCP requires that the alternatives be evaluated against nine evaluation criteria. This section summarizes the relative performance of the alternatives by highlighting the key differences among the alternatives in relation to these criteria. The nine evaluation criteria are categorized as: (1) Threshold Criteria; (2) Primary Balancing Criteria; and (3) Modifying Criteria. Each of these terms is described as follows:

THRESHOLD CRITERIA

1) Overall protection of human health and the environment addresses whether a remedy provides adequate protection of human health and the environment and describes how risks posed through

each exposure pathway are eliminated, reduced or controlled through treatment and engineering controls. The selected remedy must meet this criterion.

2) **Compliance with ARARs** addresses whether a remedy will meet federal and state environmental laws or justifies a waiver from such requirements. The selected remedy must meet this criteria or waiver of the ARAR must be obtained.

PRIMARY BALANCING CRITERIA

3) **Long-term effectiveness and permanence** refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met.

4) **Reduction of toxicity, mobility, and volume** through treatment is the anticipated performance of the treatment technologies a remedy may employ.

5) **Short-term effectiveness** signifies: (1) short-term risks to a community during implementation of an alternative; (2) potential effects on workers engaged in implementation of the remedy; (3) potential environmental effects of the remedial action and effectiveness of mitigative measures; and (4) time until protection is achieved.

6) **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

7) **Cost** includes estimated capital and O&M costs, also expressed as net present-worth cost.

MODIFYING CRITERIA

8) **Support Agency (OEPA) acceptance** reflects aspects of the preferred alternative and other alternatives the OEPA favors or objects to, and any specific comments regarding federal and state ARARs or the proposed use of waivers.

9) **Community acceptance** summarizes the public's general response to the alternatives described in the proposed plan and in the RI/FS, based on public comments received.

APPLICATION OF THE NCP CRITERIA TO THE TWO ALTERNATIVES

The primary differences between the two alternatives are the design of the landfill cap and the inclusion or exclusion of a pump-and-treat system. Consequently, the focus of the comparative evaluation will be these specific differences.

1. Overall protection of human health and the environment:

   Alt. #1: Pump and Treat: Protective of human health and the environment by extracting and treating contaminated groundwater;

   RCRA C Cap: Protective of human health and the environment by containing hazardous substances within the landfill, and preventing direct contact with wastes.

   Alt. #2: Monitored Natural Attenuation: Protective of human health and environment. Natural attenuation should reduce contamination to drinking water standards before it reaches area where residents still rely on private well water. Monitoring will allow timely intervention if any unexpected increase in contamination occurs.

   Modified RCRA C Cap: Protective of human health and the environment by containing hazardous substances within the landfill and preventing direct contact with wastes. EPA's experience with geosynthetic liners indicates that an additional clay layer is not necessary at IEL.

2. Compliance with ARARs

   Alt. #1: Pump and Treat: Complies with ARARS;

   RCRA C Cap: Complies with ARARs.

   Alt. #2: Monitored Natural Attenuation: Complies with ARARs. EPA expects ground water outside the landfill to meet drinking water standards. It already meets MCLs for VOCs. With a cap in place, preventing further release of metals from the landfill, ground water outside the landfill should consistently meet MCLs for metals as well.

   Modified RCRA Cap: Complies with ARARs. RCRA standards and their Ohio counterparts are not

"applicable" to IEL in a strict legal sense because waste disposal at IEL predates RCRA. Many of these standards are relevant and appropriate, however. (See list above in section V.)

3. Long-term effectiveness and permanence

Alt. #1: Pump and Treat: Provides long-term effectiveness and permanence by extracting and treating the contaminated groundwater until desired cleanup levels are achieved;

RCRA C Cap: Provides long-term effectiveness and permanence through a proven containment system with on-going maintenance.

Alt. #2: Monitored Natural Attenuation: Provides long-term effectiveness by reducing the level of contamination at the site. Groundwater data will be collected on a regular basis for at least 5 years to track the progress in reducing contaminant levels by natural means.

Modified RCRA Cap: Provides long-term effectiveness and permanence through a proven containment system with on-going maintenance.

4. Reduction of toxicity, mobility, or volume:

Alt. #1: Pump and Treat: Mobility of contaminants in groundwater is reduced by extraction and treatment. Volume and toxicity are reduced, to a lesser degree, through the regeneration of spent carbon used in the treatment of groundwater. The landfill gas management component of this alternative reduces the toxicity, mobility, and volume of contaminants found in the landfill gas through continual operation of the MVS.

Alt. #2: Monitored Natural Attenuation: Reduce levels of contaminants in the groundwater, outside the landfill. Like the original remedy, the new remedy would also reduce toxicity, mobility, and volume of contaminants through the continued operation of the methane venting system.

5. Short-term Effectiveness:

Alt. #1: Pump and Treat: Construction of groundwater treatment system will present little risk to the community. In 1989, it was estimated that the extraction and treatment of the existing groundwater contamination would take approximately 3 years.

RCRA C Cap: Construction of this cap will present little risk to the community. There will be a temporary increase in construction volume (e.g., truck traffic along main road to the site) due to the amount of materials being transported to the site.

Alt. #2: Monitored Natural Attenuation: No construction involved; therefore no construction-related risks. No significant short-term risks from contamination - most residents downgradient from the landfill use municipal water system.

Modified RCRA Cap: Less risk posed to community due to less truck traffic on main road to the site. This alternative cap is expected to be completed in shorter time than a RCRA C cap.

6. Implementability

Alt. #1: Pump and Treat: Proven technology, widely used, and easily implementable.

RCRA C Cap: Same as above. Presumptive remedy for landfill-type Superfund sites.

Alt. #2: Monitored Natural Attenuation: Passive type of treatment requiring minimal oversight. Determining effectiveness of this remedy will require periodic monitoring of specific compounds (i.e., "daughter compounds") which can be done as part of the regular monitoring conducted at the site during the long-term operation-and-maintenance phase of the project.

Modified RCRA Cap: Implementability similar to RCRA C Cap.

7. Cost

Alt. #1: $25,964,000 (1997 $)

Alt. #2: $13,665,709 (1997 $)

8. Support Agency Acceptance

Alt. #1: The State of Ohio concurred with the original remedy in 1989.

Alt. #2: The State of Ohio has no objections the remedy changes, but has set conditions which the Agency has accepted.

9. Community Acceptance

Alt. #1: Many commenters felt that EPA was selecting a remedy without having first investigated the contamination problem at IEL sufficiently.

Alt. #2: Alternative 2: Many commenters still believe that EPA has not investigated the site sufficiently to choose a remedy.

Below is the table summarizing the comparison of the two alternatives evaluated:

TABULATED SUMMARY OF REMEDIAL ALTERNATIVES

EVALUATION CRITERIA	[illegible]	[illegible]
Overall Protection of Human Health and the Environment	Provides overall protection of human health and environment	Provides overall protection of human health and environment.
[illegible]	[illegible]	[illegible]
3. Long-term effectiveness and permanence	Provides long-term effectiveness	Provides long-term effectiveness

4. Reduction of toxicity, mobility, or volume	Groundwater contaminants reduced by extraction and treatment. MVS will reduce toxicity, mobility, and volume of contaminants in the landfill gas.	Natural attenuation will reduce levels of contaminants in the groundwater. MVS will reduce toxicity, mobility, and volume of contaminants in the landfill gas.
6. Implementability	Implementable. Presumptive remedy for a landfill-type Superfund site.	Implementable. Should be completed sooner than Alternative 1.
8. State Acceptance	Accepts	Accepts

SELECTION OF THE REMEDY

Based on the preceding comparison, EPA selects Alternative #2 as the final remedy for the IEL Superfund Site. Alternative #2 represents the best balance among the nine evaluation criteria provided in the NCP. The description of Alternative #2 in Section V of this document presents the components of the selected remedy.

VI. SUPPORT AGENCY COMMENTS

OEPA has been supportive of the Agency's decision. During the public meeting on March 2, 1999, OEPA verbally indicated it has no objections to the proposed changes, provided the following conditions were met:

- A long-term monitoring plan acceptable to OEPA;
- That gross alpha and gross beta radiological analyses be included in any long-term monitoring at IEL.

EPA believes the contingencies outlined by OEPA above are acceptable. The Agency has involved OEPA in the development of a long-term monitoring plan for IEL since 1998, in preparation for discussions with the PRPs. The agencies are in general agreement on many key matters concerning the plan, such as duration of monitoring and the type of parameters to be analyzed. EPA will continue to include OEPA in future discussions concerning the long-term monitoring plan and expects the finalized version to be acceptable to the State.

OEPA's suggestion on conducting gross alpha and gross beta radiological testing is acceptable to the Agency. EPA plans to conduct these types of radiological analyses as part of a long-term monitoring program at IEL.

VII. STATUTORY DETERMINATIONS

The selected remedy must satisfy the requirements of Section 121 of CERCLA to:

1. Protect human health and the environment;
2. Comply with ARARs;
3. Be cost-effective;
4. Utilize permanent solutions and alternate treatment technologies to the maximum extent practicable; and
5. Satisfy the preference for treatment as a principal element of the remedy.

EPA believes the selected remedy for the Site, as modified by this ROD Amendment, satisfies the above requirements of Section 121 of CERCLA. Its ability to adequately protect human health and environment, comply with ARARs, and be cost effective have been extensively discussed in previous sections of this document. It utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. To the extent that natural attenuation processes observed to be occurring are recognized as *in situ* "treatment", the selected remedy satisfies, in part, the statutory preference for treatment as a principal element. Due to the large volume and heterogeneous distribution of wastes throughout the landfill, treatment of the waste materials itself is not practicable. Rather, the presumptive remedy for a site such as IEL is containment, with source control measures to address areas where it is found to be directly impacting the groundwater and it is cost effective to remove/stabilize ("hot spots"). The principal threat posed by contaminants found in the waste and soil-waste media will be

addressed by preventing it from further contaminating the groundwater under the landfill. Given past investigations of IEL that have revealed no hot spots and current site conditions suggesting the absence of a contaminant plume off-site, the selected remedy represents the best possible solution for addressing the problems at IEL.

VIII. PUBLIC PARTICIPATION COMPLIANCE

Compliance with the public participation requirements of Section 113 (k)(2)(B)(i-v) of the CERCLA, as amended by SARA, have been achieved for the Site by the following actions:

- Site information repositories were established at the Hartville Branch Library and the Lake Township Clerk's office to allow local access to Site-related documents;
- The Site Administrative Record has been updated to include the Proposed Plan for a ROD Amendment and other documents relied upon for this ROD Amendment, and has been placed in the Site information repositories mentioned above;
- A formal advertisement announcing the commencement of the public comment period, the availability of the proposed plan, and the time and place of the public meeting was placed in the local papers of general circulation;
- The Proposed Plan for a ROD Amendment was released for public comment and placed into the Administrative Record on January 4, 1999;
- A sixty (60) day public comment period was established and scheduled to end on March 11, 1999. This comment period was subsequently extended another thirty (30) days to April 11, 1999 after the Agency agreed to a timely request for an extension;
- A public meeting was held on March 1, 1999, at the Uniontown Community Center at which the EPA presented the Proposed Plan to the community and received written and verbal comments. A transcript was kept of the public meeting and was made available to the public and placed in the Administrative Record and Site repositories;
- Prior to the public meeting, two (2) availability sessions were held at the Uniontown Community Center on February 28, 1999 to provide interested persons an opportunity to learn

more about the proposed changes and other related information on IEL.

- The EPA has received oral and written comments regarding the Proposed Plan for a ROD Amendment. Comments have been addressed in the attached Responsiveness Summary (Appendix A).

This ROD Amendment will become part of the Administrative Record pursuant to the *National Oil and Hazardous Substances Contingency Plan* (NCP), Section 300.825(a)(2). The Administrative Record can be found at the Site repositories located at:

1) Lake Township Clerk's Office
12360 Market North
Hartville, Ohio 44632

2) Hartville Branch Library
411 East Maple Street
Hartville, Ohio 44632

These documents can also be found at the EPA Region 5 Records Center - 7th floor, Ralph Metcalf Building, 77 West Jackson Boulevard, Chicago, Illinois, 60604.

TABLE 1

CONTAMINANTS OF INTEREST DETECTED IN GROUNDWATER - IEL

CONSTITUENT	CONCENTRATION RANGE (ppb)
Monitoring Wells	
Acenapthene	2
Benzene	1.2 - 10
Butylbenzylphthalate	1 - 6
Benzoic Acid	9
Chlorobenzene	<5 - 27
4-Chloro-3-Methylphenol	1 - 5.2
1,2-Dichloroethane	<5 - 10
1,1-Dichloroethane	<5 - 25
1,4-Dichlorobenzene	10 - 13
2,4-Dimethylphenol	3
Di-n-Octylphthalate	1
Ethylbenzene	<5 - 110
2-Methylnapthalene	2.7 - 3.0
4-Methylphenol	3
n-Nitrosodiphenylamine	<10 - 15
Napthalene	7.9 - 10
Phenol	3.7
Trans-1,2-Dichloroethene	3.8 - 4.3
Toluene	0.9 - 13
Total Xylenes	<5 - 355
Barium	75 - 1,430
Cadmium (Total)	21
Copper (Total)	<19 - 575

TABLE 1 (Continued)

CONTAMINANTS OF INTEREST DETECTED IN GROUNDWATER - IEL

CONSTITUENT	CONCENTRATION RANGE (ppb)
Monitoring Wells	
Chromium (Elemental)	5 - 9.2
Lead (Total)	<3 - 11
Manganese	39 - 3,060
Nickel (Total)	<14 - 48
Selenium (Total)	<3 - 6.8
Vanadium	3.1 - 17

CONSTITUENT	CONCENTRATION RANGE (ppb)
Residential Wells	
Chloroethane	1.0 - 2.0
Tetrachloroethene	1 - 1.3
Vinyl Chloride	1.5 - 7
Barium	2.1 - 1,370
Cobalt	<5 - 16
Cadmium (Total)	0.1 - 0.58

TABLE 1 (Continued)

CONTAMINANTS OF INTEREST DETECTED IN GROUNDWATER - IEL

CONSTITUENT	CONCENTRATION RANGE (ppb)
Residential Wells	
Chromium (Elemental)	<5 - 11
Cyanide (Total)	<2.3 - 26
Copper (Total)	<4 - 356
Lead (Total)	<1 - 15.5
Nickel (Total)	<7 - 48
Silver	0.4 - 12
Selenium (Total)	<2 - 20
Vanadium	<5 - 22
Zinc (Total)	<8 - 733

TABLE 2

ORGANIC CHEMICALS DETECTED IN SURFACE SOILS
INDUSTRIAL EXCESS LANDFILL SITE

Chemical	On Site Range[a] (ppb)	On Site Frequency[b] of Detection	Near Site & Down Gradient Range[a] (ppb)	Near Site & Down Gradient Frequency[b] of Detection	Off Site (Background) Range[a] (ppb)	Off Site (Background) Frequency[b] of Detection
1,4-Dichlorobenzene	43 (<330)	1/30	---	0/13	---	0/7
2-Butanone	<10-51	2/30	---	0/13	---	0/7
2-Methylnaphthalene	130-15,000	4/30	312-374	0/13	---	0/7
2-Methylphenol	190 (<330)	1/30	---	0/13	---	0/7
4,4-DDE	15-200	3/30	---	0/13	---	0/7
4,4-DDT	<16-170	3/30	<16-4,800	2/12	<16-220	1/7
4-Methyl-2-Pentanone	5 (<10)	1/30	---	0/13	---	0/7
4-Methylphenol	350-3,000	1/30	---	0/13	---	0/7
Acenaphthene	94 (<330)	1/30	---	0/13	---	0/7
Aldrin	<16-53	1/30	---	0/13	---	0/7
Anthracene	240-410	2/30	---	0/13	---	0/7
Benzene	2-9	2/30	---	0/13	---	0/7
Benzo(A)Anthracene	<350-1,100	1/30	---	0/13	---	0/7
Benzo(A)Pyrene	<350-900	1/30	---	0/13	---	0/7
Benzo(B)Fluoranthene	<350-1,400	1/30	---	0/13	---	0/7
Benzo(G,H,I)Perylene	<350-530	1/30	---	0/13	---	0/7
Benzo(K)Fluoranthene	<350-820	1/30	---	0/13	---	0/7
Benzoic Acid	117-122 (<400)	2/30	---	0/13	---	0/7
Bis(2-Ethylhexyl) Phthalate	110-600,000	6/30	505-754	4/13	---	0/7
Butylbenzylphthalate	68-2,100	3/30	---	0/13	12 (<330)	1/7
Chlordane	<25-200	1/30	---	0/13	---	0/7
Chlorobenzene	310	2/30	---	0/13	---	0/7

[a] <x = chemical not detected, where "x" is the detection limit. A number or range followed by a number in parentheses indicates detected values below the detection limit where the number in parentheses is the detection limit.

[b] = Frequency of detection is the number of samples in which the chemical was detected over the total number of samples analyzed.

TABLE 2 (Continued)

ORGANIC CHEMICALS DETECTED IN SURFACE SOILS
INDUSTRIAL EXCESS LANDFILL SITE

Chemical	On Site		Near Site & Down Gradient		Off Site (Background)	
	Range[a] (ppb)	Frequency[b] of Detection	Range[a] (ppb)	Frequency[b] of Detection	Range[a] (ppb)	Frequency[b] of Detection
Chrysene	<400-4,700	3/30	---	0/13	---	0/1
Di-N-Butyl Phthalate	250 (<330)	1/30	268-2,255	4/13	110-290 (<330)	3/1
Di-N-Octyl Phthalate	330 (<330)	1/30	---	0/13	---	0/1
Dibenzofuran	44 (<330)	1/30	---	0/13	---	0/1
Diethyl Phthalate	46-50 (<330)	2/30	---	0/13	---	0/1
Ethylbenzene	3-900,000	9/30	---	0/13	---	0/1
Fluoranthene	49-12,000	4/30	260-280 (<330)	1/13	---	0/1
Fluorene	15-73 (<330)	2/30	---	0/13	93 (<330)	1/1
Gamma-BHC (Lindane)	<8.8-61	1/30	---	0/13	---	0/1
Indeno(1,2,3-CD) Pyrene	<330-700	1/30	---	0/13	---	0/1
N-Nitrosodiphenylamine	120-4,300	7/30	---	0/13	---	0/1
Naphthalene	38-1,800	4/30	---	0/13	---	0/1
PCBs						
PCB-1016	59-320	3/30	---	0/13	---	0/1
PCB-1232					---	0/1
PCB-1248						
PCB-1254						
Phenanthrene	210-6,600	5/30	47-291	2/13	---	0/1
Phenol	94-590	2/30	---	0/13	---	0/1
Pyrene	<330-8,400	2/30	80-380	2/13	110 (<330)	1/1
Tetrachloroethene	<5-8	1/30	---	0/13	---	0/1
Toluene	3-20	4/30	<5-810	7/13	---	0/1
Total Xylenes	<5-13,000	8/30	<5-5	1/13	---	0/1
Trichloroethene	<5-16	1/30	<5-8	1/13	---	0/1

[a] <x = chemical not detected, where "x" is the detection limit. A number or range followed by a number in parentheses indicates detected values below the detection limit where the number in parentheses is the detection limit.

[b] = Frequency of detection is the number of samples in which the chemical was detected over the total number of samples analyzed.

TABLE 2 (Continued)

ORGANIC CHEMICALS OF INTEREST DETECTED IN SURFACE SOILS
INDUSTRIAL EXCESS LANDFILL SITE

Chemical	On Site		Near Site & Down Gradient		Off Site (Background)	
	Range[a] (ppm)	Frequency[b] of Detection	Range[a] (ppm)	Frequency[b] of Detection	Range[a] (ppm)	Frequency[b] of Detection
Antimony	---	0/30	<7.0-78.6	2/13	---	0/7
Arsenic	3.8-35	27/30	5.1-167	13/13	6.96-34	6/7
Barium	19-547	25/30	64-200	12/13	19-162	7/7
Beryllium	0.20-0.9	11/30	0.2-3.7	8/13	0.4-1.5 (<1.5)	3/7
Cadmium	<1.9-13.3	7/30	<0.67-9.4	8/13	<0.2-5.2	4/7
Chromium	4.1-53	23/30	<4.4-140	11/13	0-23	6/7
Cobalt	3.8-22	16/30	2.5-20	10/13	7.4-17	3/7
Copper	8.3-55	24/30	<5.6-335	12/13	8.25-36	6/7
Lead	<2.2-699	27/30	4.6-283	12/13	11-349	7/7
Manganese	29-1,560	29/30	233-1,900	10/13	242-1,540	7/7
Mercury	<0.041-0.23	10/30	<0.1-0.65	5/13	<0.05-0.2	2/7
Nickel	<6.1-48	21/30	7.4-36	11/13	<12-54	3/7
Selenium	---	0/30	<0.06-1.1	1/13	0.2 (<2.7)	1/7
Silver	1.8-3.5	4/30	<1.3-8.3	3/13	<1.3-3.5	1/7
Thallium	<1.1-2.1	2/30	0.23-0.68	6/13	0.26-0.35 (<1.3)	1/7
Tin	<5.2-50	3/30	NS	---	---	0/7
Vanadium	8.3-30	15/30	7.2-62	10/13	7.6-20 (<23)	6/7
Zinc	<3.5-1,960	29/30	15-362	13/13	46.9-107	7/7
Cyanide	0.95-22.1	5/30	<0.3-42	6/13	<0.36-1.3	1/7

[a] <x = chemical not detected, where "x" is the detection limit. A number or range followed by a number in parentheses indicates detected values below the detection limit where the number in parentheses is the detection limit.

[b] = Frequency of detection is the number of samples in which the chemical was detected over the total number of samples analyzed.

NS = not sampled.

TABLE 3

COMPARISON OF SEPTEMBER 1998 GROUNDWATER MONITORING WELL ANALYTICAL RESULTS WITH PREVIOUS RESULTS (1990-1993) AND MCLs (Concentrations in μg/L)

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-1d	Organic			
	alpha-Chlordane	Not detected (ND)-0.002	Not analyzed (NA)	2
	bis(2-ethylhexyl)phthalate	ND-58	5	6
	Carbon disulfide	ND-4	ND	None (--)
	delta-BHC	ND-0.0022	NA	6
	Diethylphthalate	ND-0.5	ND	--
	Di-n-octylphthalate	ND-11	ND	--
	Endrin	ND-0.003	NA	2
	Endosulan II	ND-0.02	NA	--
	gamma-BHC (Lindane)	ND-0.018	NA	0.2
	gamma-Chlordane	ND-0.001	NA	2
	Heptachlor epoxide	ND-0.02	NA	0.2
	Methoxychlor	ND-0.018	NA	40
	Phenol	ND-0.7	ND	--
	Toluene	ND-1	7	1,000
	Unfiltered Metal			
	Aluminum	51.1-1070	241	--
	Antimony	ND-15.7	ND	6
	Arsenic	1.2-5.6	6.0	50
	Barium	55.4-325	390	2,000
	Beryllium	ND-216	ND	4
	Cadmium	ND-79.4	4.1	5
	Calcium	32,300-136,000	131,000	--
	Chromium	ND-67.4	1.1	100
	Cobalt	ND-8.9	ND	--
	Copper	ND-41.2	2.2	1,300
	Iron	1,400-3,960	2,510	--
	Lead	ND-27.4	2.4	15
	Magnesium	4,510-31,500	27,600	--
	Manganese	41.5-207	202	--
	Mercury	ND	0.8	2
	Nickel	ND-83.5	12.2	100
	Potassium	1,900-7,470	2,700	--
	Selenium	ND-1.2	ND	50
	Sodium	3,990-60,000	56,400	--
	Thallium	ND-3.5	ND	2
	Zinc	ND-181	11.7	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-1d (Continued)	Filtered Metal			
	Aluminum	ND-71.8	ND	--
	Arsenic	ND-6.2	5	50
	Barium	34.4-324	379	2,000
	Beryllium	ND-5	ND	4
	Cadmium	ND-126	ND	5
	Calcium	31,300-137,000	132,000	--
	Chromium	ND-16	ND	100
	Copper	ND-8.6	ND	1,300
	Iron	ND-1,660	1,510	--
	Lead	ND-3.5	ND	15
	Magnesium	4,250-31,700	27,700	--
	Manganese	23.8-209	184	--
	Nickel	ND-18.9	11.1	100
	Potassium	2,160-7,220	2,630	--
	Selenium	ND-1	ND	50
	Sodium	4,150-60,600	57,900	--
	Thallium	ND-4.8	ND	2
	Zinc	ND-59.9	16.7	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-2d	Organic			
	Acetone	ND-120	ND	--
	bis(2-Ethylhexyl)phthalate	ND-64	ND	6
	2-Butanone	ND	44	--
	Carbon disulfide	ND-2	ND	--
	Bromodichloromethane	ND-1	ND	100
	4,4'-DDT	ND-0.009	NA	--
	Dibromochloromethane	ND-2	ND	--
	1,1-Dichloroethane	ND-0.5	ND	--
	Di-n-butylphthalate	ND-2	ND	--
	Di-n-octylphthalate	ND-32	ND	--
	Bromoform	ND-2	ND	100
	Endosulfan Sulfate	ND-0.081	NA	--
	Endrin aldehyde	ND-0.112	NA	--
	Endrin	ND-0.005	NA	2
	Ethylbenzene	ND-2	ND	700
	Phenol	ND-12	ND	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-2d	Toluene	ND-4	1	1,000
(Continued)	Xylene (total)	ND-2	ND	10,000
	Unfiltered Metal			
	Aluminum	ND-227	ND	--
	Arsenic	ND-15.8	ND	50
	Barium	77.4-133	140	2,000
	Beryllium	ND-11.7	ND	4
	Cadmium	ND-4.2	ND	5
	Calcium	48,100-81,300	91,300	--
	Chromium	ND-67.9	ND	100
	Cobalt	ND-12.4	ND	--
	Copper	ND-1,500	3.4	1,300
	Iron	1,510-97,600	3,470	--
	Lead	ND-53.2	ND	15
	Magnesium	15,500-20,000	19,900	--
	Manganese	86.6-470	85.0	--
	Mercury	ND	0.40	2
	Nickel	ND-313	ND	100
	Potassium	993-9,300	1,030	--
	Sodium	5,470-22,000	9,980	--
	Thallium	ND-1.8	ND	2
	Vanadium	ND-5	ND	--
	Zinc	8.3-125	7.0	--
	Filtered Metal			
	Aluminum	ND-87	ND	--
	Barium	40.3-122	145	2,000
	Beryllium	ND-3	ND	4
	Calcium	34,300-83,300	94,700	--
	Copper	ND-17	ND	1,300
	Iron	ND-1,060	1,190	--
	Lead	ND-2.5	ND	15
	Magnesium	15,200-20,600	20,600	--
	Manganese	15-104	79.6	--
	Mercury	ND	1.1	2
	Potassium	1,080-8,420	1,220	--
	Sodium	5,200-18,600	10,300	--
	Thallium	ND-4.1	ND	2
	Zinc	ND-10.8	6.6	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-6s	Organic			
	bis(2-Ethylhexyl)phthalate	ND-0.6	ND	6
	Carbon disulfide	ND-17	ND	--
	Dieldrin	ND-0.0014	NA	--
	Di-n-octylphthalate	ND-2	ND	--
	Endrin ketone	ND-0.0017	NA	--
	Heptachlor epoxide	ND-0.0033	NA	0.2
	Toluene	ND-1	520	1,000
	Unfiltered Metal			
	Aluminum	1,340-10,900	55.0	--
	Arsenic	3.9-14.4	ND	50
	Barium	87.2-236	69.0	2,000
	Beryllium	ND-4	ND	4
	Cadmium	ND-5	ND	5
	Calcium	51,700-107,000	58,200	--
	Chromium	ND-15.5	ND	100
	Cobalt	ND-10.1	ND	--
	Copper	ND-27	2.2	1,300
	Iron	4,010-23,700	7,950	--
	Lead	10.3-66.5	ND	15
	Magnesium	8,670-21,500	9,730	--
	Manganese	246-951	412	--
	Mercury	ND-0.22	ND	2
	Nickel	ND-27.8	ND	100
	Potassium	2,170-17,100	6,010	--
	Sodium	8,770-54,800	24,000	--
	Thallium	ND-1.2	ND	2
	Vanadium	ND-20.2	ND	-
	Zinc	27.8-127	26.3	--
	Filtered Metal			
	Aluminum	58-6,400	178	--
	Antimony	ND-19.7	ND	6
	Arsenic	ND-7.4	ND	50
	Barium	35.5-132	67.1	2,000
	Beryllium	ND-4	ND	4
	Cadmium	ND-3	ND	5
	Calcium	38,000-81,700	55,600	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-6s	Chromium	ND-3.4	ND	100
(Continued)	Cobalt	ND-6	2.2	--
	Copper	ND-18.3	2.4	1,300
	Iron	943-9,450	7,870	--
	Lead	ND-49.5	ND	15
	Magnesium	4,920-16,100	9,300	--
	Manganese	366-823	395	--
	Nickel	ND-12	2.0	100
	Potassium	3,330-17,400	5,520	--
	Sodium	8,880-54,700	22,500	--
	Thallium	ND-1.1	ND	2
	Vanadium	ND	3.3	--
	Zinc	13.1-51	25.3	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-11s	Organic			
	bis(2-Ethylhexyl)phthalate	ND	1	6
	Di-n-butylphthalate	ND-18	ND	--
	Endrin aldehyde	ND-0.005	NA	--
	Endosulfan II	ND-0.0077	NA	--
	gamma-BHC (Lindane)	ND-0.0057	NA	0.2
	Methylene chloride	ND-1	ND	5
	Toluene	ND	8	1,000
	Unfiltered Metal			
	Aluminum	55.5-5,170	1,240	--
	Arsenic	ND-10.7	8.4	50
	Barium	32.6-131	54.7	2,000
	Beryllium	ND-5	ND	4
	Cadmium	ND-5	ND	5
	Calcium	227,000-256,000	255,000	--
	Chromium	ND-22.5	164	100
	Cobalt	ND-9.2	13.5	--
	Copper	6.7-15.3	12.7	1,300
	Iron	317-27,300	17,900	--
	Lead	ND-18.3	4.3	15
	Magnesium	47,700-64,400	45,900	--
	Manganese	50-1,600	1,180	--
	Nickel	ND-97.8	93.6	100

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-11s (Continued)	Potassium	ND-5,170	3,380	--
	Sodium	37,200-51,800	51,300	--
	Thallium	ND-1.2	ND	2
	Vanadium	ND-12	3.7	--
	Zinc	ND-60.2	32.6	--
	Filtered Metal			
	Aluminum	ND-85	12.0	--
	Arsenic	ND-1.7	ND	50
	Barium	29.8-54.9	33.9	2,000
	Beryllium	ND-5	ND	4
	Calcium	212,000-245,000	270,000	--
	Chromium	ND-6	1.0	100
	Cobalt	ND-5.6	ND	--
	Copper	ND-10	ND	1,300
	Iron	150-985	290	--
	Lead	ND-1.7	1.0	15
	Magnesium	45,800-58,000	48,100	--
	Manganese	ND-552	57.2	--
	Nickel	ND-125	41.8	100
	Potassium	ND-3,550	3,270	--
	Sodium	37,300-55,000	51,100	--
	Thallium	ND-1.2	ND	2
	Vanadium	ND-4.1	ND	--
	Zinc	ND-11.8	11.8	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-11i	**Organic**			
	Acetone	ND-1	ND	--
	Benzene	ND-3	ND	5
	bis(2-Ethylhexyl)phthalate	ND-85	ND	6
	Carbon disulfide	ND-1	ND	--
	Chloroethane	ND	2/2	--
	Toluene	ND-1	10/ND[a]	1,000
	Vinyl chloride	ND-3	2/ND	2
	Unfiltered Metal			
	Aluminum	ND-866	12.8/12.0	--
	Arsenic	ND-3	3.6/3.1	50
	Barium	128-171	172.0/170.0	2,000

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-11i (Continued)	Beryllium	ND-3	ND	4
	Calcium	125,000-156,000	170,000/167,000	--
	Chromium	ND-o9.6	1.0/1.0	100
	Cobalt	ND-4.9	ND	--
	Copper	ND-11.2	ND	1,300
	Iron	2,290-5,000	4,280/4,220	--
	Magnesium	32,300-39,400	41,900/41,300	--
	Manganese	177-229	180/178	--
	Nickel	45-130	51.5/51.1	100
	Potassium	2,330-3,320	3,260/3,180	--
	Sodium	122,000-136,000	150,000/145,000	--
	Vanadium	ND-5.5	ND	--
	Zinc	ND-41.2	27.0/11.1	--
	Lead	ND-11.1	1.4/1.2	15
	Filtered Metal			
	Aluminum	ND-104	12.0/ND	--
	Arsenic	ND-3.7	2.7/ND	50
	Barium	139-169	166/164	2,000
	Beryllium	ND-3	ND	4
	Calcium	133,000-155,000	163,000/166,000	--
	Chromium	ND	1.0/ND	100
	Cobalt	ND-4.6	ND	--
	Copper	ND-6.2	ND	1,300
	Iron	1,290-2,760	4,140/4,170	--
	Lead	ND-5.5	1.3/ND	15
	Magnesium	32,400-40,100	40,500/41,500	--
	Manganese	183-211	175/175	--
	Nickel	35-50	49.7/49.9	100
	Potassium	2,700-3,320	3,080/3,190	--
	Sodium	127,000-140,000	148,000/137,000	--
	Zinc	3.4-12.4	8.3/7.0	--

Note:Sample result/duplicate result

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-11d	Organic			
	Benzene	ND-1	ND	5
	bis(2-Ethylhexyl)phthalate	ND-94	1	6
	Carbon disulfide	ND-3	ND	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-11d	4,4'-DDT	ND-0.012	NA	--
(Continued)	Di-n-octylphthalate	ND-3	ND	--
	Endosulfan II	ND-0.006	NA	--
	Endrin aldehyde	ND-0.029	NA	--
	gamma-BHC (Lindane)	ND-0.0033	NA	0.2
	Heptachlor	ND-0.0014	NA	--
	Methylene chloride	ND-9	ND	5
	Phenol	ND-1	ND	--
	Toluene	ND-2	1	1,000
	Unfiltered Metal			
	Aluminum	127-574	2,490	--
	Arsenic	ND-4.2	6.0	50
	Barium	184-361	342	2,000
	Beryllium	ND-5	ND	4
	Calcium	57,000-70,900	91,600	--
	Chromium	ND-35.3	9.3	100
	Cobalt	ND-21.8	21.6	--
	Copper	ND-24.6	9.6	1,300
	Iron	1,330-8,890	23,100	--
	Lead	1.4-29.9	11.6	15
	Magnesium	12,300-15,700	18,400	--
	Manganese	45.1-451	510	--
	Nickel	ND-62.5	33.0	100
	Potassium	ND-4,460	2,050	--
	Selenium	ND-3	ND	50
	Sodium	5,430-16,100	8,840	--
	Vanadium	ND	8.2	--
	Zinc	4-54.6	57.9	--
	Filtered Metal			
	Aluminum	ND-116	12.0	--
	Arsenic	ND-1.8	3.1	50
	Barium	161-410	258	2,000
	Beryllium	ND-5	ND	4
	Calcium	52,300-71,900	78,100	--
	Chromium	ND-18.3	1.0	100
	Copper	ND-7.3	2.0	1,300
	Iron	34.1-1,180	755	--
	Lead	ND-16	1.5	15

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-11d (Continued)	Magnesium	8,860-15,800	16,700	--
	Manganese	30.6-128	117.0	--
	Nickel	ND-40	1.0	100
	Potassium	ND-4,020	1,590	--
	Sodium	5,170-15,600	7,380	--
	Zinc	ND-20.2	9.6	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-12i	Organic			
	Benzene	ND-2	ND	5
	bis(2-Ethylhexyl)phthalate	ND-220	ND	6
	Methylene chloride	ND-17	ND	5
	Toluene	ND-5	ND	1,000
	Xylene	ND-3	ND	10,000
	Unfiltered Metal			
	Aluminum	137-5,630	107/1,140[a]	--
	Antimony	ND-15	ND	6
	Arsenic	1.7-13.3	ND	50
	Barium	77.4-390	208/263	2,000
	Beryllium	ND-4	ND	4
	Cadmium	ND-39	1.3/10.3	5
	Calcium	82,800-199,000	146,000/160,000	--
	Chromium	ND-25.4	1.9/66.2	100
	Cobalt	ND-48.4	ND/4.0	--
	Copper	ND-37.2	ND/12.3	1,300
	Iron	495-41,300	1,560/7,700	--
	Lead	1.3-44.4	ND/10.2	15
	Magnesium	17,900-39,700	27,500/30,200	--
	Manganese	145-1,800	257/513	--
	Nickel	ND-63.4	8.5/86.7	100
	Potassium	1,220-5,720	2,880/3,180	--
	Selenium	ND-1.1	ND	50
	Sodium	8,040-716,000	175,000/166,000	--
	Thallium	ND-1.1	ND	2
	Vanadium	ND-13	ND/5.0	--
	Zinc	31-391	30.4/186	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-12i (Continued)	Filtered Metal			
	Aluminum	ND-101	ND	--
	Arsenic	ND-5	ND/5.0	50
	Barium	77.4-377	218/242	2,000
	Beryllium	ND-4	ND	4
	Cadmium	ND-35	1.2/1.4	5
	Calcium	82,100-169,000	148,000/150,000	--
	Copper	ND-19.8	ND	1,300
	Iron	34.9-2,560	1,500/1,620	--
	Lead	ND-1	ND	15
	Magnesium	18,000-33,600	27,900/28,400	--
	Manganese	116-284	258/297	--
	Nickel	ND-22.7	7.0/9.9	100
	Potassium	1,180-6,830	2,960/2,950	--
	Selenium	ND-1.2	ND	50
	Sodium	7,860-706,000	170,000/170,000	--
	Zinc	12.6-90	47.4/25.5	--

Note:[a] Pumped sample result/bailed sample result

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-12d	Organic			
	bis(2-Ethylhexyl)phthalate	ND-31	ND	6
	Carbon disulfide	ND-5	ND	--
	4,4'-DDT	ND-0.016	NA	--
	Di-n-butylphthalate	ND-3	ND	--
	Di-n-octylphthalate	ND-12	ND	--
	gamma-Chlordane	ND-0.004	NA	2
	Methylene chloride	ND-10	ND	5
	N-Nitrosodiphenylamine	ND-1	ND	--
	Toluene	ND-0.6	ND	1,000
	1,1,1-Trichloroethane	ND-1	ND	200
	Unfiltered Metal			
	Aluminum	80.3-3,230	455	--
	Antimony	ND-25.4	ND	6
	Arsenic	ND-7.5	ND	50
	Barium	103-308	246	2,000
	Beryllium	ND-4	ND	4
	Calcium	72,200-151,000	146,000	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-12d (Continued)	Chromium	ND-125	ND	100
	Copper	ND-18.9	2.5	1,300
	Iron	804-4,010	3,550	--
	Lead	ND-32	2.7	15
	Magnesium	14,400-31,800	26,200	--
	Manganese	185-387	189	--
	Nickel	ND-204	ND	100
	Potassium	ND-2,170	1,600	--
	Sodium	12,100-204,000	55,400	--
	Zinc	2.9-125	15.4	--
	Filtered Metal			
	Aluminum	ND-293	ND	--
	Arsenic	ND-4.2	ND	50
	Barium	93.1-298	240	2,000
	Beryllium	ND-4	ND	4
	Cadmium	ND-2	ND	5
	Calcium	68,700-150,000	145,000	--
	Chromium	ND-135	ND	100
	Cobalt	ND-4.1	ND	--
	Copper	ND-19.4	ND	1,300
	Iron	365-1,900	3,040	--
	Lead	ND-9.4	ND	15
	Magnesium	13,600-31,200	26,200	--
	Manganese	159-416	187	--
	Nickel	ND-217	ND	100
	Potassium	ND-2,980	1,540	--
	Sodium	11,900-200,000	53,800	--
	Zinc	ND-135	5.1	--
Sampling Location	**Compound**	**Previous Results (Range)**	**September 1998 Result**	**MCL**
MW-18s	**Organic**			
	Methylene chloride	ND	1	5
	Tetrachloroethene	ND	1	5
	Toluene	ND	2	1,000
	Unfiltered Metal			
	Aluminum	ND-97,600	14,600	--
	Arsenic	4.7-76.9	25.5	50
	Barium	258-1,080	274	2,000

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-18s	Beryllium	1.6-51.3	1.1	4
(Continued)	Calcium	195,000-776,000	24,900	--
	Chromium	83.1-375	73.6	100
	Cobalt	31.9-140	22.2	--
	Copper	67.8-487	70.1	1,300
	Iron	53,300-377,000	45,600	--
	Lead	44.6-279	32.5	15
	Magnesium	51,600-210,000	64,400	--
	Manganese	3,290-13,400	3,420	--
	Nickel	76.4-319	75.9	100
	Potassium	4,900-14,800	5,270	--
	Selenium	ND-1	2.8	50
	Sodium	8,520-41,900	13,500	--
	Vanadium	34.5-205	26.4	--
	Zinc	225-1,650	214	--
	Filtered Metal			
	Arsenic	ND-1.6	4.5	50
	Barium	72.6-125	110	2,000
	Calcium	124,000-196,000	19,300	--
	Chromium	ND-4.5	3.5	100
	Iron	ND-58.6	38.9	--
	Magnesium	26,100-44,000	42,600	--
	Potassium	1,500-4,390	1,590	--
	Sodium	7,720-44,500	15,700	--
	Zinc	ND-12.0	4.6	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-18i	Organic			
	bis(2-Ethylhexyl)phthalate	ND	1/1[a]	6
	Toluene	ND	2/2	1,000
	Unfiltered Metal			
	Arsenic	ND-258	4.5/4.5	50
	Barium	211-317	388/376	2,000
	Calcium	64,800-81,500	91,900/89,600	--
	Chromium	ND-7.6	147/68.3	100
	Cobalt	ND-7.3	2.4/2.6	--
	Copper	ND	4.4/3.5	1,300
	Iron	1,390-2,430	1,950/1,800	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-18i (Continued)	Magnesium	14,400-18,700	20,900/20,300	--
	Manganese	146-214	226/224	--
	Nickel	ND-23.1	202/194	100
	Potassium	ND-3,610	4,050/3,960	--
	Sodium	21,400-28,100	44,700/44,000	--
	Zinc	ND-25.2	8.4/1.6	--
	Filtered Metal			
	Arsenic	ND-3.4	4.5/4.5	50
	Barium	183-300	356/363	2,000
	Calcium	61,400-80,200	86,000/88,000	--
	Chromium	ND	2.2/2.2	100
	Cobalt	ND	2.7/3.0	--
	Iron	21-2,360	1,340/1,300	--
	Magnesium	13,600-17,900	19,500/20,000	--
	Manganese	114-218	214/215	--
	Nickel	ND-15.4	187/181	100
	Potassium	ND-3,300	3,800/3,780	--
	Selenium	ND	ND/3.7	50
	Sodium	19,800-26,200	42,800/43,400	--
	Zinc	ND-9.6	6.0/6.2	--

Note: Sample result/duplicate result

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-20s	**Organic**			
	bis(2-Ethylhexyl)phthalate	ND-3	ND	6
	Carbon disulfide	ND	5	--
	Di-n-butylphthalate	ND-0.5	ND	--
	Methylene chloride	ND-2	ND	5
	Toluene	ND	47	1,000
	Unfiltered Metal			
	Aluminum	159-10,700	930	--
	Antimony	ND-23.8	ND	6
	Arsenic	7.1-13.7	9.1	50
	Barium	153-226	170	2,000
	Calcium	69,100-93,700	74,600	--
	Chromium	ND-14.5	1.8	100
	Cobalt	ND-17.9	ND	--
	Copper	ND-27.6	2.1	1,300

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-20s (Continued)	Iron	637-32,500	2,320	--
	Lead	ND-22	1.1	15
	Magnesium	15,400-24,500	16,600	--
	Manganese	189-710	129	--
	Nickel	ND-23.6	ND	100
	Potassium	ND-3,980	1,220	--
	Sodium	4,850-5,170	6,080	--
	Vanadium	ND-26.5	ND	--
	Zinc	4.3-98.7	17.7	--
	Filtered Metal			
	Antimony	ND-18.6	ND	6
	Arsenic	ND-6.6	7.2	50
	Barium	150-167	170	2,000
	Calcium	72,900-76,900	75,400	--
	Copper	ND-5.9	ND	1,300
	Iron	ND-362	442	--
	Magnesium	15,900-16,800	16,500	--
	Manganese	95.1-207	96.8	--
	Potassium	903-2,870	549	--
	Sodium	4,170-5,370	4,860	--
	Zinc	1.5-8.1	6.6	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-20i	**Organic**			
	Acetone	ND	14/ND[a]	--
	bis(2-Ethylhexyl)phthalate	ND-6	ND	6
	Carbon disulfide	ND	5/ND	--
	Methylene chloride	ND-2	ND	5
	Toluene	ND	37/23	1,000
	Unfiltered Metal			
	Aluminum	124-8,490	2,770/35.4	--
	Antimony	ND-22.9	ND	6
	Arsenic	4.4-15.4	6.7/ND	50
	Barium	136-278	217/187	2,000
	Beryllium	ND-1	ND	4
	Calcium	57,000-134,000	107,000/92,300	--
	Chromium	ND-33.6	5.3/ND	100
	Cobalt	ND-17	4.5/ND	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-20i (Continued)	Copper	ND-36.8	11.4/ND	1,300
	Iron	692-34,300	12,300/805	--
	Lead	ND-23.3	8.4/5.0	15
	Magnesium	12,900-32,700	24,800/21,900	--
	Manganese	117-1,260	684/309	--
	Nickel	ND-41.1	9.1/ND	100
	Potassium	ND-4,160	2,490/1,930	--
	Sodium	4,340-6,940	8,080/6,440	--
	Vanadium	ND-19.9	6.4/ND	--
	Zinc	ND-102	34.3/14.4	--
	Filtered Metal			
	Aluminum	ND	ND	--
	Antimony	ND-19.3	ND	6
	Arsenic	2.5-3.5	ND/5.8	50
	Barium	146-203	188/232	2,000
	Calcium	61,600-79,700	93,900/113,000	--
	Chromium	ND	ND/5.7	100
	Cobalt	ND	ND/4.9	--
	Copper	ND	ND/10.4	1,300
	Iron	ND-356	809/13,400	--
	Lead	ND	ND/7.9	--
	Magnesium	13,500-17,800	22,100/26,500	--
	Manganese	120-205	303/749	--
	Nickel	ND	ND/9.7	100
	Potassium	ND-1,980	1,930/2,910	--
	Sodium	4,380-6,690	6,370/8,920	--
	Vanadium	ND	ND/8.2	--
	Zinc	ND-3.7	9.8/48.8	--

Note: Sample result/duplicate result

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-20d	Organic			
	bis(2-Ethylhexyl)phthalate	ND-15	ND	6
	Carbon disulfide	ND	3	--
	4,4'-DDT	ND-0.064	NA	--
	Dieldrin	ND-0.12	NA	--
	Di-n-octylphthalate	ND-70	ND	--
	Methoxychlor	0.012-0.018	NA	40

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-20d	Phenol	ND-0.6	ND	--
(Continued)	Toluene	ND	60	1,000
	Unfiltered Metal			
	Aluminum	138-914	1,070	--
	Arsenic	ND-2.4	ND	50
	Barium	134-169	184	2,000
	Cadmium	ND-4	ND	5
	Calcium	45,700-50,600	50,900	--
	Chromium	ND-12.4	2.8	100
	Copper	ND-8.1	9.1	1,300
	Iron	488-4,270	3,600	--
	Lead	7-8.7	3.0	15
	Magnesium	9,400-10,400	10,800	--
	Manganese	63.2-110	50.5	--
	Nickel	ND-18.1	2.9	100
	Potassium	ND-2,560	2,140	--
	Sodium	13,800-14,000	16,800	--
	Thallium	ND-1.1	ND	2
	Zinc	12.1-14	22.0	--
	Filtered Metal			
	Aluminum	ND-60.8	37.6	--
	Antimony	ND-21.7	ND	6
	Arsenic	ND-1	ND	50
	Barium	134-141	168	2,000
	Cadmium	ND	1.4	5
	Calcium	46,600-49,800	50,600	--
	Iron	ND-190	800	--
	Lead	ND	1.6	15
	Magnesium	9,490-10,300	10,500	--
	Manganese	47.3-55.2	32.4	--
	Potassium	ND-1,810	2,040	--
	Sodium	13,400-15,700	15,300	--
	Zinc	1.2-4	7.7	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-21s	Organic			
	Benzene	ND-17	3	5
	bis(2-Ethylhexyl)phthalate	ND-12	ND	6

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-21s (Continued)	Carbon disulfide	ND-7	ND	--
	Chloroethane	ND-13	42	--
	1,1-Dichloroethane	ND-56	41	--
	1,2-Dichloroethene (total)	ND-20	16	--
	1,2-Dichloroethane	ND-8	7	5
	Di-n-butylphthalate	ND-2	ND	--
	Di-n-octylphthalate	ND-13	ND	--
	Methylene chloride	ND-4	ND	5
	Toluene	ND	2	1,000
	Vinyl chloride	ND-9	8	2
	Unfiltered Metal			
	Aluminum	154-10,300	1,900	--
	Antimony	ND-20.9	ND	6
	Arsenic	ND-14.4	7.5	50
	Barium	206-303	300	2,000
	Beryllium	ND-1.5	ND	4
	Cadmium	ND-2.2	ND	5
	Calcium	131,000-182,000	177,000	--
	Chromium	ND-72.5	8.4	100
	Cobalt	ND-22.7	5.4	--
	Copper	ND-33	6.6	1,300
	Iron	8,670-52,300	17,900	--
	Lead	ND-20.7	4.7	15
	Magnesium	40,500-52,200	59,100	--
	Manganese	402-2,100	433	--
	Nickel	15.6-134	60.3	100
	Potassium	7,350-9,160	6,850	--
	Sodium	94,300-124,000	125,000	--
	Vanadium	ND-26.4	ND	--
	Zinc	3.9-103	29.9	--
	Filtered Metal			
	Aluminum	ND-80.9	ND	--
	Arsenic	ND-3.4	7.0	50
	Barium	172-225	293	2,000
	Calcium	136,000-165,000	178,000	--
	Chromium	ND	2.2	100
	Cobalt	ND-7.5	2.8	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-21s	Copper	ND-6.2	ND	1,300
(Continued)	Iron	8,320-12,500	12,500	--
	Lead	ND-1.4	ND	15
	Magnesium	37,400-43,700	59,200	--
	Manganese	287-2,150	320	--
	Nickel	ND-58.4	54.4	100
	Potassium	6,620-8,000	6,540	--
	Sodium	78,700-120,000	134,000	--
	Zinc	ND-18.6	14.0	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-21i	Organic			
	Acetone	ND-4	ND	--
	Dieldrin	ND-0.006	NA	--
	Diethylphthalate	ND-2	ND	--
	Di-n-butylphthalate	ND-1	ND	--
	Di-n-octylphthalate	ND-1	ND	--
	Ethylbenzene	ND-1	ND	700
	Phenol	ND-3	ND	--
	Toluene	ND	0.9	1,000
	Unfiltered Metal			
	Aluminum	189-51,700	352	--
	Antimony	ND-15	ND	6
	Arsenic	4.2-40.9	8.8	50
	Barium	270-729	231	2,000
	Beryllium	ND-5	ND	4
	Calcium	75,600-224,000	61,200	--
	Chromium	ND-137	2.4	100
	Cobalt	ND-83.4	ND	--
	Copper	ND-183	ND	1,300
	Iron	1,580-176,000	1,420	--
	Lead	ND-155	ND	15
	Magnesium	18,800-61,600	14,800	--
	Manganese	141-5,010	121	--
	Mercury	ND-0.77	ND	2
	Nickel	34.2-195	ND	100
	Potassium	2,100-15,100	1,930	--
	Sodium	24,200-80,100	8,750	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-21i (Continued)	Vanadium	ND-104	ND	--
	Zinc	ND-589	9.2	--
	Filtered Metal			
	Aluminum	ND-109	ND	--
	Arsenic	3.4-9.5	7.1	50
	Barium	210-377	231	2,000
	Calcium	63,600-94,000	61,000	--
	Chromium	ND	2.2	100
	Iron	37-1,310	203	--
	Lead	ND-2.5	ND	15
	Magnesium	15,700-23,500	14,700	--
	Manganese	95.7-162	83.7	--
	Nickel	19.7-54.2	ND	100
	Potassium	ND-2,560	1,860	--
	Selenium	ND-1.3	ND	50
	Sodium	26,800-86,700	11,700	--
	Zinc	ND-119	1.6	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-23s	Organic			
	alpha-Chlordane	ND-0.013	NA	2
	beta-BHC	ND-0.01	NA	--
	bis(2-Ethylhexyl)phthalate	ND-1	ND	6
	Chloroethane	ND-0.6	ND	--
	4,4'-DDD	ND-0.014	NA	--
	4,4'-DDT	ND-0.0075	NA	--
	1,1-Dichloroethane	ND-1	ND	--
	Dieldrin	ND-0.0028	NA	--
	Di-n-butylphthalate	ND-1	ND	--
	Di-n-octylphthalate	ND-1	ND	--
	Endrin	ND-0.003	NA	2
	Endrin aldehyde	ND-0.016	NA	--
	Endrin ketone	ND-0.011	NA	----
	Endosulfan II	ND-0.004	NA	--
	Endosulfan sulfate	ND-0.005	NA	--
	gamma-Chlordane	ND-0.0019	NA	2
	Heptachlor	ND-0.005	NA	0.4
	Heptachlor epoxide	ND-0.018	NA	0.2
	Methylene chloride	ND-4	2	5

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-23s	Phenol	ND-4	ND	--
(Continued)	Toluene	ND	44	1,000
	Unfiltered Metal			
	Aluminum	8,900-40,200	52.6	--
	Antimony	ND-315	ND	6
	Arsenic	14-54.8	ND	50
	Barium	426-928	501	2,000
	Beryllium	1.3-9.1	ND	4
	Cadmium	ND-11.8	ND	5
	Calcium	165,000-572,000	153,000	--
	Chromium	17.5-95.5	ND	100
	Cobalt	13.2-75.6	ND	--
	Copper	30-110	4.2	1,300
	Iron	46,800-296,000	8,720	--
	Lead	34.5-205	2.0	15
	Magnesium	41,300-131,000	46,900	--
	Manganese	1,160-8,770	202	--
	Mercury	ND-0.55	ND	2
	Nickel	41.5-175	17.8	100
	Potassium	5,680-14,400	12,900	--
	Sodium	65,300-88,900	72,800	--
	Thallium	ND-1.3	ND	2
	Vanadium	22.4-123	ND	--
	Zinc	154-903	10.3	--
	Filtered Metal			
	Aluminum	ND-148	ND	--
	Antimony	ND-22.5	ND	6
	Arsenic	ND-7.8	ND	50
	Barium	305-497	474	2,000
	Calcium	121,000-138,000	145,000	--
	Copper	ND	2.3	1,300
	Iron	843-6,100	7,740	--
	Lead	ND-1.7	ND	15
	Magnesium	32,300-44,200	44,800	--
	Manganese	207-277	187	--
	Mercury	ND-.23	ND	2
	Nickel	ND-14.2	16.3	100
	Potassium	4,910- 9,610	12,700	--
	Sodium	74,000-84,800	67,900	--
	Thallium	ND-9	ND	2
	Zinc	ND-14.9	ND	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-24s	Organic			
	bis(2-Ethylhexyl)phthalate	ND-1	ND	6
	Endosulfan sulfate	ND-0.0027	NA	--
	Methylene chloride	ND	4	5
	Phenol	ND-1	ND	--
	Toluene	ND	14	1,000
	Unfiltered Metal			
	Aluminum	568-145,000	ND	--
	Antimony	ND-161	ND	6
	Arsenic	3.3-132	5.2	50
	Barium	194-2,320	158	2,000
	Beryllium	ND-95.7	ND	4
	Cadmium	ND-8	ND	5
	Calcium	134,000-491,000	174,000	--
	Chromium	ND-214	ND	100
	Cobalt	ND-274	ND	--
	Copper	9.3-1,020	ND	1,300
	Iron	4,490-694,000	3,800	--
	Lead	5.8-659	ND	15
	Magnesium	33,700-191,000	37,700	--
	Manganese	261-10,400	237	--
	Mercury	ND-0.5	ND	2
	Nickel	16.6-649	14.4	100
	Potassium	4,140-86,100	2,630	--
	Selenium	ND-13	ND	50
	Sodium	2,110-97,100	91,400	--
	Thallium	ND-2.2	ND	2
	Vanadium	ND-232	ND	--
	Zinc	13.5-3,090	6.1	--
	Filtered Metal			
	Aluminum	ND-124	ND	--
	Arsenic	ND-7.1	ND	50
	Barium	196-243	151	2,000
	Calcium	130,000-155,000	165,000	--
	Chromium	ND-11.1	ND	100
	Copper	ND-11	ND	1,300
	Iron	107-27,100	3,640	--
	Lead	ND-2	ND	15

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-24s	Magnesium	31,200-36,500	36,000	--
(Continued)	Manganese	ND-237	227	--
	Nickel	ND-16.6	13.3	100
	Potassium	2,060-3,800	2,420	--
	Sodium	89,600-101,000	79,500	--
	Zinc	ND-27.2	14.7	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-24i	**Organic**			
	bis(2-Ethylhexyl)phthalate	ND-220	ND	6
	Chloroform	ND-2	ND	100
	Di-n-octylphthalate	ND-10	ND	--
	Methylene chloride	ND	5	5
	Phenol	ND-1	ND	--
	Unfiltered Metal			
	Aluminum	92.8-3,980	153	--
	Arsenic	ND-4.3	ND	50
	Barium	146-192	123	2,000
	Beryllium	ND-2.3	ND	4
	Calcium	114,000-157,000	141,000	--
	Chromium	ND-739	100	100
	Cobalt	ND-9.3	ND	--
	Copper	ND-25.4	ND	1,300
	Iron	1,580-14,200	1,790	--
	Lead	ND-26.4	ND	15
	Magnesium	27,600-37,000	32,200	--
	Manganese	146-467	156	--
	Nickel	ND-1,240	22.8	100
	Potassium	ND-3,770	2,200	--
	Sodium	85,600-112,000	72,900	--
	Thallium	ND-1.1	ND	2
	Vanadium	ND-13.2	ND	--
	Zinc	ND-127	8.2	--
	Filtered Metal			
	Aluminum	ND-87.7	ND	--
	Arsenic	ND-2.4	ND	50
	Barium	84.1-178	122	2,000
	Calcium	98,3000-156,000	145,000	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-24i (Continued)	Cobalt	ND-17	ND	--
	Copper	ND-5.6	ND	1,300
	Iron	251-2,470	1,160	--
	Lead	ND-7.2	ND	15
	Magnesium	31,300-36,800	33,000	--
	Manganese	161-290	152	--
	Nickel	ND-1,700	16.6	100
	Potassium	ND-2,880	2,250	--
	Sodium	92,500-125,000	73,300	--
	Zinc	8.1-132	5.4	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-25s	Organic			
	Acetone	ND-8	8	--
	Aldrin	ND-0.001	ND	--
	alpha-Chlordane	ND-0.0036	NA	2
	bis(2-Ethylhexyl)phthalate	ND-0.9	ND	6
	Carbon disulfide	ND-3	ND	--
	Di-n-butylphthalate	ND-0.7	ND	--
	Di-n-octylphthalate	ND-4	ND	--
	Endrin aldehyde	0.0059	NA	--
	Heptachlor	0.0021	NA	0.4
	Methylene chloride	ND	4	5
	Naphthalene	ND-1	ND	--
	Phenanthrene	ND-1	ND	--
	Toluene	ND	33	1,000
	Unfiltered Metal			
	Aluminum	577-42,700	263	--
	Antimony	ND-175	ND	6
	Arsenic	ND-44.2	ND	50
	Barium	98.3-821	102	2,000
	Beryllium	ND-24	ND	4
	Cadmium	ND-8.7	ND	5
	Calcium	91,000-385,000	124,000	--
	Chromium	ND-160	2.2	100
	Cobalt	ND-107	2.5	--
	Copper	13-240	3.3	1,300
	Iron	2,220-177,000	997	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-25s (Continued)	Lead	4.4-214	ND	15
	Magnesium	16,700-79,300	23,300	--
	Manganese	423-14,000	300	--
	Mercury	ND-0.39	ND	2
	Nickel	28.7-206	16.6	100
	Potassium	2,590-8,660	2,860	--
	Sodium	35,400-86,900	41,200	--
	Thallium	ND-1.4	ND	2
	Vanadium	ND-102	ND	--
	Zinc	12.7-655	10.5	--
	Filtered Metal			
	Aluminum	ND-80.7	ND	--
	Barium	91.1-304	95.4	2,000
	Calcium	83,300-118,000	120,000	--
	Copper	ND-7.1	ND	1,300
	Iron	39.3-138	ND	--
	Lead	ND-3.8	ND	15
	Magnesium	15,400-27,300	22,500	--
	Manganese	335-2,160	201	--
	Nickel	ND-30.8	8.5	100
	Potassium	2,530-4,410	2,700	--
	Selenium	ND-2.9	ND	50
	Sodium	34,400-83,700	47,900	--
	Thallium	ND-1.1	ND	2
	Zinc	ND-7.5	27.2	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-25i	**Organic**			
	Aldrin	ND-0.005	ND	--
	bis(2-Ethylhexyl)phthalate	ND-150	ND	6
	beta-BHC	ND-0.001	NA	
	Bromodichloromethane	ND-2	ND	100
	Bromoform	ND-3	ND	100
	Chloroform	ND-2	ND	100
	Dibromomethane	ND-3	ND	100
	Di-n-butylphthalate	ND-0.6	ND	--
	Di-n-octylphthalate	ND-15	ND	--
	Endosulfan sulfate	ND-0.019	NA	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-25i (Continued)	gamma-Chlordane	ND-0.002	NA	2
	Methoxychlor	ND-0.041	NA	40
	Methylene chloride	ND	2	5
	Pyrene	ND-0.9	ND	--
	Toluene	ND	21	1,000
	Unfiltered Metal			
	Aluminum	161-1,050	648	--
	Antimony	ND-18.3	ND	6
	Arsenic	1.8-4	ND	50
	Barium	191-293	176	2,000
	Cadmium	ND-4.4	ND	5
	Calcium	121,000-149,000	146,000	--
	Chromium	ND-341	89.8	100
	Cobalt	ND-4.4	3.3	--
	Copper	ND-9	3.9	1,300
	Iron	3,920-8,050	5,520	--
	Lead	3.3-50.2	1.4	15
	Magnesium	25,200-31,700	29,000	--
	Manganese	162-290	244	--
	Mercury	ND-0.44	0.50	2
	Nickel	ND-352	150	100
	Potassium	3,950-26,100	3,570	--
	Sodium	176,000-234,000	155,000	--
	Vanadium	ND-5.1	2.6	--
	Zinc	4.6-149	19.8	--
	Filtered Metal			
	Aluminum	ND-21.3	ND	--
	Arsenic	ND-4.6	ND	50
	Barium	130-322	163	2,000
	Calcium	105,000-156,000	144,000	--
	Cobalt	ND	5.6	--
	Copper	ND-8.1	ND	1,300
	Iron	847-7,610	2,970	--
	Lead	ND-1.5	ND	15
	Magnesium	22,200-33,000	28,500	--
	Manganese	174-188	214	--
	Mercury	ND	7.0	2
	Nickel	ND-306	113	100

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-25i (Continued)	Potassium	3,920-26,500	3,170	--
	Sodium	163,000-242,000	154,000	--
	Thallium	ND-1.1	ND	2
	Zinc	ND-84.7	7.7	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-27s	**Organic**			
	alpha-Chlordane	ND-0.0021	NA	2
	bis(2-Ethylhexyl)phthalate	ND-0.8	ND	6
	4,4'-DDE	ND-0.004	NA	--
	Di-n-octylphthalate	ND-3	ND	--
	Heptachlor	ND-0.002	NA	0.4
	Methoxychlor	ND-0.0094	NA	40
	Methylene chloride	ND	3	5
	Toluene	ND-1	ND	1,000
	Unfiltered Metal			
	Aluminum	4,070-153,000	12.0	--
	Antimony	ND-133	ND	6
	Arsenic	5.9-22.5	ND	50
	Barium	187-2,210	176	2,000
	Beryllium	ND-121	ND	4
	Cadmium	ND-14	ND	5
	Calcium	125,000-1,130,000	137,000	--
	Chromium	13.9-297	9.2	100
	Cobalt	9.8-349	ND	--
	Copper	30.7-1,750	ND	1,300
	Iron	18,200-1,070,000	107	--
	Lead	16.1-700	1.8	15
	Magnesium	29,300-422,000	27,900	--
	Manganese	460-16,400	18.2	--
	Mercury	ND-2.6	ND	2
	Nickel	ND-735	14.1	100
	Potassium	3,600-24,000	3,060	--
	Sodium	29,900-554,000	79,100	--
	Thallium	ND-3.4	2.5	2
	Vanadium	12.3-311	ND	--
	Zinc	76.9-4,160	15.8	--
	Filtered Metal			

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-27s (Continued)	Aluminum	ND-77.2	12	--
	Arsenic	ND-2.2	ND	50
	Barium	125-147	177	2,000
	Calcium	104,000-120,000	137,000	--
	Chromium	ND	1.0	100
	Iron	ND-59.4	12.0	--
	Lead	ND	1.5	15
	Magnesium	22,400-26,000	28,100	--
	Manganese	186-455	18.1	--
	Nickel	ND	11.2	100
	Potassium	ND-2,770	2,910	--
	Sodium	30,500-66,400	79,000	--
	Zinc	ND-4.8	6.7	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-27i	Organic			
	Acetone	ND	7/ND[a]	--
	Carbon disulfide	ND-22	ND	--
	Chloroform	ND-1	ND	100
	Methylene chloride	ND-22	4/2	5
	Phenol	ND-3	ND	--
	Toluene	ND	12/2	1,000
	Unfiltered Metal			
	Aluminum	78.4-9,070	154/102	--
	Arsenic	ND-18.8	6.0/6.7	50
	Barium	81.4-122	297/277	2,000
	Cadmium	ND-2.6	ND	5
	Calcium	90,700-116,000	162,000/154,000	--
	Chromium	ND-94.2	115/94.1	100
	Cobalt	ND-15.2	ND	--
	Copper	ND-62.6	ND	1,300
	Iron	1,130-32,500	3,310/3,030	--
	Lead	ND-102	ND	15
	Magnesium	23,300-28,100	36,300/34,800	--
	Manganese	117-673	184/175	--
	Nickel	17.1-83.8	48.0/45.7	100
	Potassium	ND-5,250	2,720/2,480	--
	Sodium	57,100-97,000	89,600/83,200	--

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-27i (Continued)	Thallium	ND-1.4	ND	2
	Vanadium	ND-19.7	ND	--
	Zinc	3-187	13.7/6.8	--
	Filtered Metal			
	Barium	42.4-117	284/287	2,000
	Calcium	77,700-127,000	158,000/162,000	--
	Iron	265-2,720	2,330/2,390	--
	Magnesium	16,900-31,200	35,400/36,300	--
	Manganese	121-167	174/177	--
	Nickel	12.1-21.5	42.8/44.5	100
	Potassium	ND-4,360	2,550/2,640	--
	Sodium	65,000-91,700	87,900/86,600	--
	Zinc	ND-59.8	10.8/5.4	--

Note:[a] Sample result/duplicate result

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-27d	Organic			
	bis(2-Ethylhexyl)phthalate	ND-91	ND	6
	Bromodichloromethane	ND-1	ND	100
	Bromoform	ND-1	ND	100
	Carbon disulfide	ND-2	ND	--
	Chloroform	ND-2	ND	100
	Dibromochloromethane	ND-2	ND	--
	Di-n-butylphthalate	ND-0.5	ND	--
	Di-n-octylphthalate	ND-6	ND	--
	4,4'-DDT	ND-0.015	NA	--
	gamma-chlordane	ND-0.0027	NA	2
	Methylene chloride	ND	4	5
	Heptachlor	ND-0.0072	NA	0.4
	Toluene	ND	2	1,000
	Unfiltered Metal			
	Aluminum	160-360	283	--
	Antimony	ND-17	ND	6
	Arsenic	ND-4.9	21.7	50
	Barium	126-164	199	2,000
	Cadmium	ND-3.6	ND	5
	Calcium	67,100-95,700	82,700	--
	Chromium	13.5-94.3	3.2	100

Sampling Location	Compound	Previous Results (Range)	September 1998 Result	MCL
MW-27d (Continued)	Cobalt	ND-4.6	ND	--
	Copper	ND-24.3	4.1	1,300
	Iron	190-2,220	5,040	--
	Lead	3.3-60.9	5.2	15
	Magnesium	14,400-20,600	17,900	--
	Manganese	76.2-339	86.0	--
	Nickel	ND-39.7	8.2	100
	Potassium	ND-3,010	1,620	--
	Sodium	27,100-54,600	37,800	--
	Thallium	ND-1.1	ND	2
	Zinc	6.2-53.4	33.9	--
	Filtered Metal			
	Aluminum	ND-69.7	12.0	--
	Arsenic	ND-4.1	4.2	50
	Barium	118-163	179	2,000
	Calcium	67,100-95,800	82,600	--
	Chromium	ND	1.0	100
	Cobalt	ND-7.6	ND	--
	Iron	352-1,270	945	--
	Lead	ND	1.6	15
	Magnesium	14,500-21,100	17,800	--
	Manganese	70-221	73.6	--
	Nickel	ND-12.5	6.4	100
	Potassium	ND-2,400	1,380	--
	Sodium	26,500-51,200	34,800	--
	Thallium	ND-1	ND	2
	Zinc	2.1-18.8	10.4	--

TABLE 4

COMPARISON OF SEPTEMBER 1998 RESIDENTIAL WELL
ANALYTICAL RESULTS WITH MCLs
(Concentrations in µg/L)

Sampling Location	Compound	September 1998 Result	MCL
RW-28	Organic		
	Toluene	0.7	1,000
	Metal		
	Arsenic	2	50
	Barium	187	2,000
	Calcium	123,000	--
	Iron	3,560	--
	Magnesium	23,000	--
	Manganese	219	--
	Potassium	1,350	--
	Sodium	90,100	--

Sampling Location	Compound	September 1998 Result	MCL
RW-70	Organic		
	Toluene	0.6	1,000
	Metal		
	Barium	320	2,000
	Calcium	121,000	--
	Iron	803	--
	Magnesium	25,200	--
	Manganese	58.3	--
	Potassium	990	--
	Sodium	20,700	--

Sampling Location	Compound	September 1998 Result	MCL
RW-101	Organic		
	Toluene	0.9	1,000
	Metal		
	Arsenic	2	50
	Barium	290	2,000
	Calcium	135,000	--
	Iron	1,280	--
	Magnesium	27,700	--
	Manganese	162	--
RW-101 (Continued)	Potassium	1,620	--
	Sodium	56,000	--

TABLE 4 (continued)

COMPARISON OF SEPTEMBER 1998 RESIDENTIAL WELL ANALYTICAL RESULTS WITH MCLs
(Concentrations in μg/L)

Sampling Location	Compound	September 1998 Result	MCL
RW-102	Metal		
	Arsenic	5	50
	Barium	156	2,000
	Calcium	65,500	--
	Iron	897	--
	Magnesium	13,900	--
	Manganese	41.7	--
	Potassium	1,110	--
	Sodium	4,220	--

Sampling Location	Compound	September 1998 Result	MCL
RW-103	Organic		
	Toluene	0.7	1,000
	Metal		
	Arsenic	2	50
	Barium	263	2,000
	Calcium	148,000	--
	Iron	3,780	--
	Magnesium	32,800	--
	Manganese	146	--
	Potassium	1,660	--
	Sodium	47,600	--

Sampling Location	Compound	September 1998 Result	MCL
RW-103-D	Organic		
	Toluene	0.7	1,000
	Metal		
	Arsenic	2	50
	Barium	261	2,000
RW-103-D	Calcium	146,000	--
(Continued)	Iron	3,730	--
	Magnesium	32,400	--
	Manganese	144	--
	Potassium	1,590	--

TABLE 4 (continued)

COMPARISON OF SEPTEMBER 1998 RESIDENTIAL WELL ANALYTICAL RESULTS WITH MCLs
(Concentrations in µg/L)

Sampling Location	Compound	September 1998 Result	MCL
	Sodium	47,100	--

Sampling Location	Compound	September 1998 Result	MCL
RW-104	Organic		
	bis(2-Ethylhexyl)phthalate	4	6
	Toluene	0.9	1,000
	Metal		
	Magnesium	115	--
	Sodium	267,000	--

Note: Residential well samples were analyzed for unfiltered metals.

I. CHEMICAL-SPECIFIC				
A. Water				
1. Safe Drinking Water Act	42 U.S.C.§§300f et seq			
Maximum Contaminant Levels (MCLs)	40 C.F.R.§§141.11-12 and 141.61-62	Relevant and Appropriate	MCLs are enforceable standards for public drinking water supply systems which have at least 15 service connections or are used by at least 25 persons. These requirements are not directly applicable here since, to the extent that groundwater impacted by IEL is used for drinking water, it is used as a private, not a public water supply. However, because of this private use, and because the aquifer downgradient from IEL is potentially a public drinking water source, EPA considers MCLs to be relevant and appropriate requirements for this site.	MCLs constitute the groundwater cleanup levels for this site. Natural attenuation processes must restore groundwater outside of and downgradient from the landfill boundary to MCLs .
2. Ohio Administrative Code (OAC) governing MCLs for organic and inorganic contaminants of concern.	OAC 3745-81-11(A), (B), & (C), 3745-81-12(A),(B) & (C)	Relevant and Appropriate	3745-81-11(A), (B), & (C): Maximum contaminant levels for inorganics; 3745-81-12 (A), (B), & (C): Maximum contaminant levels for organics.	
3. EPA-developed risk-based preliminary remediation goals (PRGs)	EPA-Region 9 Preliminary Remediation Goals (PRGs) - Updated 10/1/99	To Be Considered	Risk-based tools for evaluating and cleaning up contaminated sites. These and similar documents produced by EPA are being used to streamline and standardize all stages of the risk decision-making process	Will be considered for setting up cleanup standards for contaminants of concern with no associated MCL. The Region 9-developed PRGs are chemical concentrations that correspond to a fixed level of risk (i.e., either one in a million (10^{-6} cancer risk or a noncarcinogenic hazard quotient of 1).

II. ACTION-SPECIFIC				
1. Landfill Cap				
a. State design/operating requirements for hazardous waste landfills.	OAC 3745-57-03(A) through (I)	Relevant and Appropriate	Establishes design and operating requirements for hazardous waste landfills.	Pertains to cap/gas system design.
b. State performance standards for land-based units.	OAC 3745-57-01(A) through (D)	Relevant and Appropriate	Performance standards for waste management units, including landills.	Pertains to cap/gas system design.
2. Landfill Closure				
State requirements for general landfill closure, applicable performance standards associated with landfill closure, and post-closure care.	OAC 3745-57-10(A) & (B), 3745-55-11(A)-(C), and 3745-55-17(B)	Relevant and Appropriate	3745-57-10(A) & (B): State standards for closure and post-closure care for landfills, incl. final cover & maintenance; 3745-55-11(A)-(C): Requires that all haz. waste facilities be closed in a manner that minimizes need for further maintenance and controls; 3745-55-17(B): Specifies post-closure requirements, incl. maintenance, monitoring, and post-closure use of property.	
3. Wells				
OAC regulations governing groundwater protection.	OAC 3745-54-90 et seq	To be Considered	Requires landfill permits to include standards that ensure protection of groundwater. Substantive requirements only.	Under CERCLA §121(e)(1), no permit is required at IEL. But, in order to protect groundwater, substantive permit standards will be considered in designing the IEL monitoring program.
State requirements for well abondonment	OAC 3745-9-10	Applicable	State requirements for well abandonment	Obsolete wells will be abandoned in accordance with State standards.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. Water (cont.)				
Use of monitored natural attenuation at Superfund, RCRA, Corrective Action, and Underground Storage Tank Sites, April 1999	OSWER Directive 9200.4-17P	To Be Considered	This policy provides guidance for evaluating and approving monitored natural attenuation remedies	This policy shall be considered during implementation of chosen remedy for IEL.
NPDES Stormwater Discharge Requirements	40 C.F.R. 122.26(a)	Applicable	Stormwater discharge requirements under the NPDES program.	NPDES permits are required for discharges associated with industrial activity, which the regulation defines to include landfills that have received industrial wastes. However, because of the CERCLA §121(e) permit exemption, only substantive requirements of the NPDES regulations are applicable.
4. Landfill Gases				
Monitoring for explosive gases at sanitary landfills.	OAC 3745-27-12 (A), (B), (D), (E), (M), and (N)	Applicable	Monitoring requirements for explosive gases at sanitary landfills	This requirement will be covered under long-term monitoring plan for the site.
Requirements for non-methane organic compound (NMOC) emissions at old landfill sites.	OAC 3745-76	Relevant and Appropriate	Establishes standards for the control of NMOC emissions from old landfill sites. Covers definition, test methods, performance standards, and recordkeeping requirements.	IEL gas treatment system must meet these standards before operating in a passive mode.

4. Landfill Gases (cont.)				
Nuisance control/prohibition	OAC 3745-15-07(A)	Applicable	Defines air pollution nuisance as the emission or escape into the air from any sources(s) of smoke, ashes, dust, dirt, grime, acids, fumes, gases, vapors, odors, and combinations of the above that endanger the health, safety, or welfare of the public or cause personal injury or property damage, such nuisances are prohibited.	Applies to activities that may cause nuisances, such as excavation, cap construction, demolition of buildings, etc.
Stack height requirements	OAC 3745-16-02(B) and (C)	Applicable	Establishes allowable stack height for air contaminant sources based on good engineering practice.	This provision is applicable to any stack associated with gas treatment at IEL if the stack is a source air contaminants.
Organic emissions control from stationary sources.	OAC 3745-21-07(A), (B), (G), (I), and (J)	Applicable	Requires control of emissions of organic materials from stationary sources. Requires best available technology.	Pertains to emissions from expanded methane venting system which is expected to emit organic material.
Carbon monoxide (CO) control from stationary sources.	OAC 3745-21-08(A) through (E)	Applicable	Requires any stationary source of CO to minimize emissions by the use of best available control technologies and operating practices in accordance with best current technology.	Pertains to emissions from expanded methane venting system which is expected to emit carbon monoxide.
Control of nitrogen oxide (NO_2) at stationary sources..	OAC 3745-23-01, 3745-23-02(A) and (B), and 3745-23-06	Applicable	3745-23-01: Establishes max. ambient air quality standard for nitrogen oxide (NO_2). 3745-23-02(A) & (B): Specifies methods of measurement for NO_2; 3745-23-06: Requires all stationary sources of nitrogen oxide minimize emissions by use of latest available control techniques and operating practices in accordance with best current technology.	Pertains to emissions from expanded methane venting system which is expected to emit nitrogen oxide.

TABLE 5
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs) AND TO BE CONSIDERED MATERIAL (TBC) FOR THE INDUSTRIAL EXCESS LANDFILL SITE

ARAR or TBC	Legal Citation	Classification	Summary of Requirement	Further Detail Regarding ARARs in the Context of the Remedy
4. Landfill Gases (cont.)				
Particulate non-degredation policy	OAC 3745-17-05	Applicable	Degradation of air quality is prohibited in any area where air quality is better than required by 3745-17-02 (non-degradation policy).	Pertains to stack emissions from expanded methane venting system.
5.. Other/ Miscellaneous				
Worker Safety	29 C.F.R. 1910.120	Applicable	Establishes proper training and personal protection requirements for workers who have reasonable potential to be exposed to hazardous substances while performing job functions at the site.	Workers shall be properly trained and shall wear appropriate personal protection equiptment for activities conducted at the Industrial Excess Landfill Site.
Ohio Revised Code (ORC) rules governing excavation (e.g., digging) at sites containing hazardous or solid wastes.	ORC 3734.02(H)	Relevant and Appropriate	Prohibition against filling, grading, excavation, building, drilling, or mining on land where a hazardous or solid waste facility was operated, without prior authorization from OEPA.	
State prohibitions on certain air emssions from a hazardous waste facility.	ORC 3734.02(I)	Applicable	No hazardous waste facility shall emit any particulate matter, dust, fumes, gas, mist, smoke, vapor, or odorous substance that interferes with the comfortable enjoyment of life or property or is injurious to public health.	Pertains to any site which hazardous waste will be managed such that air emissions may occur. Consider for sites that will undergo movement of earth or incineration.
Fugitive dust control.	OAC 3745-17-08	Applicable	Emissions of fugitive dust shall be controlled at sites where it may be be generated due to certain activities (e.g., grading, loading, demolition, clearing, grubbing, etc.).	Pertains to clearing, grubbing, cap installation, and excavation operations during construction of cap/gas system.

TABLE 5 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs) AND TO BE CONSIDERED MATERIALS FOR THE INDUSTRIAL EXCESS LANDFILL SITE				
ARAR or TBC	Legal Citation	Classification	Summary of Requirement	Further Detail Regarding ARARs in the Context of the Remedy
5. Other/Miscellaneous (cont.)				
Standards for total suspended particulates.	OAC 3745-17-02(A), (B), and (C)	Applicable	Establishes specific standards for total suspended particulates.	Relevant for stack emissions from expanded methane venting system and construction activities.
Prohibition of nuisances	ORC 3767.13(A)	Relevant and Appropriate	Prohibits noxious exhalations or smells.	Pertains to any site that may have noxious smells.

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION

ADMINISTRATIVE RECORD
FOR
INDUSTRIAL EXCESS LANDFILL SITE
UNIONTOWN, OHIO

UPDATE #3
FEBRUARY 3, 2000

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	10/00/95	U.S. EPA	File	U.S. EPA's Response to PRP's Comments on the July 24, 1995 Baseline Risk Assessment Report and the July 28, 1995 Comments Concerning the U.S. EPA Response to the Rubber Companies Postition Paper Concerning the Need for Additional Remediation of the Industrial Excess Landfill Site	7
2	08/01/97	Sweeney, L., Earth Sciences Consultants, Inc.	Kern, L., U.S. EPA	Technical Report: Results of March 1997 Groundwater and Landfill Gas Sampling Event for the Industrial Industrial Excess Landfill Site w/Cover Letter	256
3	10/02/97	del Rosario, R., U.S. EPA	Draper, D., U.S. EPA	Memorandum re: Request for Review of September 22, 1997 Technical Report on Natural Attentuation Determination for the Industrial Excess Landfill Site	1
4	11/06/97	del Rosario, R., U.S. EPA	Sweeney, L., Earth Sciences Consultants, Inc.	Letter w/Attached PRP Organic Data Validation Review Forms for the Industrial Excess Landfill Site	64
5	11/18/97	Randolph, M., U.S. EPA	del Rosario, R., U.S. EPA	Memorandum re: Demonstration of Natural Attentuation at the Industrial Excess Landfill Site	3

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
6	12/17/97	del Rosario, R., U.S. EPA	Sweeney, L., Earth Sciences Consultants, Inc.	Letter re: U.S. EPA's Comments on the September 1997 Evaluation of Groundwater Chemistry and Natural Attentuation Processes Document for the Industrial Excess Landfill Site	6
7	12/24/97	Antonelli, L., Ohio EPA	del Rosario, R., U.S. EPA	Letter re: Ohio EPA's Review of (1)the October 1997 Evaluation of Groundwater Chemistry and the Natural Attentuation Processes Document and (2) the September 1997 Recommendation to Implement a Phytomediation Landfill Cover System Document for the Industrial Excess Landfill Site	20
8	01/29/98	Burdick, J., et al; ARCADIS Geraghty & Miller, Inc.	del Rosario, R., U.S. EPA	Letter re: Response to U.S. EPA's December 17, 1997 on the Evaluation of Groundwater Chemistry and Natural Attenuation Processes Document for the Industrial Excess Landfill Site	7
9	04/17/98	Chaudhry, M., Tetra Tech EM, Inc.	del Rosario, R., U.S. EPA	Technical Memorandum: Comparison of Storm Water Infiltration and Runoff for Three Types of Landfill Caps at the Industrial Excess Landfill Site w/ Cover Letter	55
10	12/09/98	Vanderpool, L., U.S. EPA	del Rosario, R., U.S. EPA	Memorandum re: Review of Groundwater Monitoring Data (1990-1997) for the Industrial Excess Landfill Site	6
11	12/17/98	Sharp and Associates	del Rosario, R., U.S. EPA	Technical Report: Summary Report on the September 1998 Sampling Event for the Industrial Excess Landfill Site	414

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
12	01/00/99	U.S. EPA	Public	Fact Sheet: *U.S. EPA Proposes Changes to the Cleanup Plan for the Industrial Excess Landfill Superfund Site*	10
13	01-04/99	Concerned Citizens	U.S. EPA	Forty-Five Public Comment Letters Received During the Period January-April 1999 re: the Proposed Clean-up Plan for the Industrial Excess Landfill Site	117
14	02/03/99	Tetra Tech EM, Inc.	U.S. EPA	Technical Memorandum: September 1998 Groundwater Monitoring and Residential Well Sampling Results for the Industrial Excess Landfill Site (Revision 2)	118
15	02/05/99	Chaudhry, M., Tetra Tech EM, Inc.	del Rosario, R., U.S. EPA	Letter Forwarding the Attached Addendum to the Draft Technical Memorandum on the September 1998 Groundwater Monitoring and Residential Well Sampling Results at the Industrial Excess Landfill Site	27
16	03/00/99	U.S. EPA	Public	Fact Sheet: *U.S. EPA Completes September 1998 Groundwater Sampling and Analysis* for the Industrial Excess Landfill Site	6
17	03/02/99	The Board of Lake Township Trustees	U.S. EPA	Statement of The Board of Lake Township Trustees at the U.S. EPA Public Hearing Regarding the Uniontown Industrial Excess Landfill	5
18	03/09/99	Colloid Environmental Technologies Company (CETCO)	Gawlinski, D., U.S. EPA	Letter re: U.S. EPA's Proposed Changes to the Cleanup Plan for the Industrial Excess Landfill Superfund Site	32

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
19	03/11/99	del Rosario, R., U.S. EPA	Whitmore, M., Goodyear Tire and Rubber Company	Letter re: U.S. EPA's Completion of Data Validation for the Responsible Party September 1998 Sampling Results at the Industrial Excess Landfill Site	1
20	03/12/99	del Rosario, R., U.S. EPA	Ruley, S., Lake Township Board of Trustees	Letter re: Data Availability/Basis for Proposed Remedy Changes at the Industrial Excess Landfill Site	2
21	04/05/99	Herbert, D., *Herbert & Benson*	Gawlinski, D., U.S. EPA	Letter re: Comments for the Administrative Record for the Industrial Excess Landfill Site w/Attached Exhibits	61
22	04/08/99	Coleridge, G., American Friends Service Committee	Gawlinski, D., U.S. EPA	Letter re: Request for Extension to the Comment Period Concerning the Proposed Plan to the Industrial Excess Landfill Site	3
23	04/09/99	Coleridge, G., American Friends Service Committee	Gawlinski, D., U.S. EPA	Letter re: Request to Add Additional Material Concerning the Proposed Plan to the Industrial Excess Administrative Record	18
24	04/09/99	Adelman, D., Natural Resources Defense Council	Gawlinski, D., U.S. EPA	Letter re: NRDC's Comments on the Proposed Environmental Remediation of the Industrial Excess Landfill Site	2
25	04/09/99	Yackshaw, M., *Day, Ketterer, Raley, Wright & Rybolt, Ltd.*	Gawlinski, D., U.S. EPA	Letter re: Comments to Proposed Changes to the Cleanup Plan for the Industrial Excess Landfill Site	7
26	04/09/99	Solochek, S., *Shumaker, Loop & Kendrick, LLP*	Gawlinski, D., U.S. EPA	Letters re: Comments on U.S. EPA's Proposed Changes to the Clean-Up Plan for the Industrial Excess Landfill Superfund Site w/Attachments A-FF	1830

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
27	04/11/99	Post, E., *Kaufman & Cumberland*	Gawlinski, D., U.S. EPA	Letter re: Comments of the Board of Lake Township Trustees on the Proposed Changes to the Remedy at the Industrial Excess Landfill Superfund Site w/Attached Exhibits and Addendums	230
28	04/12/99	Bennett & Williams Environmental Consultants, Inc.	U.S. EPA	Report: Comments on the Existing Public Record for the Industrial Excess Landfill for the Revision of the 1989 Existing Record of Decision	217
29	04/12/99	Coleridge, G., American Friends Service Committee	Gawlinski, D., U.S. EPA	Letter re: Request for an Extension to the Proposed Plan Comment Period for the Industrial Landfill Site w/Attachment	4
30	10/26/99	Bent, T., Bridgestone/ Firestone, Inc.	del Rosario, R., U.S. EPA	Letter Forwarding the Attached ROD Amendment for the Woodlawn Landfill (MD) Site Concern-Similarities with the Industrial Excess Landfill Site	60
31	12/07/99	Hayman, D., Shumaker, Loop & Kendrick, LLP	Gawlinski, D., U.S. EPA	Letter re: Supplemental Comments on U.S. EPA's Proposed Changes to the Clean-Up Plan for the Industrial Excess Landfill Superfund Site	16
32	03/01/00	U.S. EPA	Public	Record of Decision Amendment with Responsiveness Summary	154

GUIDANCE ADDENDUM

1	09/00/93	U.S. EPA/ OSWER	U.S. EPA	Quick Reference Fact Sheet: *Presumptive Remedy for CERCLA Municipal Landfill Sites* (OSWER Directive 9355.0-49FS)	15

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
2	08/00/95	U.S. EPA/ NRMRL	U.S. EPA	Project Summary: *Effect of Freeze-Thaw on the Hydraulic Conductivity of Barrier Materials: Laboratory and Field Evaluation* (EPA/600/SR-95/118)	159
3	00/00/97	Luftig, S., U.S. EPA/ OERR and B. Breen, U.S. EPA/ OSRE	U.S. EPA	Memorandum re: *Superfund Reforms: Updating Remedy Decisions* (OSWER Directive 9200.0-22)	89
4	01/01/97	Benson, C., University of Wisconsin		Report: *A Review of Alternative Landfill Cover Demonstrations* (Environmental Geotechnics Report No. 97-1)	281
5	12/01/97	U.S. EPA/ OSWER	U.S. EPA	Report: *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites* (Interim Final) [OSWER Directive 9200.4-17]	35
6	00/00/97	Luftig, S., U.S. EPA/ OERR and B. Breen, U.S. EPA/ OSRE	U.S. EPA	Memorandum re: *Superfund Reforms: Updating Remedy Decisions* (OSWER Directive 9200.0-22)	7
7	07/28/98	Luftig, S., U.S. EPA/ OERR	U.S. EPA	Memorandum re: Transmittal of Report "*Updating Remedy Decisions at Select Sites, Summary Report, FY 1996 and FY 1997* (OSWER Directive 9355.0-70)	89
8	04/21/99	U.S. EPA/ OSWER	U.S. EPA	Memorandum re: Final OSWER Directive "*Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites*" (OSWER Directive 9200.4-17P)	38

INTRODUCTION

This document is the responsiveness summary for the Industrial Excess Landfill Superfund site located in Uniontown, Ohio. Under the Superfund law, before commencement of any remedial action, the United States Environmental Protection Agency (U.S. EPA) must respond to each of the significant comments, criticisms, and new data submitted during the public comment period. Comments from the public submitted to EPA during the public comment period are summarized and responded to in the following pages. The document is organized by category of comments received as indicated in the Table of Contents. Comments that cover several categories have been placed in the category that best describes the subject matter of the comment.

Several acronyms and abbreviations are used throughout the responsiveness summary. A list of acronyms and abbreviations is provided on the following page. Each comment is followed by a numerical reference code indicating the source(s) of the comment. A key to the numerical reference code used is also included in this document. All public comments received have been compiled and are available for review in the local information repositories.

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ACRONYMS AND ABBREVIATIONS

Army	U.S. Army
CCLT	Concerned Citizens of Lake Township
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CETCO	Colloid Environmental Technologies Company
CLP	Contract Laboratory Program
EPA	U.S. Environmental Protection Agency
FOIA	Freedom of Information Act
FS	Feasibility study
GCL	Geosynthetic clay liner
IEL	Industrial Excess Landfill
IG	Inspector General
MCL	Maximum Contaminant Level
mg/L	Milligram per liter
MNA	Monitored natural attenuation
MVS	Methane venting system
NAPL	Nonaqueous-phase liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NRC	Nuclear Regulatory Commission
NRDC	Natural Resources Defense Council
OEPA	Ohio Environmental Protection Agency
PRP	Potentially responsible party
QA/QC	Quality assurance and quality control
RCRA	Resource Conservation and Recovery Act
RI	Remedial investigation
ROD	Record of decision
RPM	Remedial project manager
SAB	Science Advisory Board
TAG	Technical Assistance Grant
TIC	Tentatively identified compound
USC	*United States Code*
USGS	U.S. Geological Survey
VOC	Volatile organic compound

REFERENCES

Following each public comment in the responsiveness summary is a numerical reference code indicating the source(s) of the comment. The numerical reference codes and source citations are indicated below.

1. Joseph_A._Prehodick@FirstEnergyCorp.com. E-mail Message to R5AIR.R5ORA (GAWLINSKI-DENISE) Regarding IEL in Lake Township. January 5, 1999.

2. James A. Titmas. E-mail Message to R5AIR.R5ORA (GAWLINSKI-DENISE) Regarding IEL. January 5, 1999.

3. Kathryn McChesney. E-mail Message to R5AIR.R5ORA (GAWLINSKI-DENISE) Regarding Uniontown Dump Cleanup. January 5, 1999.

4. TNemchek@aol.com. E-mail Message to R5AIR.R5ORA (GAWLINSKI-DENISE) Regarding IEL Superfund Site Uniontown. January 10, 1999.

5. Vicki Hopkins. Public Comment Sheet. January 11 (date stamp), 1999.

6. David W. Mackil. Letter to Denise Gawlinski, EPA. January 6, 1999.

7. Larry Koepp. Letter to Denise Gawlinski, EPA. January 8, 1999.

8. Anonymous. Public Comment Sheet. January 13 (date stamp), 1999.

9. Mae W. Snodgrass. Public Comment Sheet. January 15 (date stamp), 1999.

10. Jean Wright. Public Comment Sheet. January 15 (date stamp), 1999.

11. James A. Titmas, Titmas and Associates. E-mail Message to R5AIR.R5ORA (GAWLINSKI-DENISE). January 18, 1999.

12. Linda A. Smith. Public Comment Sheet. January 19 (date stamp), 1999.

13. Mark Hearns. Public Comment Sheet. January 19 (date stamp), 1999.

14. Anonymous. Public Comment Sheet. January 20 (date stamp), 1999.

15. Elizabeth Bowers. Public Comment Sheet. January 22 (date stamp), 1999.

16. Cathy and Patrick Deagan. Letter to Denise Gawlinski, EPA. January 18, 1999.

17. James A. Titmas, Titmas and Associates, Inc. Public Comment Sheet. January 27 (date stamp), 1999. (Not cited because text is the same as No. 11.)

18. James A. Sheak. Public Comment Sheet. February 4 (date stamp), 1999.

19. Judy Brickels. Letter to Denise Gawlinski, EPA. February 1, 1999.

20 Terry L. Witsaman. Letter to Denise Gawlinski, EPA, Regarding Public Comment - Proposed Change in Remedy and Cap at IEL. March 2, 1999.

21. James A. Titmas. Letter to Denise Gawlinski and Ross del Rosario, EPA, Regarding IEL Public Hearing Comments. March 1, 1999.

22. The Board of Lake Township Trustees. Statement Regarding the Uniontown IEL EPA Public Hearing. March 2, 1999.

23. Petition Against EPA's Proposed Changes to the Uniontown IEL Cleanup. Supporting a Thorough Investigation by Ombudsman, Robert Martin. March 2 (date stamp), 1999.

24. James A. Titmas. E-mail Message to R5AIR.R5ORA (GAWLINSKI-DENISE) Containing a Letter to be Passed on to Ross del Rosario Regarding Uniontown IEL. March 5, 1999.

25. Jim Olsta, Colloid Environmental Technologies Company (CETCO). Public Comment Sheet with Attached Letter to Denise Gawlinski, EPA, Regarding Proposed Changes to the Cleanup Plan for the IEL Superfund Site. March 9, 1999.

26. Cindy Humbert. Letter to Denise Gawlinski, EPA. March 10, 1999.

27. Concerned Citizens of Lake Township/Uniontown IEL. Memorandum to Mr. David Ullrich, Region 5 Administrator, Regarding Response to Mr. Ullrich's Response Regarding "TICS" and "Background Wells." March 21, 1999.

28. Alan J. Alexander and Family. Letter to Denise Gawlinski, EPA. March 17, 1999.

29. James E. Farley. E-mail Message to Denise Gawlinski, EPA, Regarding IEL Remediation. March 23, 1999.

29a. John Frank. E-mail Message to Denise Gawlinksi, EPA, Regarding IEL Record. March 21, 1999.

30. Joe Scarcella. E-mail Message to Denise Gawlinski, EPA, Regarding IEL, Uniontown, Ohio. March 25, 1999.

31. Larry Koepp. Letter to Denise Gawlinski, EPA, Regarding IEL, Uniontown, Ohio. January 8, 1999.

32. Cathy and Patrick Deagan. Letter to Carol Browner, EPA. February 15, 1999.

33. Donald E. Myers, Lake Township Trustee. Letter to Denise Gawlinski, EPA. March 3, 1999.

34. Timothy I. and Sheryl L. Matheny. Letter to Denise Gawlinski, EPA. March 20, 1999.

35. Richard Gercken. Letter to Denise Gawlinksi, EPA. March 26, 1999.

36. "wolfcom" <wolfcom@neo.rr.com>. E-mail Message from "wolfcom" <wolfcom@neo.rr.com> to Joe Scarcella of Uniontown, OH 44685 (waglerac@raex.com) Acknowledging Receipt of Comments Through www.ielcleanup.com. April 2, 1999.

37. Lois Devorsky. E-mail Message to R5AIR.R5ORA (GAWLINSKI-DENISE) Regarding Landfill. April 3, 1999.

38. Thomas P. Shalala. Letter to Denise Gawlinski, EPA. Regarding Comments on Proposed Remedial Option. April 8, 1999.

39. Christine C. Borello, Concerned Citizens of Lake Township. Handwritten Note to David Ullrich with Three-Page Attachment titled "Testimony Regarding the Proposed Changes to the IEL ROD." April 8 (date stamp), 1999.

40. Gregory D. Coleridge, American Friends Service Committee. Letter to Denise Gawlinski, EPA, Transmitting Two-Page Letter to Carol Browner, EPA. April 8, 1999.

41. BIGDOG3401@aol.com. E-Mail Message. To r5chg.in. Regarding Water. April 8, 1999.

42. David E. Adelman, Natural Resources Defense Council. Letter to Denise Gawlinski, EPA. April 9, 1999.

43. Gregory D. Coleridge, American Friends Service Committee. Letter to Denise Gawlinski, EPA, Transmitting 18 Pages for Inclusion in the Administrative Record Concerning the IEL ROD. April 9, 1999.

44. Liz McGregor. Memorandum to U.S. EPA Region 5. Regarding the Uniontown Landfill. April 8, 1999.

45. Werner Lange. Letter to David A. Ullrich, Denise Gawlinski, and Wendy Schumacher, U.S. EPA Region 5. Regarding Addition to Public Comment and a Freedom of Information Act (FOIA) Request. Two-Page Enclosure (January 20, 1988, Letter to Tom Delaney, U.S. Army Environmental Office, From Terese Gioia, U.S. EPA Enforcement Remedial Project Manager) for Inclusion in the Public Commentary. April 11, 1999.

46. Gregory Coleridge, American Friends Service Committee. Letter to Denise Gawlinski, EPA, Transmitting (1) Two-Page Letter Sent by Fax to Carol Browner, EPA, and (2) One-Page FOIA Request Sent by Fax to Melvina Taylor, EPA Region 5, for Inclusion in the Public Commentary. April 12, 1999.

47. James N. Shover. Fax to Dave Ullrich, U.S. EPA, Transmitting Five-Page Letter to Bob Martin, U.S. EPA, for Inclusion in the Public Commentary. April 12 (date stamp), 1999.

48. Same as 42.

49. John R. Ondick. Letter to Denise Gawlinski, U.S. EPA, Regarding Public Comments for IEL. April 12, 1999.

50. Werner Lange. Letter with Enclosures to David A. Ullrich, EPA Region 5. Regarding Addendum to March 29, 1999, Letter. April 9, 1999.

51. Matthew Yackshaw, Day, Ketterer, Raley, Wright & Rybolt, Ltd. Letter to Denise Gawlinski, EPA, Transmitting the April 9, 1999, "Comments to the USEPA's Proposed Changes to the Cleanup Plan for the Industrial Excess Landfill Superfund Site" Submitted by Industrial Excess Landfill, Inc., Hybud Equipment Corporation, and Hyman Budoff. April 9, 1999.

52. Christine Borello, Concerned Citizens of Lake Twp/Uniontown IEL. Memorandum to J. Hopkins and Bruce Jorgenson, NRC Region 3, Regarding April 8 Letter From Cynthia D. Pederson, NRC. April 8, 1999.

53. James A. Titmas. Letter to Carol Browner, EPA, Regarding Uniontown Ohio Superfund Site IEL. February 12, 1999.

54. Public Meeting Transcript. March 2, 1999.

- 54a. Terry Witsaman. Pages 40 to 54.
- 54b. Rex Shover. Pages 55 to 62.
- 54c. Sue Ruley. Pages 62 to 70.
- 54d. Don Myers. Page 70 (no comments - deferred to Sue Ruley).
- 54e. Chris Borello. Pages 71 to 80.
- 54f. Reggie Witsaman. Pages 83 to 87.
- 54g. Norma Bolt. Pages 87 to 89.
- 54h. Greg Coleridge. Pages 89 to 95.
- 54i. Marcia Zawacky. Pages 95 and 96.
- 54j. James Farley. Pages 96 and 97.
- 54k. Dave Martin. Pages 98 through 107.
- 54l. Rebecca Adelman. Pages 107 through 111.
- 54m. Kathy Magel. Pages 111 through 118.
- 54n. Mark Nixon. Pages 118 through 121.
- 54o. Harlan Coleridge. Pages 121 through 124.
- 54p. John Ondick. Pages 124 through 132.
- 54q. Darleen Lansing. Pages 132 through 135.
- 54r. Joe Mosyjowski. Pages 136 through 138.
- 54s. Lee Yoder. Pages 138 and 139.
- 54t. Tom Shalala. Pages 139 through 143.

55. Lake Township Trustees. "Comments on the Existing Public Record for the Industrial Excess Landfill for the Revision of the 1989 Existing Record of Decision." Prepared by Bennet & Williams. April 12, 1999.

56. Dr. Joseph Towarnicky, Sharp and Associates, Inc. Video Presentation Titled "Comments on U.S. EPA's Proposed Changes to the Clean-up Plan for the Industrial Excess Landfill Superfund Site." April 7, 1999.

57. Dr. Brent Finley, Exponent. Video Presentation Titled "Comments on U.S. EPA's Proposed Changes to the Clean-up Plan for the Industrial Excess Landfill Superfund Site." April 7, 1999.

58. The Responding Companies. "Comments on the Proposed Plan for the Industrial Excess Landfill in Uniontown, Ohio." April 1999.

Comments also are referenced according to their location in a source document. For example, a comment appearing in the second full paragraph on page 3 of the "Comments on the Existing Public Record for the Industrial Excess Landfill for the Revision of the 1989 Existing Record of Decision" would be referenced as follows:

[55, pg. 3, ¶2]

The location of any paragraph beginning on one page and continuing onto a subsequent page is referenced according to the page where the paragraph begins.

When a comment has multiple sources, the citation would appear as follows, for example:

[22, pg. 2, ¶2; 54c, pg. 64, ¶3; . . .]

The second source is the comment from Ms. Sue Ruley from paragraph 3 on page 64 of the public meeting transcript.

SECTION 1: 1989 RECORD OF DECISION

Cap

1. **Comment:** Certain items listed in the 1989 Record of Decision (ROD) have not been completed. For example, a cap has not been installed at the Industrial Excess Landfill (IEL) site and there has been no attempt to evaluate factors that can affect a Resource Conservation and Recovery Act (RCRA)-compliant cap such as settling, erosion, water balance, and permeability. [55, pg. 52, ¶1; 55, pg. 53] [55, pg. 52, ¶1; 55, pg. 53]

EPA Response: The main reasons why the cap has not been installed to date include the following:

- Although the Agency felt the site was adequately characterized when the 1989 ROD was issued, it agreed to conduct additional studies of the site to address the perceived "data gaps" existing at the time the ROD was issued. EPA had to complete these studies prior to designing the remedy. Upon completion of these studies in 1992, EPA prepared the first stage of design (i.e., 30% design stage) in February 1993. The latest design documents for the cap (i.e., 95% design stage) were not completed until 1995. The Agency estimates the requirement to conduct additional studies during the design stage of the project added, at a minimum, about 1-2 years to the project timetable. This estimate is based on how much time is typically needed to prepare a 30% design report from the time the remedial design workplan is approved (1 year or less) and what has actually occurred on this project (2-3 years);

- As required by the 1989 ROD, EPA had to submit all relevant design documents to the Technical Information Committee (TIC) for review and comment. This additional level of community participation, which included holding scheduled meetings to review the progress of the remedial design efforts and discuss technical issues, resulted in longer than normal intervals between design stages (e.g., 30% → 60% design stage);

- Concerns about radiation contamination in the groundwater prompted the community to question the adequacy of the pump and treat system that was planned for the site. In an effort not to delay the design of the cap/gas system, EPA made a decision in 1994 to split the design work into 2 phases: Phase 1 encompassed the cap/gas system, while Phase 2 contained the pump & treat system. EPA decided to move ahead on Phase 1, but delayed work on Phase 2 in the event that groundwater monitoring data suggested changes to the pump & treat system will be necessary. While it probably was not as big a contributor to the delay as the above, the deliberations EPA went through to reach a decision on splitting the design work contributed to the overall delay in constructing a cap at IEL;

- Settlement negotiations with responding parties also contributed to the delay in cap installation. In particular, during a meeting in 1997, responding parties requested EPA to consider an alternative cap design in lieu of the more conventional design described in the 1989 ROD. While EPA eventually determined that such a cap was not acceptable for the IEL site, the Agency did spend considerable time and resources in evaluating the proposal; and

- Finally, EPA's review of the September 1997 groundwater data prompted a reevaluation of the original remedy prescribed in the 1989 ROD, culminating in this decision to amend the ROD. The revised cap described in the amended ROD will require changes to the design

drawings already prepared and, as before, will be subject to review and comment by the TIC before EPA can finalize the design and proceed with construction.

Factors affecting the performance of a cap at IEL were evaluated subsequent to the 1989 ROD during the remedial design phase of the project (see 30% Design Report). EPA looked at such factors as waste depth, settlement, slope stability, erosion, and drainage control during design studies which concluded in 1992. Copies of these and other relevant design studies were made available to the public at the time of issuance and can be viewed at the IEL site repositories located in Hartville, Ohio.

Data Interpretation

2. Comment: In 1995, Linda Kern of EPA wrote a report refuting the potentially responsible parties' (PRP) conclusion that no action was necessary at IEL. Linda Kern provided details and data that indicated that the 1989 ROD should not be altered. The comments in Linda Kern's report have been ignored. [22, pg. 1]

EPA Response: EPA disagrees that the comments in Linda Kern's report have been ignored. When she issued her report in 1995, Ms. Kern was responding to comments submitted by the Rubber Companies on EPA's 60% design document for the landfill cap. The Rubber Companies questioned the necessity for any additional remedial actions at the landfill. Ms. Kern defended the three major components of the remedy EPA selected in 1989: a new landfill cap, a pump-and-treat system, and an expanded gas extraction system. Consistent with Ms. Kern's report, EPA continues to maintain that a new landfill cap and an expanded gas extraction system are necessary to protect human health and the environment. But, in a departure from the 1995 report, the Agency now believes that the pump-and-treat component is no longer needed. What has changed since 1995? First, EPA has additional data on off-site groundwater conditions. These data indicate that there is no off-site plume of contamination. In 1995, Ms. Kern pointed to findings of metals off-site in excess of MCLs as a reason for implementing a pump-and-treat system. In the ensuing years, however, EPA has collected additional data and has come to the conclusion that there is no plume of metals contamination, but rather some sporadic exceedances. Metals certainly bear watching; but a pump-and-treat system would be required only if there were a plume of contamination. Second, since 1995, the use of monitored natural attenuation (MNA) has gained Agency acceptance as a component of Superfund remedies in appropriate circumstances. At the time Ms. Kern prepared her report, MNA was still in its infancy, and without data to support its use, the Agency could not accept MNA. However, recent evidence from IEL and other sites do support its use at IEL.

3. Comment: Explain why the 1989 groundwater findings are so different from findings after the closed meetings between the PRPs and EPA over the past 3 years. Groundwater could not have cleaned itself so quickly. [34, pg. 1, ¶3]

EPA Response: A determination that site conditions have changed since 1989 is based on the Agency's review of all relevant groundwater data available to date. It was not the result of settlement negotiations being held by the Agency and responsible parties in the cost recovery lawsuit filed by the federal government in 1989. Information available to EPA in 1989, primarily from the 1988 Remedial Investigation (RI), suggested a horseshoe-shaped plume of groundwater contamination, both for metals and organics, extending approximately 1,000 feet west of the site. Subsequent to issuance of the July 1989 ROD, EPA performed additional groundwater surveys (1990-1998) at the site. Data generated by the responsible parties in 1997 and 1998 were also evaluated by the Agency. A review of the more current groundwater data indicated that site conditions have changed since completion of the RI in 1988. U.S. EPA has found no clear indication that a plume of contamination still exists. No volatile organic compounds (VOC) in excess of federal drinking water standards were found outside of the site

boundaries during the 1997 and 1998 surveys. While there have been elevated metals found, these were few and sporadic in nature and are not indicative of a widespread problem. Generally, a trend towards fewer contaminants above federal standards and lower concentrations of those contaminants detected have been observed as time passed. The observations described above form the basis for the change in the remedy prescribed in the 1989 ROD.

Environmental Monitoring

4. Comment: Environmental monitoring of the site area has been unorganized, inconsistent, and incomplete. EPA should have defined the hydrogeological conditions within, beneath and around the landfill, and characterized the chemical nature of on-site landfill gas, its generation rate, its migration potential, and its pathways at different depths. [55, pg. 52, ¶1]

EPA Response: EPA disagrees with this comment based on the work EPA has conducted since the 1989 ROD was signed. We believe that the hydrogeologic conditions at the site and nature of landfill gas around IEL have been adequately examined. As part of the design studies conducted in 1991-1992, the Agency conducted landfill gas studies (including gas analysis and off-site migration patterns), conducted a geophysical survey to determine the presence of buried metallic objects, and drilled exploratory boreholes both off-site and on-site that, among other things, determined the extent of groundwater contamination and the hydraulic/hydrogeologic characteristics beneath and around the site. The results of these studies are included as part of the 30% Remedial Design Report, a copy of which is available for viewing at the IEL repositories located in Hartville, Ohio.

Gas Migration

5. Comment: There has not been a full attempt to characterize the nature and extent of off-site soil gas migration. [55, pg. 53]

EPA Response: EPA believes that the nature and extent of off-site soil gas migration has been fully characterized at IEL. Soil gas studies, including investigations at off-site locations, were conducted as part of the design studies in 1991-1992. A total of ten off-site exploratory boreholes were used in the study to allow comparison of gas concentrations on-site and at various locations off-site. The off-site locations were also chosen to provide maximum areal coverage of area between the landfill and the residences. The overall conclusion reached was that off-site gas migration appears to be insignificant through the deeper soil layers. Analysis of the off-site soil gas samples indicated that the highest number of detections were found in an area within 25 feet of the western boundary of the landfill and that the highest concentrations are primarily in the upper ten feet. Contaminants detected included trichloroethene, benzene, ethylbenzene, and toluene.

Groundwater Characterization

6. Comment: There has not been a full determination of the nature and extent of groundwater contamination, as called for in the 1989 ROD. [55, pg. 53]

EPA Response: EPA believes that a full determination of the nature and extent of groundwater contamination has been done at IEL Activities to evaluate groundwater contamination were conducted as part of the design studies in 1991-1992. These included in-situ groundwater sampling at on-site and off-site exploratory borehole sites, four rounds of groundwater sampling at 60 monitoring wells, and six rounds of residential well sampling.

Groundwater Models

7. **Comment:** No accurate and supportable groundwater modeling has been performed. [55, pg. 52, ¶1]

EPA Response: EPA believes the groundwater modeling effort, conducted as part of the design studies in 1991-1992, achieved its objective of assisting the Agency in estimating the number of extraction wells and the total extraction rate needed to 1) prevent off-site migration of contaminants and 2) lower the groundwater table below the landfill waste, as required in the 1989 ROD. The models used by the Agency, WHPA/GPTRAC (Blandford and Huyakorn, 1991) and THWELLS (Van del Heijde, 1990) were appropriate, given the stated objectives of the project. These models, in general, are well-known, have been peer-reviewed, and have been used by EPA for other projects in the past. In any event, this is now a moot point, since a pump-and-treat system is no longer part of the remedy.

Hydrogeologic Characterization

8. **Comment:** There has not been a full determination of hydrogeological conditions within, beneath, and around the landfill, as called for in the 1989 ROD. [55, pg. 53]

EPA Response: EPA believes the hydrogeological conditions within, beneath, and around the landfill have been fully determined. See response to Comment #4 above for details on work performed by EPA to address this issue. Also the United States Geological Survey (USGS) conducted studies at IEL in 1993 and 1994 to define both site-specific and regional hydrogeological conditions at the site. The results of these studies are available for viewing at the site repositories located in Hartville, Ohio.

Landfill Gas

9. **Comment:** There has not been a full attempt to characterize the chemical nature of on-site landfill gas or its migration potential, generation potential, and migration pathways at different depths within the landfill. [55, pg. 53]

EPA Response: EPA believes on-site landfill gas has been adequately characterized during design studies in 1991-1992. The chemical composition of the landfill gas, its potential for off-site migration, its generation rate, and an assessment of potential risk to the surrounding population from stack gases were evaluated in the study. A similar evaluation was conducted for off-site landfill gases during this time period (see response to Comment #5). In addition to the 1991-1992 design studies, the March 1997 survey conducted by the responding parties included taking landfill gas samples from the existing methane venting system (MVS). The objective of this sampling was to determine if methane and the volatile organic content of the landfill gas increased when the MVS was turned off, then decreased as it actively extracted gas from the landfill. The results indicated that essentially no variation in gas composition was observed after 15 minutes of extraction from the landfill. As expected, methane (28%) was the predominant volatile organic found, with minute quantities of hexane, benzene, toluene, xylene, vinyl chloride detected.

Methane Venting System

10. **Comment:** The methane venting system (MVS) has not been expanded to cover the whole site. The current system is still operating under emergency status. This system has not been permitted to meet local air quality requirements. [55, pg. 52, ¶1]

EPA Response: The MVS was originally constructed in the mid-1980's to control the migration of landfill gases beyond the facility boundary. As part of the long-term remedy for IEL, the system will be expanded to capture and treat a larger area of the landfill. This requirement has not changed from what was prescribed in the 1989 ROD. Superfund regulations do not require sites such as IEL to be permitted or satisfy other administrative requirements, although the substantive portions in such a permit are imposed through the applicable or appropriate and relevant requirements (ARARs) listed in a ROD. In the case of IEL, state air pollution control standards (OAC 3745-15 through 3745-25), were deemed applicable and will need to be complied with once the expanded MVS is in operation. Periodic monitoring of treated landfill gas, to ensure applicable state air standards are being met, will be part of a long-term monitoring program for this site.

Nonaqueous-Phase Liquids

11. Comment: There has not been a determination of whether nonaqueous-phase liquids (NAPL) are present, as called for in the 1989 ROD. [55, pg. 53]

EPA Response: A study on whether NAPLs are present at the site was conducted as part of the design studies subsequent to issuance of the 1989 ROD. Extensive groundwater and exploratory borehole soil surveys conducted by EPA in 1991-1992 did not indicate the presence of a NAPL at the site.

Off-Site Soil and Sediment

12. Comment: There has not been a full attempt to confirm results of off-site soil and sediment sampling results, as called for in the 1989 ROD. [55, pg. 53]

EPA Response: EPA is uncertain as to the meaning of the above comment (i.e., "confirm"), but points out that off-site soil and sediment studies were conducted as part of the design studies subsequent to issuance of the 1989 ROD. During the 1991-1992 design studies, 13 surface soil samples were collected just north and west of the site boundaries. Analytical results revealed levels of pesticides and herbicides above background concentrations at all sampling locations. In its 30% design report, EPA surmised that these high concentrations of pesticides and herbicides may be attributable to nearby non-site related activities, such as the sod farming operations directly east of IEL. Sediment samples were collected from small, privately-owned ponds and from Metzger Ditch to determine the potential for off-site migration of contaminants by water. Although both inorganic and organic compounds were detected above background in the samples collected, the results indicated that migration of contaminants from the site is not impacting the sediments (nor the surface water) in the privately-owned ponds. Many of the contaminants found in the privately-owned ponds were also found in Metzger Ditch, at shallow depths. EPA found that most of the contamination was found along the northern and eastern boundaries of the site and that it may be attributed to surface runoff from the landfill, rather than to contaminated groundwater percolating to the ditch.

Pump and Treat

13. Comment: No pump tests have been conducted. [55, pg. 52, ¶1]

EPA Response: See response to Comment #56 below. Slug tests were conducted at the site, in lieu of a pump test, as part of the design studies subsequent to issuance of the 1989 ROD. The problem with disposing of huge volumes of contaminated groundwater that would be generated in a pump test made such a test impractical in this particular situation. This huge volume of contaminated groundwater would need to be treated to meet applicable State water quality standards before being discharged to Metzger

Ditch. U.S. EPA and Ohio Environmental Protection Agency (OEPA) revisited this issue again in 1998 as a result of discussions with responsible parties on groundwater modeling issues. Once again, the difficult issue of what to do with the huge volumes of contaminated groundwater generated in such a pump test was encountered. In the end, it was decided that conducting a pump test was impractical and, consequently, was not done. Given that a pump and treat system is no longer required for this site, a pump test is no longer needed.

14. Comment: The abandonment of the "pump and treat" system is a real mistake. EPA should honor the 1989 ROD by including pumping of groundwater with proper treatment, as well as periodic testing. Pumping and treatment can be discontinued when groundwater contaminant concentrations are below safe levels. [31, pg. 1, ¶2; 34, pg. 1, ¶2; 55, pg. 52, ¶1]

EPA Response: The groundwater pump and treat system prescribed in the 1989 ROD was based on the need to address the plume of contamination, for metals and organics, found to be present beyond the disposal area boundary at that time and to lower the groundwater table below the bottom of the waste if this was necessary after the cap was installed. Current site conditions at IEL, as evidenced by groundwater data collected in 1997 and 1998, do not indicate that such a plume still exists and data collected during the design phase indicate that the groundwater table is already below the bottom of the waste. Consequently, the requirement for a pump and treat system is no longer appropriate.

Surface Water/Sediment

15. Comment: No organized monitoring of Metzger's Ditch or other surface water bodies has occurred since the RI and surface water and sediment cleanup has not been conducted. [55, pg. 53]

EPA Response: Surface water and sediment sampling in Metzger's Ditch was conducted during design studies in 1991-1992. See response to Comment #12 above. Based on the data collected in the design studies, there was no basis to undertake cleanup of Metzger Ditch or the privately-owned ponds near the site.

SECTION 2: ALTERNATE WATER SUPPLY

General

16. Comment: It has been stated that the nearest residences use city water and therefore off-site groundwater contamination is not a real concern. However, many people in Uniontown who have connected to city water have kept their wells. [38, pg. 2, ¶4]

EPA Response: Surveys conducted by EPA over the years around the IEL site indicate not all residential wells around Uniontown are impacted by the IEL site. Based on existing hydrogeological data, the area of concern was determined to be directly west and slightly south of the western edge of the landfill. It is this area, covering approximately100 homes, that was hooked up to an alternate water source. EPA and OEPA have determined that there are a handful of homes within this area still using residential wells. These residents were given the opportunity to be connected to the alternate water supply, but declined to do so for various reasons. EPA, OEPA, and the responsible parties have discussed what, if anything, should be done for these remaining residential well users. These discussions are expected to continue in the future as the project moves towards implementation. In any case, any planned long-term monitoring program will most likely include some testing of the residential wells in the area to detect any contaminants linked to the landfill. Sampling of six residential wells around the landfill in September 1998 detected several types of metals that could be linked to the landfill but all

were significantly below federal drinking water standards. EPA expects groundwater quality to improve over time and, consequently, does not anticipate finding contaminants above drinking water standards in future monitoring. In the event that it does happen, measures to protect the health and welfare of the resident(s) will be implemented (e.g., provisions for bottled water, connection to alternate water supply, more frequent monitoring, etc.).

17. Comment: Many residents still use wells as their only source of water. The EPA remedial project manager (RPM) stated during the Uniontown meeting that if groundwater contamination is encountered in off-site wells, an alternative, such as the use of bottled water, can be provided. Bottled water is not a realistic remedial option! [38, pg. 2, ¶4]

EPA Response: EPA believes that providing bottled water to residents whose wells are impacted by contaminants linked to IEL is one of many possible interim measures that could be taken, separately or in conjunction with other measures, to insure public health is protected. EPA does not consider it to be a permanent solution.

Compensation

18. Comment: It cost one resident $1,600 to hook up to the city water supply. This expense should have been taken care of by the "responding companies" for the entire area. The entire project appears to be a continuing coverup perpetrated by not only the responding companies but also by EPA. [41, pg. 1, ¶ 1]

EPA Response: As indicated above, not all residential wells around Uniontown are impacted by contaminated groundwater linked to IEL. The area determined to be hydraulically connected to the site has been provided an alternate water supply since 1991, with hookup costs paid for by the responding parties. While there are a handful of residents within this area of concern still using residential wells, the decision not to connect to the alternate water supply was theirs. These well users may still connect to the alternate water supply if they so choose.

19. Comment: When one resident connected to the county water supply, he or she was asked to keep the well for watering the lawn, washing cars, and other activities but was told that the well would cost $300 a year for a permit and inspection. If the well was not affected by the IEL site, the resident should not need to have the well inspected. [41, pg. 1, ¶1]

EPA Response: This is a local government issue. EPA has no information on what the local government may require in terms of permits and inspections. The Agency suggests that the commentor contact the Stark County Board of Health or the local township board in an effort to determine applicable regulations concerning permits and inspections of residential wells.

20. Comment: When one resident had their well water tested, the independent company that conducted the test stated that nobody under 6 or over 60 should drink the water or bathe in it. The resident had small children and was therefore forced to connect to the county water supply at a significant cost. The resident wonders what the "responding companies" will do to compensate county residents forced by mandate to connect to county water. Compensation in the amount of fees relating to connecting to the county water supply are a small thing to ask. [41, pg. 1, ¶1]

EPA Response: See response to Comment #18 above. EPA cannot say whether the "responding companies" would compensate residents for the cost of hooking up to the municipal water supply. Such compensation would not typically be a part of an EPA or OEPA-led response action.

21. Comment: City water is to be provided to the rest of the Uniontown residents in the area of the landfill, and one resident wonders who is going to pay for the connection and compensate residents for the regular water bills. [38, pg. 2, ¶4]

EPA Response: See response to Comment #20 above.

SECTION 3: BACKGROUND WELLS

Additional Wells

22. Comment: EPA is ignoring the fact that the Science Advisory Board (SAB) report recommends that at least 5 to 10 background wells be added. EPA never complied with this recommendation. [27, pg. 2, ¶3]

EPA Response: EPA intends to install additional background wells as part of any long-term monitoring program for the IEL site. The details concerning the number and location of the new background wells is expected to be evaluated in future Technical Information Committee (TIC) meetings between the regulatory agencies, interested public, and responsible parties.

Data Gaps

23. Comment: The use of two background test wells is not adequate. During other investigations, notably the one at Ohio Liquid Disposal, industrial wastes traveled at more than 100 feet per year through bedrock fissures. The same geology is found under IEL. This same bedrock unit allows oil and hydrocarbons to migrate upward from oil-bearing strata. A minimum of 16 wells 2,500 feet from the site, spaced radially, and screened at different depths should provide a minimum base of information on background levels. Such wells could be used to detect plumes or another contaminant source. [21, pg. 1, ¶2; 22, pg. 3, ¶1; 24, pg. 1 ¶4]

EPA Response: EPA does not believe the installation of 16 additional monitoring wells spaced radially from IEL is necessary to provide a minimum base of information on background levels at IEL. The existing 58 monitoring well system in and around the IEL site, including two background nested wells (MW-12 and MW-20) has been adequate in determining the impact of contaminated groundwater migrating outside of the landfill boundary. Also, past studies and surveys conducted by EPA at this site have helped fill in the perceived data gaps following the issuance of the July 1989 ROD. In any event, EPA is planning to construct additional background wells as part of an extensive monitoring system to be implemented as part of the amended remedy.

24. Comment: EPA is using monitoring wells 12 and 20 as background wells even though the SAB report states that "these two wells (12 and 20) would not be adequate to characterize the mean and variability of background radionuclide concentrations....given the radial nature of groundwater flow at the IEL site... the two wells are clearly inadequate for characterizing background." [22, pg. 3, ¶1]

EPA Response: While EPA believes that MW-12 and MW-20 are adequate as background wells, it intends to add new background wells as part of a long-term monitoring program for the IEL site.

MW-12

25. **Comment:** On-site groundwater elevations are only 2 feet higher than the elevation of MW-12. If the water table rises and falls during various seasons, site groundwater elevations could rise to a level equal to or higher than the elevation of MW-12. [27, pg. 2, ¶1]

EPA Response: This comment implies that MW-12 may be affected by changes in groundwater elevations at IEL. EPA believes this is not the case at all. While it is also subject to seasonal fluctuations, MW-12 is upgradient of the landfill and, therefore, should not be affected by elevation changes occurring at the site. A more relevant concern would be the potential for groundwater under the landfill to rise and be in contact with the waste. EPA believes this potential would be mitigated by construction of an impermeable cap over the landfill.

26. **Comment:** Residents want EPA to respond to permeability and saturation issues related to the sand and gravel base around MW-12. [27, pg. 2, ¶1]

EPA Response: The condition of MW-12 will be examined as part of development of a long-term monitoring program that will implemented in accordance with the amended ROD.

27. **Comment:** EPA cannot be sure that MW-12, which is located 1,000 feet north-northeast of the site, has not been impacted by the chemical lagoon also in the northern area of IEL. [27, pg. 2, ¶1]

EPA Response: Please see response to Comment #25 above. EPA has concluded that, based on the known hydrogeology of the site (e.g., regional groundwater flows east to west), MW-12 is located in an area not affected by the landfill.

MW-12 and MW-20

28. **Comment:** In Mr. del Rosario's instruction to both Dr. Mary Randolph and Dr. Luanne Vanderpool, he states that MW-12 and MW-20 are to be considered background wells. The fact sheets also indicate that these are background wells. Mr. del Rosario has also stated that data from the wells suggest that certain metals occur naturally at elevated levels. Mr. del Rosario does not mention that SAB's report, which seemingly has become EPA's "bible," clearly states that data from MW-12 and MW-20 are not adequate to characterize the mean and variability of background radionuclide concentrations given the radial nature of groundwater flow at the IEL site. Therefore, these two wells are clearly inadequate for characterizing background levels. [54c, pg. 66, ¶4]

EPA Response: As indicated in previous responses above, EPA will install additional background wells as part of a long-term monitoring program. This decision is consistent with the SAB's recommendation for additional background wells for IEL.

MW-20

29. **Comment:** In 1994, EPA commissioned a U.S. Geological Survey (USGS) report in which maps clearly show evidence that groundwater flow from the site would be downgradient to MW-20 and that MW-20's elevation is lower than the elevation of on-site wells. Recently, EPA stated that "there is no evidence suggesting that these wells are being affected in any way which could question their designation as background wells." This statement refutes information in the USGS report regarding groundwater flow. [27, pg. 2, ¶2]

EPA Response: EPA believes there is no discrepancy between recent statements made by the Agency regarding the status of MW-20 and the 1994 USGS Report. Regional groundwater flow under the landfill is east to west. This was determined during the RI of the site and confirmed by later studies, including the 1994 USGS report. While there may be groundwater flows eastward due to a relatively small groundwater mound on the southeastern corner of the landfill, this eastward flow eventually discharges to Metzger Ditch (i.e., Metzger Ditch is a gaining stream). Based on this information, we believe that MW-20, which is located *east* of Metzger Ditch, is suitably designated as a background well.

30. Comment: One commentor wanted to know if MW-20 is located near MW-4s, which is known to contain radiation. [27, pg. 2, ¶4]

EPA Response: MW-4s is on the other side of Metzger Ditch from MW-20 (i.e., western edge of landfill).

31. Comment: EPA installed MW-20 too close to the IEL site and used an excuse regarding lack of access to the sod farm to cover up this mistake. [27, pg. 2, ¶4]

EPA Response: In order to evaluate contamination at a Superfund site, EPA has the legal authority to gain access to virtually any property it deems necessary. Of course, if it has a choice, EPA prefers to avoid access disputes. Hence, if two locations were capable of supplying background data, but one would involve a fight over access, EPA would probably choose to use the more readily accessible site. In this case, EPA looked at the hydrogeological data, and based on that, concluded that the location where MW-20 was installed would be suitable for background readings.

32. Comment: In an Ohio Environmental Protection Agency (OEPA) videotape of an October 11, 1994, meeting with Dr. Scott Bair, Dr. Bair states that groundwater flowing eastward would very likely pass under Metzger's Ditch. MW-20 is located on the east bank of this ditch. EPA should explain its statement of "no evidence" of this fact. [27, pg. 2, ¶4]

EPA Response: EPA has no reason to believe that MW-20 is being impacted by any eastward groundwater flow from IEL. Consequently, the designation of MW-20 as a background well is appropriate. The 1994 USGS report, which was co-authored by Professor Bair, stated that much of the easterly flow from IEL, resulting from the local groundwater mound on the southeast corner of the landfill, flows toward Metzger Ditch, a gaining stream. Also, a comparison of water-level altitudes at the piezometers/staff gage pairs installed along Metzger Ditch indicate that groundwater at MW-20 (both at the shallow and intermediate elevation levels) also flows toward the ditch. While it may be possible that some portion of the easterly flow passes under Metzger Ditch, previous monitoring data gathered at MW-20 has not shown the presence of contaminants historically associated with IEL. The recent September 1998 survey revealed that, with the exception of toluene and acetone, contaminants of concern such as benzene, vinyl chloride, or 1,2 dichloroethane were below method detection levels. Because of their common use as solvents in organic analysis, both toluene and acetone appear to be laboratory contaminants. While EPA believes that background data collected to date has been adequate for the Agency's purposes, it nevertheless plans to improve its ability to assess background conditions at IEL. These include installation of new background wells and checking the condition of existing background wells, such as MW-20, prior to its use in any long-term monitoring program.

33. Comment: Data from MW-20 is particularly suspect given site groundwater flow patterns; however, the data would still be suspect if the flow pattern was simply east to west. Yet everyone is being told that MW-20 is to be used to monitor background levels and that more monitoring wells are going to be installed to determine future contamination problems. However, years later, MW-20, which

SAB clearly states is inadequate for such use, is to be used to monitor background levels. One monitoring well installed some time in the future is not going to help residents now. [54c, pg. 67, ¶3]

EPA Response: See responses to Comment #'s 22-24 and 32 above. EPA maintains that data from MW-20, along with MW-12, provided background information that was sufficient to support the choice of a containment remedy. Additional background wells were not necessary for EPA to decide that the landfill needed to be capped. Nor did EPA need additional background wells to conclude that there was no plume of contamination downgradient from the landfill and therefore no need for a pump-and-treat system. However, in the future, EPA will be assessing the progress of natural attenuation at the site, and some additional background wells will be useful in making that assesssment.

SECTION 4: COMMUNITY INVOLVEMENT

Freedom of Information Act Requests

34. Comment: The recent response from EPA Region 5 seeks an extension to search for, collect, and appropriately examine a voluminous amount of separate and distinct records involved in the Freedom of Information Act (FOIA) request of local residents. An initial determination is expected by April 12, 1999.

One resident finds it questionable that a "voluminous amount" of information could exist at Region 5 regarding the IEL site from outside federal agencies over a 1-month period. Therefore, it shouldn't be difficult to send all the documents and let the public "examine" the "voluminous amount of separate and distinct records," assuming that such a quantity exists. [40, pg. 2, ¶ 6 and 7]

EPA Response: The information being requested was sent by EPA on April 8, 1999, in response to the March 2, 1999 FOIA request.

35. Comment: The commentor's FOIA request dated March 2, 1999, seeks all documents from other federal agencies received by Region 5 during the past 1 month concerning the IEL site. In particular, the request seeks a document from the U.S. Army (Army) received by Region 5 on February 10. A Region 5 employee stated that the document addresses the Army's response to an earlier FOIA request concerning the possible presence of radiation at the IEL site. The employee stated that the document seeks a "release determination" of Army information from EPA related to the IEL site. The employee also stated that the document would be forwarded to Mr. Timothy Thurlow at Region 5. Finally, the employee claimed that the document shows that the Army would deny release of some of its information by invoking the Privacy Act. This document is still requested whether or not it contains all the information described. [40, pg. 2, ¶5]

EPA Response: EPA believes it has no document matching this description. Mr. Thurlow received no Army document requesting a release determination. EPA made several attempts to follow up on this request by asking the requestor to identify the EPA employee to whom he spoke. The requestor refused.

36. Comment: None of the material received from the FOIA response included information obtained by EPA over the preceding month in any form. In fact, none of the material is dated after 1990. Most material had been sent in response to an earlier FOIA request. The sent material was the product of an extension taken by EPA "to search for, collect, and appropriately examine a voluminous amount of separate and distinct records involved in your request." This statement is clearly not truthful. One resident wonders where even a portion is of the "voluminous amount of separate and distinct records"

from other federal agencies related to the IEL site and received by Region 5 over the last 30 days. The FOIA request has not been responded to by even the most minimal standards. [46, pg. 2, ¶6 and 7]

EPA Response: It is often the case that EPA cannot fully respond to a FOIA request within the ten working-day period set out in 5 U.S.C. § 552(a)(6)(A)(i). When this happens, the Agency sends the requestor a letter stating that the Agency is working on the request, and needs more time. Generally, the letter cites one of three statutory bases for an extension: (i) the need to search for and collect the requested records from field facilities or other establishments that are separate from the office processing the request; (ii) the need to search for, collect, and appropriately examine a voluminous amount of separate and distinct records which are demanded in a single request; or (iii) the need for consultation, which shall be conducted with all practicable speed, with another agency having substantial interest in the determination of the request or among two or more components of the agency having a substantial subject-matter interest therein. In this particular case, the Agency could not fully respond within 10 days. Accordingly, an interim response was sent, explaining that additional time would be necessary in order to examine a voluminous amount of records. The requestor in this case has questioned whether there could be a voluminous amount of records that fit the narrow description in his request. In fact, EPA found no documents that matched his request. But EPA did indeed have to go through a voluminous amount of records to make that determination. EPA's involvement with the IEL site goes back nearly twenty years, and the Agency possesses thousands of IEL-related documents. To fully search all the IEL files takes time. In working on several IEL-related FOIA requests, including this one, the Agency found no documents matching the request, but nevertheless produced others which the Agency thought would interest the requestor. For example, we have no documents showing that any military facility disposed of radioactive wastes at IEL. Consequently, when we have been asked to supply such documents, we have responded that we do not have any. But, in an effort to be as responsive as possible, EPA produced the correspondence between EPA and the military concerning IEL over the years. These documents did not fit the description in the FOIA request, and consequently, EPA was under no obligation to supply them. Nevertheless, we did. We thought these documents would be of interest to the requester, given their questions about whether military facilities used IEL.

37. Comment: The initial FOIA request regarding radiation and the Army was not even directed to EPA Region 5. It was directed on November 1 to the Army who forwarded it for reasons still unclear to the lead attorney at Region 5. Why this happened is a legitimate question. [40, pg. 3, ¶2]

EPA Response: Please refer to the April 8, 1999 letter from Mr. Timothy Thurlow of the EPA's Region 5 office to the requester. The letter explained that the U.S. Army forwarded the request to EPA because it believed that not all responsive documents were in its possession. The Army surmised that responsive documents might exist at EPA, and therefore, as a courtesy to the requestor, the Army forwarded the request to EPA. EPA then treated the request as if it had been directed to EPA itself. As described in response to Comment #36 above, this is standard practice.

38. Comment: One resident requests a FOIA request letter be forwarded to Michael Shumaker, the FOIA Officer at Region 5. The resident would like to present this letter to Mr. Thurlow, the EPA Region 5 IEL site attorney. The letter requests a document that a Region 5 employee in Chicago who spoke to Mr. del Rosario a couple of weeks ago stated that Mr. Thurlow now possesses. The document shows that the Army sought guidance from EPA to release information it had on radiation at the IEL site. This EPA employee stated that EPA had forwarded the Army's request to Mr. Thurlow. This EPA employee also said that the document referred to the Army withholding a portion of information on radiation at the IEL site. The public would very much like to know more about radiation at the IEL site and be allowed to access any related documents within next 2 weeks. [54h, pg. 94, ¶2 through 4; 54h, pg. 95, ¶1]

EPA Response: Please see response to Comment #37 above. Reference to Michael Shumaker as the Region 5 FOIA officer during this time period is incorrect. It should be Ms. Wendy Schumacher.

39. Comment: Brad Davis, a reporter from the Canton Repository, and Gregory Coleridge, director of American Friends Service Committee, made almost identical FOIA requests to the Army seeking information on radioactive materials dumped at the IEL site. Mr. Davis received a direct response from the Army, but Mr. Coleridge's request was forwarded to Mr. Thurlow at EPA Region 5. One commentor wanted to know why these almost identical requests were routed differently. Because of this difference, the accompanying 18 pages representing most of what was received by Mr. Davis should be entered into the Administrative Record concerning proposed changes to the IEL ROD. [43, pg. 1]

EPA Response: EPA does not know why the Army treated the two requests differently. That question should be addressed to the Army rather than to EPA. As noted above, EPA believes the only reason why the Army forwarded Mr. Coleridge's letter to EPA was as a courtesy to him. The Army found only one document corresponding to Mr. Coleridge's request, but surmised that more might be found at EPA. Rather than telling Mr. Coleridge to send a separate FOIA request to EPA, the Army took the trouble to forward Mr. Coleridge's request to EPA directly. EPA then treated the request Mr. Coleridge sent to the Army as if it had been directed to EPA in the first place.

40. Comment: At the moment, Region 5 is being an impediment to the public's right to know potentially important information about what, if any, documentation the Army possesses regarding the dumping of radioactive material at the IEL site. Such information should be made public and could affect the final cleanup plans currently proposed. [40, pg. 3, ¶3]

EPA Response: EPA does not know how it could be an impediment to the public's access to documents the Army possesses. The Army makes its own decisions about what Army documents it produces in response to FOIA requests. As for EPA, it has made every effort to provide documents in response to FOIA requests concerning possible use of IEL by the military. See the examples noted above.

41. Comment: Under provisions of the FOIA in Title 5 of the *United States Code* (USC), Section 552, one resident requested the following information as a citizen concerned about protection of public health:

- Copies of all disposal documents obtained from IEL or any other source that identifies the Army as the generator of "certain waste loads" at IEL, as well as identification of the nature of these waste loads.

- A copy of the entire customer list of all customers who used the IEL site. [45, pg. 1, ¶ 3 through 5]

EPA Response: On the first bullet, EPA provided all relevant information under its possession as part of its response to the April 11, 1999 FOIA request (05-RIN-01426-99) from the commentor. As for information requested under the second bullet, the EPA's Region 5 project manager will gather this information and send it to the requester as expeditiously as possible. Customer lists obtained by EPA may not be comprehensive since recordkeeping requirements for landfills such as IEL during the 1960's and 1970's were less stringent than today's requirements. Consequently, detailed accounts of every contributor to the landfill wastes may never have been kept.

42. Comment: Pursuant to the federal FOIA, Title 5 of USC, Section 552, one resident requests all documents (including letters, e-mail messages, notes, and telephone transcripts) between Mr. Timothy

Thurlow and all branches, divisions, agencies, offices, and units of the Army between December 15, 1998, and April 8, 1999, concerning the IEL site in Uniontown, Ohio. In particular, the request is for documents dated between January 20 and February 28. This period roughly corresponds to the 30-day period requested for an extension by the Office of Regional Counsel to comply with an earlier FOIA request by the American Friends Service Committee. [46, pg. 4, ¶1 and 2]

EPA Response: EPA has no documents that correspond to this request.

43. Comment: One resident cannot believe that the Nuclear Regulatory Commission (NRC) spent 11 months laboring over "such a pathetic, disgraceful letter" regarding the radiation issue. Although residents are disgusted and saddened by Darryl Wiedeman and Mike McCann's answers and "memory loss," the commentor states that they understand and have seen this happen in the past to other "good guys" from OEPA who also tried to do the right thing and help residents with regard to the radiation situation. The NRC Inspector General (IG) should give Mr. Wiedeman and Mr. McCann whistleblower protection so that they will tell the truth instead of investigating them. Mr. Wiedeman and Mr. McCann need NRC's support and some courage to take a stand on the radiation issue because much is at stake here, not only for this community but for what it represents to the rest of the country. [52, pg. 1, ¶1 and 2]

EPA Response: EPA cannot speak for the NRC.

Public Comment Period

44. Comment: One resident made a "formal" request to extend the comment period in general or at least the comment period concerning the proposed changes to the ROD for the IEL site. The formal comment period ends on April 11.

The resident also found it curious that EPA's deadline for receiving documents from other federal agencies is April 12, *1 day after* the end of the formal public comment period. [46, pg. 1, ¶1; 40, pg. 2, ¶1; 40, pg. 3, ¶1]

EPA Response: EPA issued a written response to this request for an extension of the public comment period on April 29, 1999, and again on May 12, 1999. Among the reasons EPA cited for denying the request was the fact that the information sought by the requester had already been sent (on 2/22/99 and 4/8/99) by Region 5. EPA believes the 90-day public comment period, ending April 11, 1999, for the proposed changes to the 1989 ROD on IEL provided sufficient time for all interested parties to evaluate the proposal and submit comments. EPA allowed for receipt of comments up to April 12th since the April 11th closing date fell on a weekend.

45. Comment: After years of close public scrutiny, it is essential that EPA develop a credible and publicly supported remediation plan. The investigation by the National Ombudsman of the EPA ought to play a central role in ensuring that the public's concerns are addressed. As such, EPA should keep open or perhaps reopen the public comment period to ensure that information from the National Ombudsman's investigation is incorporated into the public record. EPA should certainly not make any final decisions prior to completion of the National Ombudsman's investigation. If the public process is to be rehabilitated, integration of the investigation by and recommendations of the National Ombudsman must be integrated into the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) decision-making process. [42, pg. 1, ¶4]

EPA Response: At this time, the Ombudsman is not conducting a formal investigation concerning Region 5's handling of the IEL site. Rather, the Ombudsman is conducting a preliminary review of

relevant documents concerning this site, with the understanding that Region 5 will continue to follow the steps necessary to change the 1989 remedy at the same time as the Ombudsman's inquiries are proceeding. The Agency expects the Ombudsman to issue the results of his preliminary review in the very near future. In the meantime, the Ombudsman is being kept abreast of Region 5's activities concerning IEL on a regular basis through conference calls and submittal of relevant documents (e.g., proposed plan, public meeting transcripts).

SECTION 5: DATA GAPS

Nature and Extent of Contamination

46. Comment: The public should receive a specific answer to the great discrepancy regarding the condition of the site with respect to the nature and extent of contamination. [54j, pg. 97, ¶2]

EPA Response: EPA believes the nature and extent of the contamination at IEL has been adequately characterized during the remedial investigation of the site in 1985-1987 and the post-ROD design studies conducted in 1991-1992. More specific discussions on what these studies entailed are included in responses to comments under Section 1 of this responsiveness summary.

47. Comment: One resident requests that EPA fill in the data gaps in completing the assessment of the nature and extent of contamination. If the assessment indicates that EPA's proposed remedy can protect the human health and the environment without doubt, the resident would be satisfied. [54t, pg. 142, ¶3]

EPA Response: EPA believes the perceived data gaps have been adequately addressed by the design studies undertaken in 1991-1992, described in more detail under Section 1 of this document.

48. Comment: The Natural Resources Defense Council (NRDC) is especially concerned about the apparent inconsistencies in and limited extent of the data collected about the IEL site, both of which have heightened public concern. Examples of these deficiencies include improper siting of background wells, rejection of data indicating the presence of radioactive substances without conducting follow-up measurements, use of nonstandard laboratory methods to analyze samples, only intermittent monitoring of the site over the last decade, and failure to characterize adequately the identities and distribution of hazardous contaminants at the IEL site.

Existing studies raise significant concerns about the scientific basis of EPA's decision. EPA must, at the very least, relocate background wells, fully characterize contaminants at the site and their movement and alleged degradation pathways, and use established analytical methods to analyze samples. [42, pg. 1, ¶2 and 3]

EPA Response: EPA disagrees with the NRDC. The NRDC's comments are similar, if not identical, to those which the Region has been responding to for years. These are not new issues which are only now coming to the Agency's attention. Rather, they are old ones which the Region has long considered. The Agency's basic position now, as in the past, is that, while additional data may have been useful, the existing data, nevertheless, is adequate for the remedial decisions we are making. For example, to make a decision to cap a landfill, one does not need to have characterized every contaminant within it. The cap systems EPA considers are designed to hold, within a landfill, contamination of all sorts. Hence, some uncertainty here about the identity of all the contaminants is acceptable. In the case at hand, EPA has proposed to eliminate the pump-and-treat component of the 1989 remedy and change the composition of the landfill cap. EPA does not believe how data of the sort NRDC alleges is missing would be necessary to make this decision. As EPA has explained above, the decision to go forward with a pump-and-treat

system depends upon the existence of a plume of contamination. EPA maintains that the sampling it has done over the past decade has been sufficient to detect the existence of such a plume, if there was one. Because EPA has found no plume, it is proposing to cancel the pump-and-treat part of the original remedy. As for the change in the cap composition, EPA has engineering data demonstrating that the proposed cap would be as effective as the 1989 cap in preventing infiltration of the landfill. In sum, EPA maintains it has sufficient data to support the changes it has proposed in the remedy.

49. Comment: The schedule and conclusions of the proposed ROD for the IEL site should be reorganized because it is necessary that the actual studies and calculations supporting the proposed ROD be made available so that the public could adequately comment on the ROD. Simple summations are not acceptable. Time will be needed to provide a fair review of EPA materials and to respond during the comment period. Despite money spent to date, no detailed inventory, no mass balances, clarifications regarding the identification of plume limits, the plume's rate of travel, or mass kinetics has been provided. The information available contradicts the conclusion that significant contaminant attenuation has occurred. It is more likely that contaminated groundwater is migrating further off site. [53, pg. 1, ¶6]

EPA Response: The supporting documents EPA used as the basis for the proposed changes are available in the site repositories in Hartville, Ohio. Also, EPA provided the public 90 days to comment on the proposed plan. EPA believes both the supporting documents and public comment period are sufficient.

SECTION 6: GROUNDWATER CHARACTERIZATION

General

50. Comment: EPA should provide the dates or approximate dates when testing was conducted that showed radial water flow from the landfill. [54n, pg. 118, ¶2]

EPA Response: Work that resulted in the determination of a radial flow occurring at the southeastern corner of IEL, due to a local ground water mound, originated from a study conducted by the USGS in March 1994. Actual testing was conducted on March 14-18, 1994. Data from related studies in 1989 and 1993 were also used. The March 1994 study focused on measuring ground water levels and flow direction near the site. This report was used to support the proposed changes to the remedy for the site and is available for viewing at the site repositories in Hartville, Ohio, or in the Region 5 office in Chicago, Illinois.

51. Comment: One resident uses well water and requests additional tests of the water. The resident would personally pay to have well water anywhere in Uniontown tested and is sure that other residents would also be willing to pay. Five or six different tests should be conducted by five or six different, independent, accredited testing laboratories. The resident then pointed out that cadmium, radium, or plutonium would not be detected in groundwater unless it is tested for. [54o, pg. 122, ¶1]

EPA Response: To the extent possible, EPA is willing to assist any resident who wishes to have his/her well water tested. The local county health department may also be used a resource in planning for the testing of well water. EPA and OEPA have, in the past, sampled the residential wells in the vicinity of IEL. The most recent sampling survey in September 1998 did not indicate any contaminants of concern above federal drinking water standards. With regards to radiation testing, both EPA and OEPA collected a substantial number of samples for analysis in 1990-1993. Results indicated that the levels of radiation are at background levels, a finding supported by the September 1994 SAB Report that reviewed EPA's approach to radiation testing at IEL.

52. **Comment:** One resident requests EPA to evaluate the groundwater investigation before a final remedy is decided upon. The resident stated that once the site is capped, it will be hard to revisit the actual site. The resident also wanted to know how monitoring wells or recovery wells (if such wells become a possibility) will be installed if the site is capped without destroying the cap's integrity. [54t, pg. 140, ¶1 and 2]

EPA Response: EPA did review the data and, with OEPA concurrence, believes that groundwater data collected in March 1997 and September 1998 supports the proposed changes to the original remedy for IEL. A comparison of these recent data and data taken in the past (1988-1993) indicates that 1) there is no clear evidence that a plume of contamination still exists beyond the site boundary 2) there are fewer contaminants detected overall and 3) concentrations of those contaminants still detected are generally lower. On the basis of these and other relevant findings, EPA proposed modifications to the original remedy decision for IEL. Construction quality assurance procedures, established for this project prior to construction, will prescribe acceptable construction practices, including monitoring well installation.

Background Data

53. **Comment:** One resident stated that 200 milligrams per liter (mg/L) is not an acceptable background level for the chloride in IEL local groundwater. [2, pg. 1, ¶1]

EPA Response: Only one background well (MW-12i) has shown elevated concentrations of chloride in the past. This well is a flush-mount well installed near a road surface. EPA believes that the cause of the elevated chloride concentrations in MW-12i is the result of rock salt from periodic road deicing.

54. **Comment:** EPA should enhance the public's understanding of what true background levels are and identify variations to these levels using statistical methods. [24, pg. 2, item 2]

EPA Response: Inorganic constituents, including metals and many radionuclides, occur naturally in groundwater and EPA believes that true background concentrations have been established for the IEL site. However, as noted in the response above, irregularities sometimes appear and are dealt with in an appropriate manner.

Contaminant Migration

55. **Comment:** Because of future seepage from the site, significant contamination migration could occur that would potentially impact receptors. [54a, pg. 49, ¶2]

EPA Response:. The impermeable cap which EPA has proposed is designed to eliminate seepage from the landfill. The groundwater monitoring plan which EPA has proposed will be designed to confirm both the effectiveness of the cap and the attenuation of off-site contaminants. The monitoring system will be capable of detecting any unexpected release of contamination, such that EPA can address it long before it becomes a threat to potential receptors.

Data Gaps

56. **Comment:** One resident questions the lateral extent of contamination because no pump tests have been performed even though these tests are a critical way of determining the hydraulic transmissivities of the aquifer. The resident asserted that professionals realize that slug tests are historically debatable. Pump tests are much more viable. [54t, pg. 140, ¶3]

EPA Response: EPA realizes that pump tests provide more viable data than slug tests and proposed conducting the former in response to a comment generated during the public comment period leading to the 1989 ROD. Pump tests were also contemplated by EPA and the Responding Parties in 1998 in an effort to settle differences in groundwater modeling. On both occasions, the Agency was forced to abandon conducting a pump test at IEL due to difficulties in treating and disposing of the high volumes of pump water generated by the test. In lieu of conducting a pump test, multiple slug tests were conducted by EPA during the design studies in 1991-1992 to gather the needed data that would have been generated in a pump test (i.e., hydraulic conductivity). Although transmissivity values were not calculated during the multiple slug tests, the Agency believes the hydraulic conductivity values that were generated accomplished its objective of providing a better characterization of the groundwater flow system underneath the landfill.

57. Comment: Studies are incomplete regarding the investigation of aquifer characteristics such as transmissivity and storativity. These characteristics are critical in determining the fate and transport of contaminants from the landfill. The OEPA representative stated during the availability session that he wanted a pump test performed but that he was overruled by other government entities. Slug tests have been performed at the site, but the data obtained are debatable. [38, pg. 2, ¶1]

EPA Response:. See response to Comment #56 above. Although transmissivity and storativity values were not calculated for IEL, EPA believes these data, while useful, were not as critical as determining hydraulic conductivities, which the slug tests determined, at the shallow, intermediate, and bedrock aquifers underneath the landfill. Both EPA and OEPA realize the benefits of conducting a pump test at IEL and have contemplated doing it in the past. For reasons explained above, conducting a pump test at IEL just wasn't viable. It also is not necessary at this point. Certain data generated in a pump test (e.g., hydraulic conductivity) are critical to the design of an appropriately-sized pump and treat system; the elimination of such a system makes the need for a pump test moot.

58. Comment: New models need to be run using piezometric and well drawdown data to establish present permeability at several depths and to identify the potential range of plume migration as impacted by importation of domestic water with continued reliance on septic systems. The new models also need to be run to determine the impact of enhanced surface drainage in the new major subdivisions all around the IEL site. [24, pg. 2, item 6]

EPA Response: EPA does not agree that additional data and modeling are necessary before it can go forward with the remedy it has proposed. Based on years of experience with co-disposal landfills like IEL, EPA has found that a containment remedy is virtually always called for at these sites. EPA has therefore proposed to streamline remedy decisions by establishing containment as the "presumptive" remedy for landfills. In line with this approach, data collection is tailored to meet the information needs of the presumptive remedy. At IEL, where the original remedy decision preceded the "presumptive remedy" approach, EPA has collected far more data than would now be the norm. The Agency maintains that it has more than enough data to support the proposed amendment to the 1989 remedy.

59. Comment: One resident wants to know why the frequency of monitoring well testing is not increased to measure both the rate of underground water movement and the extent of historical movement. [24, pg. 1, ¶4]

EPA Response: The type of data described above is typically done once as part of site characterization work. The USGS, on behalf of EPA, conducted studies on groundwater flows, levels, and flow directions at IEL in 1989, 1993, and 1994. This is more than sufficient to characterize the groundwater regime around IEL.

60. Comment: Multiple observation wells should be placed on a 200-foot grid pattern west, southwest, and south of the IEL site for roughly 1 mile. [24, pg. 2, item 3]

EPA Response: EPA disagrees. The Agency believes that sufficient data is already available to support the proposed amendment to the IEL remedy.

61. Comment: It was one resident's professional opinion that a remedy is being proposed without an adequate RI. EPA wants to install a cap and then put in additional monitoring wells up- and downgradient of the landfill. The resident wanted to know why these additional wells are not installed now to confirm that the remedial choice is the right one. The cost and time to complete the assessment is insignificant based on costs and time expended over the history of the project. [38, pg. 1, ¶4]

EPA Response: The purpose of the new wells EPA proposes to install is to monitor the effectiveness of the remedy, once it is installed. That is, the wells will monitor how well the cap is working and how quickly attenuation of off-site contamination is taking place. EPA had no need for these wells in order to select the remedy. As noted repeatedly above, the Agency already has more than sufficient data to select the remedy.

62. Comment: One resident is amazed at how "EPA continues to creatively finesse its way into claiming" that a trend regarding contamination has somehow miraculously emerged even though only two rounds of testing have taken place since March 1993. [54e, pg. 76, ¶1]

EPA Response: The Agency disagrees with this assessment. The notion that EPA reached some conclusion on groundwater contamination trends from *only* two rounds of testing is misconceived. As explained in the proposed plan, EPA reviewed not only these recent groundwater data, but seven previous groundwater sampling events in 1990-1993. In reality, the Agency has looked at nine distinct groundwater data sets to determine trends in groundwater contamination. The extensive volume of groundwater data generated from 1990 to 1998 has provided EPA a rather unique opportunity to see changes in groundwater quality over an extended time period and determine if certain trends are evident. It is with this breadth of information, rather than just the two recent groundwater surveys, that the Agency has relied on in reaching a decision to eliminate the pump and treat system.

63. Comment: EPA's own in-house experts have stated that at least five more rounds of groundwater monitoring data are needed to make any really definitive statements. [54e, pg. 76, ¶2]

EPA Response: EPA is uncertain as to what sort of "definitive statement" the commentor has in mind. In the case of the proposed remedy change, EPA advocates eliminating the pump-and-treat component of the 1989 remedy because there no longer appears to be a plume of contamination coming off the landfill. EPA knows of no in-house expert statement that at least five more rounds of groundwater monitoring data would be needed before EPA could make a decision to eliminate the pump-and-treat system. To be sure, it may take many additional rounds of sampling before EPA concludes that groundwater in the vicinity of IEL has been cleaned up; but that is a different question from whether EPA has sufficient data to go forward with the remedy changes it has proposed.

64. Comment: Local residents are concerned with contaminants leaching into the ground (soil and groundwater). The residents are using county water and are concerned that there a possibility of contaminants leaching into the county water supply. [1, pg. 1, ¶1]

EPA Response: EPA believes that the county water supply is not in any danger from contamination from IEL. The location of the source of county water, along with hydrogeologic characteristics surrounding

IEL, preclude the possibility that contaminated groundwater from IEL could contaminate the county water supply.

65. **Comment:** EPA's computer model is flawed because it is only as good as the information input into it according to Washington. The input information is flawed as described previously. [54a, pg. 46, ¶4]

EPA Response: EPA agrees that results generated in a computer model are only as good as the data used for input. Modeling efforts conducted by the Agency in the past (using HELP, WHPA/GPTRAC, and THWELLS) have taken this into consideration and we believe that every effort was made to ensure that the correct input values are used to generate the results. The Agency also believes that the results generated by computer modeling tend to be on a more conservative (i.e., more protective versus less protective values) bent because of the conservative assumptions used in the model.

66. Comment: One commentor opposes the revised cleanup proposal and natural attenuation plan when the content and extent of the contamination is still in question. [26, pg. 1, ¶2]

EPA Response: Please see responses found under Section 1 and 5 of this document. EPA believes that the nature and extent of groundwater contamination at IEL have been adequately addressed in the past.

Data Interpretation

67. Comment: As indicated in a letter from Ross del Rosario, "tables show steady increases in concentrations from 1988-1997 for benzene and chloroethane in shallow wells, 1,1-dichloroethane 1,2-dichloroethane and benzene in intermediate wells, and 1,2-dichloroethane and 1,2-dichloroethene in bedrock wells....Cadmium, lead, arsenic, antimony, thallium and nickel are reported at concentrations higher than MCLs in every monitoring well." One resident wants to know why the PRPs claim that there are no problems with constituents exceeding maximum contaminant levels (MCL). [22, pgs. 2 and 3; 54c, pg. 65, ¶3; 54c, pg. 66, ¶1]

EPA Response: EPA cannot speak for the PRPs. The Agency believes that the remedy outlined in the amended ROD will insure the nearby community is fully protected from real and potential threats posed by the landfill. EPA expects groundwater to continue to improve due to natural attenuation processes and will continue to monitor the site until cleanup goals have been achieved.

Horizontal Flow Characterization

68. Comment: According to the RI and feasibility study (FS), the ponds located west of the landfill are recharged by groundwater. The resident wonders about the risk of contaminant migration over the years to the ponds. [20, pg. 3, item 10]

EPA Response: The RI and FS reports' determination that ponds west of IEL are recharged by groundwater were based on the best professional judgement by the authors of the reports. However, the RI and FS reports clearly recognized and stated that these conclusions may not be correct. Work performed during the predesign field studies showed that in several ponds located west of the site, groundwater does not recharge the ponds. In addition, EPA sampled pond water and sediments as part of the design studies subsequent to issuance of the July 1989 ROD. A copy of the results are included in the 30% Design Report dated February 1993. Based on the analysis of the surface water and sediments, it does not appear that the contamination from IEL is impacting the private ponds west of the site.

Monitoring Well Sampling

69. Comment: Because the groundwater flow rate at IEL is up to six feet a day according to USGS, one resident questioned whether EPA would be willing to put into writing to the community that it will test monitoring wells weekly indefinitely to detect contaminants that may break loose from a barrel at any given time. Barrels or canisters of waste may just now start to leak. The commentor also wanted to know what actions would be taken if high contaminant levels are detected. [39, pg. 2, ¶2; 54e, pg. 74, ¶3; 54e, pg. 75, ¶1]

EPA Response: This comment implies that, once a buried drum or barrel starts to leak, contaminants would inevitably start to move out of the landfill via the groundwater. While this conceivably could happen, evidence that this has occurred has not been observed on any of the nine groundwater surveys that have been conducted since 1990. While the 1994 USGS report did calculate horizontal groundwater velocities at around six feet/day, this value is associated with the area approximately 300-500 feet from the northwest corner of the landfill, close to groundwater mound north of IEL. In the area directly west of IEL, USGS calculated groundwater velocities at less than one foot/day. It would seem by the USGS data that any release out of the landfill would travel much slower than what is implied in the above comment. EPA also believes that placement of an impermeable cap will further minimize a potential release of contaminants from a leaking drum or barrel. This is accomplished by preventing water infiltrating below the cap, preventing further deterioration of the drum or barrel and removing a conduit for the contaminant to enter the groundwater. The amended ROD also calls for a long-term monitoring plan that, as one of its objectives, is capable of detecting a release in the unlikely event that one were to occur. This long-term monitoring plan will be developed by EPA with consultation from the Technical Information Committee, some of whom are residents of the community. While weekly monitoring may be too frequent for routine monitoring, it may be a reasonable tactic in a situation where a spike of contaminant level(s) has been detected in a particular well and more data is needed before corrective action is taken. Such corrective action may encompass having the well examined, providing bottled water, or connecting the resident to an alternate water supply.

70. Comment: One commentor questions the very little monitoring conducted to determine the fate of the transport of volatiles and metals detected on site. [54t, pg. 141, ¶4]

EPA Response: EPA believes that sufficient studies have already been done on the site and that remedy implementation can begin. Having a complete understanding on the fate and transport of contaminants is not necessary to make a decision to cap a co-disposal landfill site such as IEL. There have been nine groundwater surveys conducted on this site since 1990, not to mention testing of the surface water/sediments in Metzger Ditch and private ponds west of the site, residential wells, and the soil/air in the landfill. Combined with existing data on the amount and types of wastes (residential, commercial, and industrial) disposed at the site, EPA believes the remedy chosen for this site is appropriate.

Plume

71. Comment: EPA should identify the separate underground plumes for the respective "disposal" events during the Budoff years. [2, pg. 1, ¶1]

EPA Response: EPA does not believe this is possible considering the various types of wastes disposed at this site. The mixing of these various wastes over the years makes it improbable that a particular wastestream could be isolated and identified.

72. Comment: Because of the lack of wells, no analytical results correctly identify the plume of contaminants, "no model for groundwater migration has been accomplished using the TR-55 rain water infiltration rate of class 'A' soils that exist for the IEL cover;" and no extended piezometer testing has been conducted to identify groundwater movement. The commentor proposes that EPA accurately inventory the plume by (1) testing every existing well within 1.5 miles of IEL, (2) actually measuring the infiltration rate using percolation testing to identify the amount of rainwater penetrating the IEL surface, and (3) collecting up to nine cores per acre at the site. [21, pg. 1, ¶4]

EPA Response: EPA disagrees with the suggestion of testing every existing well within 1.5 miles of the site to "accurately inventory" the contaminant plume. We believe this is unnecessary and is not supported by data already gathered by the Agency during the remedial investigation and design studies. Previous investigations on groundwater contamination at IEL included not only sampling the vast network of monitoring wells, but also a sizable number of residential wells around the landfill. Along with various related investigations conducted by OEPA and USGS in the past, EPA believes the nature and extent of groundwater contamination at IEL has been more than adequately delineated. Regarding Item #2 in the comment, EPA has conducted similar studies on percolation rate at the landfill during design studies, the results of which are available in the 30% design report. The suggestion of collecting a sizable number of core samples at the site, akin to that described in Item #3, has been previously looked at by the Agency and rejected due to the prohibitive cost and because of health and safety considerations when coring in the waste. Lastly, the Agency's presumptive remedy for sites such as IEL (i.e., containment) make such contaminant characterization, as described in the comment above, unnecessary.

73. Comment: No one has addressed the issue regarding where or what happened to contamination evident in the early 1990s. A plume of groundwater contamination may exist off site. [38, pg. 2, ¶6]

EPA Response: Although there may be many plausible causes for the decreased presence of contaminants found around the landfill, EPA believes there is evidence suggesting that the contaminants are naturally attenuating. A comparison of the groundwater data taken in 1990-1993 and those taken in 1997-1998 indicates 1) the contaminant concentrations are generally decreasing with time and 2) that the number of contaminants detected have decreased over time. Although there are sporadic incidences of metals concentrations exceeding drinking water standards, there is no concrete evidence that a plume of contamination still exists outside of the landfill boundaries.

74. Comment: The schedule and conclusions of the proposed ROD for the IEL site should be reorganized because on the higher ground above IEL, hundreds of homes now use piped city water but also still use septic systems. As a result, groundwater is artificially recharged and is moving through the mass of wastes in the IEL inventory. The commentor states that it may be possible that the increased volume of groundwater will cause wastes such as leaves and garbage to decay, resulting in ground surface depressions and increase the volume of leachate. [53, pg. 1, ¶5]

EPA Response: EPA disagrees with the conclusions reached by the commentor. The use of septic systems in homes around IEL is not a new phenomenom and is not expected to significantly influence groundwater elevation levels at the landfill. The fact that there is less drawdown of groundwater, due to growing use of piped municipal water, has not translated to a higher groundwater table which is in contact with the landfill wastes. Tests conducted by EPA during the 1991-1992 design studies found that the water table was below the wastes throughout the landfill. The Agency expects the groundwater table beneath the landfill to drop even further once the cap is constructed.

SECTION 7: MONITORED NATURAL ATTENUATION

General

75. Comment: The citizens of Uniontown deserve a better remedy than natural attenuation. EPA has not acted in the interest of the public, nor has the current judge. The only people being served are the corporate parties. The judge should step down because he doesn't know anything about the Uniontown community and obviously does not care. [29a, pg. 1, ¶4]

EPA Response: The citizens of Uniontown deserve a remedy that protects human health and the environment. That is what the remedy EPA has proposed will do. Natural attenuation is only one aspect of that remedy, the main components of which are a new landfill cap, and an expanded gas treatment system.

76. Comment: Because natural attenuation is at work, the landfill should not be capped. [37, pg. 1, ¶1]

EPA Response: At a number of landfill sites around the country, EPA has selected as the remedy: containment of the source area by capping the landfill, and natural attenuation of off-site contamination. EPA has found that capping has no ill effects on off-site natural attenuation. On the contrary, capping is helpful in that it prevents any further contamination from being released and reaching the off-site area where natural attenuation is doing its work. With respect to the landfill itself, EPA maintains that a containment remedy is preferable to a natural attenuation remedy because it employs a dependable technology that will reliably protect human health and the environment. EPA's experience with natural attenuation of landfill source areas, on the other hand, is still too limited to permit the Agency to choose it as the sole remedy for a site like IEL.

77. Comment: About 10 boxes of information have been generated for the landfill from its discovery until the present time, when MNA is being proposed by EPA. All the information EPA has on this site to justify this new remedy would fit in one box. [54a, pg. 40, ¶3]

EPA Response: EPA has included all documents it relied upon to propose the change in remedy in the Administrative Record. The new remedy being proposed by EPA is basically the old one, minus the pump-and-treat system. As EPA has explained, a pump-and-treat system makes no sense unless there is a plume of contamination. EPA maintains that, even if does not have ten boxes, it has more than enough data to demonstrate there is currently no plume of contamination, and therefore, no reason to include a pump-and-treat component in the remedy.

78. Comment: EPA has forced its recommended remedy for the IEL site on the citizens for the past 15 years without the public's advice or consent. [54a, pg. 42, ¶3]

EPA Response: It is simply not true that EPA has made decisions concerning IEL without any advice from the community. To the contrary, EPA has made unusual efforts to try to involve the public in the decision-making process and to provide the means by which citizens could have input. For example, a local community group, the Concerned Citizens of Lake Township (CCLT), was the recipient of the first-ever Technical Assistance Grant (TAG) to provide assistance on technical issues (a second TAG grant was subsequently awarded to CCLT). Another example is the formation of the Technical Information Committee (TIC), a forum established in 1989 for interested parties, including community members, to review and comment on various IEL design documents. The last TIC meeting was held in April 1999. Other examples: two availability sessions were held by U.S. EPA prior to the March 2, 1999 public

meeting to discuss the proposed changes to the remedy for IEL. These availability sessions provided interested parties the opportunity to engage Agency personnel on any issue they might have on IEL.

79. Comment: Dr. Mary Randolph and Ross del Rosario, both of EPA, and Larry Antonelli of OEPA have all questioned whether ample evidence exists indicating natural attenuation of certain specific VOCs and metals at the IEL site and have called on the regions and PRPs to perform at least five more rounds of groundwater sampling to justify the natural attenuation remedy. According to EPA headquarters, the burden of proof should be on the proponents of natural attenuation as an IEL site remedy and not on EPA. [20, pg. 3, item 6; 54a, pg. 48, ¶1 and 2]

EPA Response: Please refer to various responses to comments covered under this section (Section 7: Monitored Natural Attenuation).

80. Comment: The proposed change in remedy is based on money, not good science. EPA constantly emphasizes how much money this new remedy will save. The costs should ultimately be paid for by dumpers at the IEL site. [54a, pg. 53, ¶3]

EPA Response: EPA disagrees with this comment. While cost is an important consideration in deciding on a remedy for a site, it is only one of nine criteria the Agency must evaluate in the remedy selection process. These include protection of human health and environment, compliance with applicable or relevant and appropriate requirements, long-term and short-term effectiveness, implementability, ability to reduce the toxicity, mobility, or volume through treatment, and State & community acceptance. The remedy selected represents the best balance when evaluated against the nine criteria described above. EPA would prefer the responsible parties to pay for construction of the remedy, instead of using Superfund monies. The majority of all Superfund cleanup projects are financed by responsible parties and we hope this will be the case for IEL.

81. Comment: Chemicals at the site will not diminish in concentration as a result of bio-uptake by poplar trees. The only solution is to excavate the site area. [54s, pg. 138, ¶4]

EPA Response: This comment refers to a proposal made by the responsible parties during settlement discussions with EPA and ultimately rejected by the Agency. It was suggested that poplar trees be used as a means to prevent infiltration of water to the groundwater ("phytocap") and as active treatment using the biokinetic uptake of contaminants (metals) from the root system to the other parts of the plant above ground. While there are possible advantages with this technology, it is very new and largely unproven on actual Superfund sites like IEL.

EPA disagrees that excavation is the solution on this project. Removing wastes from most co-disposal landfills such as IEL, and disposing them off-site, is simply impractical due to the large volumes of heterogeneous wastes commonly found at the site. Given the sheer volume to be treated, the cost of such a remedy would be prohibitive. Because of this, excavation is generally not selected as part of the remedy for sites such as IEL (Note: In accordance with EPA's guidance document entitled "Conducting Remedial Investigations /Feasibility Studies for CERCLA Municipal Landfill Sites," (2/91), excavation of landfills is generally considered impracticable if the landfill contains more than 100,000 cubic yards of material. IEL contains significantly more material than 100,000 cubic yards). While cost is the main drawback, excavation also creates other problems. Health and safety issues become a prominent concern in any excavation work on a landfill. Due to the various types of wastes buried in the landfill, disturbing the pile could create hazards to both the on-site workers and surrounding community. The threat of a fire or explosion, if the waste is exposed to open air, may also be present. Also, the transport of wastes outside of the landfill could create unnecessary risks to the general population due to potential for

accidents on the road. In summary, this option is simply not a viable option for IEL and for most landfills like it. For this reason, EPA has found containment to be the appropriate response action, or the "presumptive remedy", to address the source areas of landfills such as IEL.

Characterization of Contaminants

82. Comment: The effectiveness of natural attenuation depends on a variety of conditions; therefore, the site needs to be well characterized to determine if natural attenuation is occurring or will occur. EPA has not characterized the site adequately because data used are from a database that contains analytical results from the "old" RI/FS and "old" monitoring wells. These monitoring wells cannot be used to assess the "extensive information requirements needed to justify MNA" in accordance with EPA guidance documents. The monitoring wells do not define on- or off-site contamination in three dimensions, and data from the wells is insufficient to assess the contaminant plume both horizontally and vertically because the wells are not screened at adequate depths. [20, pg. 2, item 2; 22, pg. 4, ¶1; 54a, pg. 43, ¶4; 54a, pg. 46, ¶1 through 3; 54c, pg. 68, ¶3; 54e, pg. 71, ¶3]

EPA Response: EPA disagrees with the assessment that the site has not been adequately characterized in order to determine if natural attenuation is/will be occurring. Please refer to responses to various comments under Section 1 above.

83. Comment: According to EPA, Geoprobe push technology should be used to install 1- to 1.5-inch-diameter casing, steel monitoring wells instead of traditional monitoring well installation techniques. The new push technology costs half of what traditional monitoring well techniques cost and can be used to sample groundwater, determine groundwater flow direction and rate, and assess contaminant flux and geochemical distribution. The new technique can also be used for core soil sampling as wells are installed. [20, pg. 2, item 1; 22, pg. 4, ¶1; 54a, pg. 44, ¶2 and 3; 54e, pg. 74, ¶1 and 2]

EPA Response: EPA believes site characterization has been adequately conducted at IEL and the use of direct push technologies will not yield new relevant information which could affect the selected remedy. In addition, direct push technology, of which Geoprobe® is one example, has limitations that make it unsuitable for use at IEL.

84. Comment: One resident suggested that 60 groundwater monitoring wells could be installed using the Geoprobe for every 20 traditional monitoring wells installed. The wells should be installed using transects and along the southern line of the plume after it is defined. By using transects, it should be possible to reveal the characteristics of a cross-section of the contaminant plume and to define the plume three-dimensionally. EPA can define the plume three-dimensionally using the 28 monitoring wells installed 15 years ago. Permanent monitoring well transects can then be installed to provide accurate site characterization data. [54a, pg. 45, ¶1 and 2]

EPA Response: Please see response to Comment #83 above.

Chemical Data

85. Comment: Natural attenuation is cleaning up groundwater at the IEL site based on the information below.

- No off-site groundwater contaminant levels exceed MCLs.

- The number of organic constituents detected in groundwater monitoring wells is decreasing. Up to 78 organic constituents have been detected during past groundwater sampling events; however, 19 organic constituents were detected during the September 1998 groundwater sampling event.

- Concentrations of 76 of the 78 organic constituents detected are decreasing.

- The areal extent of groundwater contamination is limited to shallow wells beneath the site. [56]

EPA Response: EPA believes one or more natural attenuation processes are occurring at IEL and has, therefore, included a monitoring component in the remedy to evaluate the progress MNA makes in reducing the contaminant concentration at IEL.

Data Gaps

86. Comment: One resident is concerned that long-term groundwater contamination could eventually affect more remote wells. EPA claims that natural attenuation is eliminating the problem and that the proposed leachate neutralization system is not required. If natural attenuation is in fact eliminating off-site contamination, EPA should present evidence to support this conclusion in simple graphic form and not expect residents to check hundreds of data points over many pages of tables. [29, pg. 1, ¶5]

EPA Response: EPA tries to make technical information as comprehensible as possible, but there is always room for improvement. The Agency will try in the future to add graphic displays to its presentations on the progress of natural attenuation

87. Comment: Technical letters written by both EPA and OEPA raise numerous concerns regarding MNA at IEL. These letters appear to clearly reject the implementation of MNA at the IEL site, at least until far more data are collected, including data required to better characterize the waste materials buried at IEL. These letters, both written in December 1997, were deliberately withheld from the public until just recently. One letter was even described as "classified" by its author. It is very obvious that the public was never meant to know about the internal disagreement at EPA regarding the MNA issue. If the township lawyer had not written a FOIA request to obtain these letters, the residents would still be ignorant of important site-related technical concerns. [39, pg. 2, ¶1]

EPA Response: This comment does not distinguish between MNA as the sole remedy for the IEL site and MNA as a small component of a remedy for the IEL site. The documents referred to in the comment stem from a PRP report on natural attenuation at IEL, which concluded that no additional remedial measures need be taken. In other words, the PRPs advocated choosing natural attenuation as the sole remedy for the IEL site. EPA took issue with that conclusion for many reasons, including insufficient data. As a result, EPA decided to retain the containment approach to the IEL source area that it had selected in 1989. However, for the off-site area, where the nature of the contamination is less complex than in the source area, the Agency felt it had sufficient data to select natural attenuation. The Agency looked at this aspect of the IEL remedy in two different, but complementary, ways: On the one hand, the Agency decided to eliminate the pump-and-treat component of the 1989 remedy because such a system only makes sense when there is a plume of contamination, and none appears to exist. On the other hand, if pump-and-treat is eliminated, then what becomes of the limited contamination remaining outside the landfill? The answer is that it attenuates, as it seems to have been doing steadily for the past decade. EPA maintains that, far from being a drastic departure from the 1989 remedy, the proposed amendment is a common-sense response to changed conditions. As for accusations that EPA deliberately withheld

documents to keep the public in the dark, EPA denies this. For some time, the Agency was subject to an order issued by the federal judge in EPA's ongoing cost recovery case. The judge ordered the parties to keep information related to settlement discussions confidential. Because EPA's evaluation of the PRPs' natural attenuation proposals took place in the context of settlement negotiations, EPA believed it had no choice but to keep these documents confidential. Developments in EPA's cost recovery case later made it possible to release these documents.

Data Interpretation

88. Comment: As recently as 1995, Linda Kern of EPA wrote a very detailed report refuting the PRPs' assertion that nothing need be done at the IEL site. This report explicitly states the following:

- Data up to 1995 indicates that the site is a dangerous Superfund site.
- A 1- to 2-foot gap between the waste and the water table is not acceptable.
- The site is subject to RCRA Subtitle C requirements.
- The PRPs are wrong in stating that contaminant levels have decreased when in many instances they have actually increased.
- One full year of quarterly testing needs to be conducted to accurately assess groundwater conditions. [54c, pg. 63, ¶4 and 5; 54c, pg. 64, ¶1]

EPA Response: EPA still disagrees with the responsible parties' assertion that nothing should be done at the site. The revised remedy reflects the evaluation of the most current (1997-1998) groundwater data compared with the previous data (1990-1993). The 1997-1998 groundwater data permitted the Agency to get a better assessment of groundwater trends on a longer time horizon. Groundwater experts from EPA and OEPA both agreed there is a trend towards fewer contaminants detected and lower concentration levels found for those contaminants detected. This was not apparent back in 1995. The Agency's revised cap design reflects the experience it has gained installing landfill covers over the years. It is expected to perform as well as a RCRA Subtitle C cap at 1) a substantial cost savings 2) substantially reduce the amount of borrow soil to be trucked into the site and, consequently, reduce potential road accidents and 3) be completed in lesser time. With placement of the cap, it is expected that the water table will drop and further reduce the possibility of the waste getting in contact with the groundwater.

89. Comment: One commentor asked that EPA respond to comments raised by Linda Kern in her 1995 responses to the rubber companies the same as if they were the commentor's own comments. [54a, pg. 51, ¶4]

EPA Response: Please see response to Comments #2 and #88 above.

90. Comment: EPA's Linda Kern (in 1995) and EPA scientific internal expert Mary Randolph, as well as OEPA staff Larry Antonelli, all conclude that natural attenuation is either not happening or should not be considered as a cleanup remedy at the IEL site. [54h, pg. 92, ¶2]

EPA Response: EPA disagrees with this interpretation concerning the views the above individuals had on natural attenuation, as it pertains to IEL. A discussion on how Ms. Kern's views in 1995 relate to today's decision can be found in the response to Comment #2. Both Dr. Randolph's and Mr. Antonelli's written evaluations indicated that, although more data is needed to conclusively prove the effectiveness

of natural attenuation processes at IEL, there is evidence to suggest that such processes are present at the site. EPA's natural attenuation guidance allows the Agency to make a determination that natural attenuation exists at the site on the basis of historical data (i.e., first line of evidence). In the case of IEL, there was sufficient historical data (1990-1998) to allow the Agency to make such a determination. While MNA is being used as a component of the total remedy for IEL, its ability to meet remediation goals will be closely monitored by EPA during the operation and maintenance phase of the project.

91. Comment: EPA's 1995 report states that the significant threat of release is enough in itself to continue to call for active remediation of the IEL site. The report states that no action is not acceptable because IEL contains millions of gallons of hazardous wastes and high levels of toxic gases. One commentor wanted to know why if this statement was true a few years ago in 1995, why it is not true now. The commentor went on to question if EPA is suggesting that millions of gallons of hazardous waste have suddenly disappeared over the last 3.5 years. [39, pg. 2, ¶2; 54e, pg. 73, ¶1 through 3]

EPA Response: Please see response to Comment #2 above.

92. Comment: It is not believable that contaminants were present in the groundwater at concentrations exceeding MCLs in 1997 but not in 1998. [41, pg. 1, ¶1]

EPA Response: This is incorrect. The 1998 sampling survey did find certain contaminants exceeding their respective MCLs. Specifically, the organic compounds vinyl chloride and 1,2 dichloroethane exceeded MCLs at MW-21s. Metals, in unfiltered samples, exceeding MCLs were thallium (MW-27), chromium (MW-11, MW-18, MW-24, and MW-27), and nickel (MW-18 & MW-25). Nickel concentrations in both the unfiltered and filtered samples from MW-25 exceeded the MCL. Also, the filtered mercury concentration at MW-25 is above MCL. While exceedances of certain MCLs were detected in the 1998 sampling survey, the data indicated the 1998 survey contained fewer MCL exceedances and less contaminants detected than the 1997 results.

93. Comment: In December 1997 in a critique of the 1997 water test, Larry Antonelli, the site coordinator, wrote to Mr. del Rosario that OEPA does not have any reason to believe that future releases of heavy metals will not occur. Mr. Antonelli's letter also states that metals were detected at various concentrations in nearly all the off-site monitoring wells and that historical groundwater data do not entirely demonstrate trends of decreasing contaminant concentrations over time at all monitoring points. [54c, pg. 68, ¶1]

EPA Response: EPA believes the concern on possible future releases of metals from IEL may have been mitigated by the recent sampling event in 1998. The occurrences of elevated metals downgradient of the site has been observed by both EPA and OEPA in the 1997 report. The metals results were generally sporadic and, consequently, it was difficult to make definitive conclusions about what they meant. The sporadic nature of the metals data raised questions about whether the data represented an accurate portrait of metals in the groundwater or whether they could be attributed to artifacts of sampling. In the past, the representativeness of groundwater samples, using bailing techniques, was called into question due to turbidity (caused by suspended solids). These solid particles may have metals adsorbed on their surface and, thus, cause a false reading of that metal concentration in the sample (i.e., false positive). To correct this problem, the samples were filtered prior to analysis. The filtering of samples, however, created a new problem by removing some of the dissolved solids containing highly mobile metal particles. This process, in effect, generated a result that may have under represented the true concentration of a metal in that sample (i.e., false negative). To correct this problem, EPA, with OEPA concurrence, prescribed the use of an approved sampling technique (low-flow sampling) for the 1998 survey. Low-flow sampling minimized the turbidity problem and eliminated the need to filter the

sample before analysis. In effect, this sampling technique allows for collection of a more representative sample for metals analyses. Results of the 1998 survey revealed that concentrations of off-site metals were on the lower end of the historical range. More importantly, the levels of metal contamination (i.e., above MCL) have significantly decreased from levels reported in previous sampling events. In any event, EPA expects that, with the new cap in place, any future releases of metals from the landfill will be mitigated as a result of preventing leachate from being generated.

94. Comment: The Sharp and Associates, Inc., memorandum regarding natural attenuation is very subjective, one-sided, and presumptuous. The statement that contaminants from the site have migrated to off-site groundwater at levels of concern is not accurate. The memorandum presents opinions, not statements based on data. [38, pg. 1, ¶2 and 3]

EPA Response: EPA cannot speak for the authors of the document. The subject document expresses an opinion by an interested party on IEL which may or may not be agreeable to other parties.

95. Comment: Data obtained in March 1997 by the PRPs have changed everything. The PRPs' request that nothing be done has remained constant as expected; however, EPA now agrees with them. One resident wanted to know if the 1997 data are the "new information" referred to in the fact sheet. [22, pg. 3, ¶1; 54c, pg. 64, ¶2]

EPA Response: As indicated previously, EPA does not agree with the responsible parties that nothing should be done at IEL. The 1997 and 1998 sampling data are the "new information" referenced in January 4, 1999 fact sheet.

96. Comment: One resident stated that IEL data and statistics are being manipulated for political reasons. It is often said that one can make the numbers say whatever one wants, and the commentor believes that this has been the case at IEL for a long time. [39, pg. 3, ¶1]

EPA Response: EPA disagrees with this statement. There simply is no basis for alleging that the data was ever manipulated "for political reasons". The Agency arrived at a remedy decision for IEL after objectively looking at the available data and following procedures outlined under Superfund regulations. Relevant guidance material (presumptive remedy policy, landfill cover designs, monitored natural attenuation directives, etc.) and consultations with in-house technical experts, OEPA, academia, and ATSDR were extensively used in arriving at this remedy decision.

97. Comment: One commentor stated that EPA changed its mind about the proposed remedy after closed-door secret negotiations that have been ongoing for the past 3 to 5 years. [54e, pg. 75, ¶2]

EPA Response: This comment fails to distinguish between settlement negotiations, which by their nature must be confidential, and Superfund remedy selection, which by law must be public. It is true that EPA held closed meetings with the IEL PRPs. These discussions were part of settlement negotiations in EPA's ongoing law suit to recover the costs the government has spent so far at IEL. Settlement negotiations in law suits are always confidential, and these were no exception. But, when EPA decided that changes in the 1989 remedy were warranted, the Agency initiated a public selection process. Its reasons for proposing to change the IEL remedy are now a matter of public record. The Agency has explained at length the technical basis for changes in the 1989 remedy. These changes fall far short of what the PRPs advocate, and to date, no settlement between the PRPs and EPA has been reached.

Effectiveness

98. Comment: Several commentors asked whether IEL will really "treat itself" through MNA. [2, pg. 1, ¶1; 12, pg. 1, ¶1; 16, pg. 1, ¶3]

EPA Response: EPA emphasizes that, while MNA is a component of the remedy for IEL, containment is the primary technology that will be employed to address the source areas in the landfill. As indicated in the response to Comment No. 168 below, MNA is an appropriate selection for the off-site areas where the Agency is more confident that natural attenuation processes will be able to achieve groundwater cleanup goals established in the ROD. EPA, however, does not have this level of confidence at the source areas due to the presence of huge volumes of heterogeneous wastes. Rather, the Agency will rely on containment technology, the presumptive remedy for landfill sites such as IEL, to ensure that human health and the environment are protected from any possible dangers the landfill may pose.

99. Comment: NRDC has serious concerns about EPA's reliance on a remedy largely based on MNA, particularly because the IEL site is located near a residential community, received large volumes of hazardous wastes, and is a large-scale site. Under these circumstances, reliance on capping and MNA as an appropriate long-term environmental remediation strategy strains credulity. [42, pg. 1, ¶1]

EPA Response: See response to Comment #'s 87 and 98 above. Also, EPA disagrees strongly with NRDC's characterization of the remedy as being "largely" based on MNA. MNA is, in fact, a minor part of the IEL remedy. It was included to address the small amount of off-site contamination that appears to remain at the IEL site.

100. Comment: Natural attenuation does not mitigate the actual or potential threat to receptors because of the increased time needed for natural attenuation to be successful. Many residents in Uniontown within 1 mile of IEL still depend on groundwater for drinking water. Even some who have an alternate water source available are unable for financial or personal reasons to hook up to this supply; therefore, they are now and always have been at risk. In addition, many ponds west of the landfill are actual or potential receptors because according to the 1987 or 1988 RI/FS, they are recharged by groundwater. [54a, pg. 51, ¶1 through 3]

EPA Response: See previous responses on MNA and pond water under Section 7 and Section 1, respectively.

Metals Testing

101. Comment: Joseph Towarnicky of the Columbus-based Sharp and Associates, Inc., stated that metals "do not seem to be an issue." Cobalt, uranium, thorium, plutonium, strontium, cadmium, and radium are heavy metals that have been detected in groundwater in and around IEL. [47, pg. 4, ¶2; 54b, pg. 61, ¶1]

EPA Response: As previously indicated, the levels of metals found in 1998 are generally lower than previous surveys. Also, the number of metals detected overall have dramatically gone down since 1990. More importantly from a regulatory standpoint, there were only a few sporadic exceedances of drinking water standards for metals found in off-site monitoring wells. There were also few metals detected in the six residential wells sampled, with concentrations significantly below their respective drinking water standards.

102. Comment: According to an article published Saturday, January 23, 1999, written by Bob Downing, a staff writer for the *Akron Beacon Journal*, "Toxic heavy metals that appeared to be a puzzle based on 1997 test results were re-analyzed using a different testing method." A resident wanted to know what testing method was used. [47, pg. 4, ¶2; 54b, pg. 60, ¶4]

EPA Response: It is actually a change in the sampling methodology that occurred in 1998. The more accurate low-flow sampling technique was used in place of the manual bailing method which had a history of collecting groundwater samples with high turbidity. Low-flow sampling was designed to collect a more representative sample from a well.

Microbial Test

103. Comment: Very few studies have been conducted to show if any bacterial microbes are present in groundwater and whether those microbes have been affected by heavy metals. High metals concentrations could be toxic to microbes. It is also uncertain whether the microbes are effective in dealing with the specific contamination present in groundwater. [54t, pg. 142, ¶2]

EPA Response: EPA maintains that microbial tests were not necessary to choose monitored natural attenuation for the limited role it will play in the amended remedy. The Agency relied on historical data to make its decision, a method of determination which follows EPA's current MNA guidance. This does not mean that such tests will not be used in the future. Current literature indicates that the microbes required to degrade chlorinated compounds such as tetrachloroethene or trichloroethene into smaller daughter compounds are present in approximately 90 percent of all sites. This and other relevant information gathered from microbial and other specialized tests may be useful in future monitoring to determine if MNA is attaining cleanup goals in a timely manner.

104. Comment: EPA and Sharp and Associates, Inc., keep asserting that significant microbial action is occurring at the site; however, no microbial studies have been performed, dissolved oxygen readings were not available for review, and no studies have been performed regarding the effect of the cap on the supposed microbial action. The EPA hydrogeologist stated that microbial tests are very expensive. This statement seems ludicrous in light of the fact that the remedial action will cost $22 to $30 million. [38, pg. 2, ¶5]

EPA Response: As indicated above, EPA will include, as part of a long-term monitoring program, testing for hydrogeological and geochemical parameters to determine the rates of biodegradation occurring at the site. If needed, the Agency may require other specialized tests such as the microbial tests above. The actual parameters to be tested will be determined as the draft monitoring plan is being developed. Input from the TIC members will be taken into consideration by EPA on this matter.

Modeling

105. Comment: If analytical data used are faulty, then EPA's computer model is flawed. [20, pg. 2, item 3]

EPA Response: EPA does not believe it used faulty data in any computer modeling effort related to IEL.

106. Comment: No modeling was performed at the site to determine the mobility of contaminants in the unsaturated zone and the fate and transport of the contaminants in groundwater. [38, pg. 2, ¶2]

EPA Response: EPA conducted groundwater modeling in 1992 as part of the design for the pump and treat system. The results of this modeling effort are included as part of the 30% Design Report and available for viewing at the site repositories.

107. Comment: No modeling has been performed to simulate the anticipated groundwater flow direction and gradient with the proposed cap in place. [38, pg. 2, ¶2]

EPA Response: EPA has not performed modeling to simulate anticipated groundwater flow direction and gradient. However, groundwater flow direction were described in the 1988 RI and also in the 30 percent design report dated February 1993. Also, the March 1994 USGS report, prepared for the Agency, determined the groundwater levels and flow direction around IEL using water level measurements taken from a broad area around IEL.

Monitoring Wells

108. Comment: One commentor asked whether the revised remediation plan includes monitoring the wells. [13, pg. 1, ¶3]

EPA Response: Yes. Some of the existing monitoring wells will be retained in addition to newly built ones.

109. Comment: The existing wells appear very old and dilapidated and should be replaced. [38, pg. 2, ¶3]

EPA Response: EPA plans to inspect the existing monitoring wells that will be retained after the cap/gas system is completed. Repairs to the wells will be made if possible. If any well is beyond repair, it will be closed and a new well will be installed.

110. Comment: One resident recommends forming a consortium of EPA, PRP, and community members to draft a consensus monitoring proposal. Because the overall remediation process has been long and involved, a short delay should not be damaging if it will allow all parties to "buy in" to the remedial action. In fact, the consortium would also provide an opportunity to ensure that the best monitoring system could be employed using the most up-to-date technology. [28, pg. 1, ¶4]

EPA Response: EPA plans to develop the new monitoring plan with input from citizens, the PRPs, local government, and the other interested parties who participate in the IEL Technical Information Committee (TIC).

111. Comment: As stated by EPA at its own seminar on natural attenuation in Fall 1998, traditional monitoring wells can miss horizontal and vertical plumes of contamination. [54a, pg. 45, ¶3]

EPA Response: EPA does not believe this is the case at IEL. Most of the wells being used at IEL are nested wells in clusters of two or three. This is in consideration of the two distinct aquifers present underneath the site. With an expansive area covered by the monitoring well network, the groundwater data generated from this system of wells is comprehensive.

Plume

112. Comment: The schedule and conclusions of the proposed ROD for the IEL site should be reorganized because the presumptions regarding in situ attenuation appear to be based on the assumption that the plume is no longer active, which in turn is based on the erroneous assumption that the present ground cover is secure. In fact, the shaped cover was built from sand and gravel present at the site and is highly porous, causing displacement of groundwater. [53, pg. 1, ¶3]

EPA Response: The term "reorganized" needs to be clarified. The Agency believes that there is no evidence that a plume of contamination exists outside of the IEL site boundary. The existence of a porous cover on the landfill has really no relevance on the determination of a contaminant plume at the site.

113. Comment: In March 1998, Dr. Mary Randolph stated in a letter that data suggest that the contamination plume could further expand, resulting in contamination of downgradient groundwater, and that natural attenuation appears to be ineffective in reducing concentrations of toxic metals below MCLs. [54c, pg. 66, ¶3]

EPA Response: Dr. Randolph wrote her memorandum before data from the September 1998 sampling event was available. The September 1998 sampling employed low-flow sampling, which provides a more representative sample for metals than the older bailing technique which had been used previously. Low-flow sampling revealed metals contamination to be significantly lower than it had been measured in the past.

Releases

114. Comment: One resident wanted to know if natural attenuation will remediate the site if 55-gallon drums are continuously leaking and decomposing in the landfill. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) states that EPA must act not just on releases of toxics but the threat of their release. [13, pg. 1, ¶1; 20, pg. 2, item 5]

EPA Response: EPA would like to reemphasize that it has not chosen natural attenuation to address contamination within the landfill itself. For contamination within the landfill, EPA has chosen containment. The cap EPA proposes to construct is designed to prevent contamination within the landfill - be it from leaking drums or other sources - from reaching groundwater off-site. By preventing any further releases from the landfill, the cap will hasten the ability of natural attenuation to clean up ground water offsite.

115. Comment: The March 1999 EPA public fact sheet presents VOC concentrations lower than their maximum historical concentrations and discusses inorganics and their sporadic detection at concentrations exceeding federal drinking water standards. A recent report from the responding companies indicated 8,300 parts per billion of benzene in groundwater, which is 1,600 percent higher than the federal drinking water standard. Thousands of barrels of waste have yet to break down and rust. These concerns indicate that MNA is not an adequate remedial action. Also, the commentor wanted to know if EPA will conduct "sporadic" monitoring to control the "sporadic" seepage. The commentor then stated that if Uniontown could handle trucks bringing in the wastes, it could handle trucks transporting wastes off site. [54g, pg. 87, ¶3; 54g, pg. 88, ¶1 through 4]

EPA Response: Neither EPA nor OEPA possess information which supports the contention that thousands of barrels of waste are buried at IEL. EPA believes the contaminant spikes presently found at

the landfill clearly illustrate why containment is an appropriate remedy for the source areas. While groundwater data suggests improvement in overall groundwater quality, primarily outside of the landfill, there are still occasional spikes of organics and metals in groundwater within the landfill which MNA, by itself, will likely not control. The concern that on-site wastes will continue to influence groundwater quality and cause potential harm to downgradient receptors has led EPA to prescribe containment as the remedy for the landfill. The Agency believes that, together with the other components of the remedy, the health and welfare of the surrounding community will be adequately protected by capping the landfill. This decision is consistent with other decisions EPA has made on similar co-disposal landfills.

EPA, with assistance from the TIC, will develop a long-term monitoring program which will include periodic groundwater surveys in and around the landfill. Groundwater quality will be checked at various wells established by the long-term monitoring program. In the event contaminated groundwater is found to pose a real or potential threat to downgradient well users, appropriate response actions will be in place to protect them from possible harm.

Excavating and transporting wastes from a landfill such as IEL are generally not selected as the permanent remedy due to cost and health and safety considerations. EPA looked into these and other pertinent issues in depth when it determined that containment, rather than excavation/off-site disposal, to be the presumptive remedy for landfills like IEL.

Remediation

116. Comment: Natural attenuation has been used in conjunction with active remediation (which means that toxic chemicals were removed from the site) at all but six sites where EPA has chosen natural attenuation in this country. No active remediation has taken place at IEL of any kind, even though EPA has identified on-site hot spots. [54a, pg. 48, ¶3]

EPA Response: EPA has reviewed the data it has compiled on MNA and believes its application at IEL is consistent with previous remedy decisions that included MNA as a component. While data cited by the commentor above indicated only six sites (out of at least 63) have no other component to the remedy except for MNA, the population covered under this study included sites other than landfills (e.g., former industrial/commercial sites). For these sites, the Agency determined it was economically viable to remove/dispose or treat the on-site wastes as part of the overall remedy that includes MNA. In all likelihood, these sites contained homogeneous wastes at relatively small volumes, unlike the typical large volumes (>100,000 cubic yards) and varied types of wastes found at co-disposal landfills like IEL. For such sites with huge volumes of heterogeneous wastes, excavation/disposal or treatment of the waste is simply cost-prohibitive and, thus, impractical. Consequently, EPA has determined that containment, a source control technology, to be the appropriate response action to address the source areas of a landfill. This is what is being prescribed for IEL, along with the use of MNA .

Although no hot spots have been identified at IEL, the Agency did install an active gas management system in the 1980's to control off-site migration of landfill gases. Residents living adjacent to the landfill were being threatened by the presence of landfill gas-derived contaminants and, thus, an emergency action was initiated by the Agency to protect them from the danger. This system is still in operation today and will be expanded to collect and treat landfill gases throughout the landfill.

Risks

117. Comment: One commentor wanted to know the number of illnesses per thousand population EPA considers acceptable for indicating that natural attenuation is protective of human health. [2, pg. 1, ¶1]

EPA Response: Section 300.430(e) of the NCP outlines the rationale for establishing acceptable risk-based exposure levels that are protective of human health and the environment for both cancer and non-cancer causing contaminants. For suspected carcinogens, an acceptable range of exposure levels representing an excess upper bound lifetime cancer risk to an individual from 10^{-4} to 10^{-6} has been specified. For groundwater, contaminant levels should not exceed MCLs outside the boundaries of the disposal area.

118. Comment: Plutonium has a half-life of 240,000 years. Plutonium irradiating in the soil and water could kill residents 20 years down the road. [54o, pg. 124, ¶1]

EPA Response: The September 1994 SAB final report on radiation sampling at IEL stated that there is no evidence to support that radioactive substances were ever disposed of at the site.

Study Flaws

119. Comment: It appears the March 1997 testing conducted by the PRPs resulted in EPA proposing a new remediation effort; however, no split samples were collected during the March 1997 sampling event, and the samples were sent to a noncertified laboratory. [22, pg. 2, ¶1 and 2]

EPA Response: While there were no split samples taken by EPA, the data validation to determine the usability of the data was conducted by the Agency. Also, EPA reviewed and approved the field and sampling survey prepared by the responsible parties prior to going out to the site. Part of the review included evaluating the contracted laboratory that the responsible parties were proposing to use for analytical work. Based on the Agency's review, the laboratory was found acceptable for use in this survey.

120. Comment: On December 17, 1997, Mr. del Rosario wrote to the PRPs' laboratory that in order to estimate the rate of natural attenuation to a degree suitable for assessing its effectiveness in achieving site goals, pertinent data must be collected at least five times over a sufficient period at a number of sampling stations. Such comments from EPA hardly support the "one shot" testing now being proposed. [54c, pg. 65, ¶2]

EPA Response: Mr. del Rosario's letter was addressed to Mr. Larry Sweeney of Earth Sciences Consultants, Incorporated. It was not addressed to Antech, Ltd., the laboratory chosen by Goodyear, B.F. Goodrich, and Bridgestone/Firestone ("the Rubber Companies") to analyze the groundwater samples collected during the March 1997 survey. Mr. Sweeney, at that time, represented the Rubber Companies and acted as the overall project manager for the group. The Rubber Companies submitted a written response to Mr. del Rosario's letter on January 29, 1998, a copy of which was sent to site repository in Hartville, Ohio. In their response, the responding parties indicated that they would be willing to collect additional samples consistent with the recommendations outlined under the Agency's natural attenuation guidance. The responding parties, as part of the September 1998 survey at IEL, collected additional groundwater samples for analysis of parameters associated with natural attenuation processes. Additional data to estimate the rate of natural attenuation at IEL will be collected in the future, either prior to construction of the remedy or as part of long-term monitoring program established for this site.

121. Comment: One resident asked EPA to explain Region 5's failure to invalidate the PRPs' March 1997 data. [27, pg. 1, ¶5]

EPA Response: With the exception of the pesticides analysis, EPA found the data generated by the responsible parties as usable after conducting the data validation.

122. Comment: In 1992, EPA commissioned Clean Sites to make an independent study of the IEL site. The Clean Sites report states clearly that split samples must be collected and blind sampling conducted at all sites, especially controversial ones. The SAB report also states that verification of a laboratory should be conducted by a pre-award audit and by submitting blind samples to the laboratory for analysis to test the laboratory's reliability. Blind sampling does not consist of having the polluters conduct sampling and sending the samples to a noncertified laboratory of their choice. [22, pg. 2, ¶2; 54c, pg. 64, ¶3]

EPA Response: Although split sampling by the Agency was not conducted during the March 1997 PRP sampling event, the Agency did conduct duplicate sampling (similar to split sampling) during the September 1998 PRP sampling event. In addition, the selection of a laboratory by the PRPs is a transaction in which the Agency typically does not get involved, although the Agency reviewed the standard operating procedures (SOPs) that would be used by the laboratory during the various analyses. After reviewing and commenting on this and other pertinent information related to the analysis of samples from IEL, the laboratories chosen by the responding parties for the March 1997 and September 1998 surveys were eventually found acceptable by EPA. These laboratories, Antech, Ltd. and Quanterra are quite familiar with the type of lab SOPs used in EPA's Contract Laboratory Program (CLP) and have actually incorporated most or all CLP SOPs into their proposals. Quanterra, in particular, is familiar with these SOPs, having been a CLP laboratory in the past.

123. Comment: Unbiased tests of groundwater with unbiased interpretation of the analytical results should be conducted. [26, pg. 1, ¶3]

EPA Response: EPA believes this has been consistently applied at IEL on all groundwater sampling surveys.

Timeframe

124. Comment: MNA does not mitigate the actual or potential threat to receptors because of the increased timeframe needed for MNA to be successful. The resident therefore wanted to know if natural attenuation will rid the site of all contaminants and if so, the timeframe involved. [2, pg. 1, ¶1; 20, pg. 3, item 10]

EPA Response: EPA expects MNA to reduce contaminant levels outside of landfill boundaries down to cleanup levels prescribed in the ROD (e.g., MCLs) within an acceptable timeframe. This expectation is based on conditions found existing in the September 1998 groundwater survey. The results of that recent survey indicated that contamination outside of the landfill is significantly less than it was ten years ago, both in terms of the number of contaminants detected and their concentrations. While, at present, it is difficult to say exactly when cleanup levels will be achieved, the data necessary to make this calculation will be generated as part of a long-term monitoring program to be implemented for IEL. As required by Superfund regulations, the Agency will re-evaluate the effectiveness of the remedy every five years and will take appropriate actions to ensure that the cleanup levels are met in a timely manner.

125. Comment: Region 5 has not estimated how long natural attenuation will take to return the aquifer to its beneficial use, although it has stated that the aquifer would be an operable unit for 30 years. The

1989 ROD indicates that the pump-and-treat remedy would only require 3 years based on EPA's Region 5 1998 remedy comparison document for the IEL site in the information repository. Obviously, natural attenuation cannot be completed in a reasonable timeframe as EPA headquarters requires. [20, pg. 2, item 4; 54a, pg. 42, ¶2; 54a, pg. 47, ¶1 and 2]

EPA Response: In its January 4, 1999 proposed plan, EPA acknowledged that MNA may take longer to reach cleanup goals than an active pump and treat system would. While taking longer, the use of MNA would still result in the restoration of groundwater to their beneficial uses outside of the landfill, consistent with Section 300.430(a)(1)(F) of the NCP. Recent groundwater data does reveal a significant reduction in contamination from 1990 to 1998 around IEL, in terms of concentration and in contaminant types attributable to the landfill. This trend is expected to continue in the future, aided by the installation of an impermeable cap and the capture/treatment of landfill gases. With the current knowledge about IEL, the assertion that monitored natural attenuation will not be able to meet cleanup goals in a timely manner is simply without any basis. Data collected during the long-term monitoring program will be used to gauge the progress being made and assist the Agency in making any necessary changes, as needed, to the remedy during its periodic reviews of the site.

SECTION 8: MULTILAYER CAP

Design

126. Comment: One citizen did not like the original idea of a clay and synthetic cap proposed in 1989 and pointed out that cost savings should not be a reason to modify the cap design. [1, pg. 1, ¶2; 19, pg. 1, ¶1]

EPA Response: EPA's revised cap design was not solely driven by cost considerations, but, also, by experience the Agency has accumulated in designing and constructing various caps over the years. A technical evaluation conducted by the Agency indicates the revised design will perform as well as the original, more costly design. While cost was a key consideration to go with a revised cap design, it is only one of nine evaluation criteria in the Superfund decision-making process. The results of the nine criteria evaluation are provided in the amended ROD.

127. Comment: Region 5 wants to change the cap from a hazardous waste cap design to a regular nonhazardous cap design, presumably because of frost damage concerns, cost, and threatening truck traffic accidents. An EPA memorandum from Dennis P. Gagney, Section Chief, to Region 1 dated September 1997 in the information repository states that the type of cap already selected for the IEL site and the ROD would provide a better long-term minimization of rainwater infiltration, which is the purpose of a cap, than the cap now being proposed by Region 5. [20, pg. 3, item 9; 54a, pg. 49, ¶4 and 5]

EPA Response: The September 30, 1997 memorandum referenced above recognized that alternative cap designs may be acceptable for use on unlined landfills such as IEL, provided that the design adequately fulfills the regulatory requirements for landfill closure found in 40 CFR 264.310. EPA believes the revised cap design for IEL, which is very similar to the recommended cap in the memorandum, meets these requirements and, based on the nine-criteria evaluation performed by the Agency, is a better overall choice than the original cap design. A conservative computer modeling program (HELP) for landfill liners and covers estimated that the revised cap design will meet performance standards (e.g., hydraulic conductivity of 10-7 cm/sec or less) associated with a RCRA Subtitle C cap design using a compacted clay liner as the primary barrier. But the revised design can be installed quicker, with less truck traffic in and out of the landfill which reduces potential for accidents, and it is significantly less costly than the original cap design. The Agency also took into consideration

the existence of an earthen cover already in place at IEL and the experience the Agency has gained with various landfill covers over the past decade.

128. Comment: Concerns regarding truck traffic and accidents are unwarranted because State Route 619 already carries 14,000 to 15,000 vehicles a day and the truck traffic would be spread over a long period of time. Trucks had no problems delivering wastes from 1960 to 1980; therefore, there shouldn't be a problem with truck traffic today. [20, pg. 3, item 9; 54a, pg. 50, ¶3]

EPA Response: Concerns about possible traffic accidents are primarily centered on Cleveland Avenue, not SR 619. While Cleveland Avenue has two lanes of traffic each way in the vicinity of IEL, they are relatively narrow and may not be wide enough for trucks transporting materials to and from the landfill. In addition, as mentioned in other comments, the area surrounding Uniontown is no longer the rural community it once was. Truck traffic is potentially more of a problem now than it was 30 years ago.

129. Comment: For the cap, 13,000 truckloads of soil seems a lot and can cause a lot of traffic and cost much money. Therefore, one commentor asked about using money to widen Route 619 from two to four lanes. [4, pg. 1, ¶1]

EPA Response:. EPA can only take actions that are authorized by the Superfund law. Superfund provides no legal authority for widening state highways in the manner suggested.

130. Comment: One commentor did not believe that being 30 miles from the clay source for the cap was prohibitive. The commentor requested that EPA give examples of 10 sites where a clay cap was implemented by EPA and specify the distance of each site from the clay source. According to EPA documents, frost damage concerns for clay caps can be minimized by adding additional cover. [20, pg. 3, item 9; 54a, pg. 50, ¶2]

EPA Response: While not necessarily being prohibitive, the transport of huge volumes (27,000 truckloads) of earthen materials from distances 30 miles or more presents logistical and cost disadvantages in comparison to alternatives which require far less materials to be trucked in. As described in the proposed plan, concerns about truck traffic and the potential for accidents along Cleveland Avenue, with its narrow lanes, was a key factor for consideration since homes are located close to the landfill. The chosen design reduces this risk by requiring many fewer truckloads of earthen materials to be brought to the landfill.

131. Comment: Colloid Environmental Technologies Company (CETCO) believes that a geosynthetic clay liner (GCL) should be an alternative for the cap. The use of a geomembrane, along with a low-permeability clay barrier beneath the synthetic liner, is known to allow considerable leakage compared to a GCL system. [25, pg. 1, ¶3 and 4]

EPA Response: Computer modeling of the modified cap design EPA proposed showed that it would meet performance goals. EPA therefore sees no reason to increase the cost of the cap by adding a GCL layer.

132. Comment: One resident asked if the weight of the cap would force or squeeze pollutants beyond the boundaries of the IEL site. [49, items 5 and 6; 54p, pg. 128, ¶3]

EPA Response: EPA believes it will not.

133. Comment: One resident questioned the weight of the new cap and asked what the weight or load of the cap will be per square foot. The resident also questioned the volume of the new cap. [49, item 3 and 4; 54p, pg. 126, ¶5; 54p, pg. 127, ¶5]

EPA Response: EPA has not calculated the weight of the new cap or the load per square foot. The new cap requires less material than the previous cap design.

134. Comment: EPA should install the best cap possible. [34, pg. 1, ¶2]

EPA Response: EPA believes the redesigned cap is the best choice for IEL, as a result of all the analyses conducted prior to selection.

Effects on Natural Attenuation

135. Comment: If natural attenuation is working, a cap would interfere with the natural attenuation process. Selected plantings may expedite the process and provide an area that could eventually be turned into a natural asset. [29, pg. 2, ¶1]

EPA Response: Please see responses related to MNA found in Sections 7 and 13 of this document.

136. Comment: An impermeable cap interferes with the natural attenuation processes by (1) preventing the growth of natural vegetation and (2) limiting the flow of oxygen into the subsurface environment where the biodegradation of organic contaminants occurs. [49, items 7 and 8; 54p, pg. 129, ¶2; 56]

EPA Response: Please see responses to related PRP comments in Section 13 of this document.

Gas Migration

137. Comment: The schedule and conclusions of the proposed ROD for the IEL site should be reorganized because the original cap shape has been lost and shallow depressions have now emerged over the largest bulk of filled materials. The only time the IEL cover is impervious is when the ground is frozen. A frozen surface allows gases to move off site to local basements. No cap side cutoff walls are proposed with the ROD. [53, pg. 1, ¶4]

EPA Response: Part of the work involved in capping the site would be clearing and grading the surface, in preparation for putting the gas collection system and upper layers (geomembrane/drainage layer/top cover). This work will include recompacting the soil and filling in any depressions before anything is placed above it. Also, sheet piling will be installed on the eastern side of the landfill to allow for proper sloping on that side.

138. Comment: Any cap that does not contain the lateral migration of gases under frozen earth and/or the lateral movement of groundwater will do far more harm than good, especially if EPA selects in situ attenuation. Historically, lateral migration of methane has occurred from a landfill 0.5 mile off site under frozen ground to local homes (Akron Hardy Road landfill), resulting in an explosion. The IEL gases would be far worse because methane would pose the least threat. [11, pg. 1, ¶1]

EPA Response: The installation of a gas collection and treatment system will address the issue of landfill gases generated at the site in a satisfactory manner.

139. Comment: An impermeable cap should be placed over the IEL site with curtain walls on several sides deep enough (about 30 feet) to contain gases even under frozen earth conditions. [24, pg. 1, item 1]

EPA Response: EPA believes good engineering practices that will be followed for all construction activities at IEL, including the cap/gas collection system, will insure that containment of the waste and collection/treatment of landfill gases will be accomplished in a satisfactory manner.

140. Comment: The proposed cap does not address groundwater already contaminated that will continue to move downgradient of the landfill. Numerous pumping wells downgradient and crossgradient of the landfill may accelerate the movement of contaminated groundwater. [38, pg. 1, ¶8]

EPA Response: The cap is intended to be an impermeable barrier, preventing the generation of leachate that could contaminate the groundwater underneath. EPA does not believe there are numerous pumping wells operating upgradient and downgradient of IEL accelerating movement of contaminated groundwater. For the most part, the immediate area surrounding the landfill are being served by municipal water made available by recent expansions of public water supply systems.

141. Comment: One resident questioned if any monitoring has been conducted to determine the new groundwater flow direction once the cap is in place and on-site infiltration is eliminated. [54t, pg. 142, ¶1]

EPA Response: EPA has investigated the direction of groundwater flow at IEL in the past and believes it is not necessary to conduct another one prior to cap installation. The Agency does not believe groundwater flow will be altered in any way by the installation of the cap. This conclusion is based on the Agency's past experience installing hundreds of similar caps at Superfund sites around the country.

SECTION 9: METHANE VENTING SYSTEM

General

142. Comment: One resident wanted to know if the landfill still generated methane and if so, how much on an average daily basis. [49, items 9 and 10; 54p, pg. 129, ¶4]

EPA Response: Methane is still being generated at IEL. An active methane venting system installed in the mid-1980s continues to capture and treat (flare) landfill gases that might otherwise migrate off-site. A landfill gas pilot-scale study conducted in 1991, using three on-site extraction wells, indicated that the average gas generation rate is 0.17 cubic feet per pound (ft^3/lb) of landfill per year.

143. Comment: A commentor asked when (date) methane monitoring began at the site and what the average daily amount of methane was when monitoring began. [49, items 11 and 12]

EPA Response: Methane monitoring began at the boundaries of the site in the 1980's. This monitoring did not include calculations of the amount of methane generated by the landfill each day.

144. Comment: One resident asked if enough methane is being generated by the landfill to heat a house and how many houses could be heated in one night. [54p, pg. 129, ¶4; 54p, pg. 130, ¶2]

EPA Response: Actually, very little methane is produced by IEL when compared to other landfills. The MVS currently operates for only 15 minutes every 3 to 4 hours. In addition, fuel must be added to the landfill gas to ensure complete combustion. Compare this to how often the furnace in the average house

runs on a cold night and it is apparent that the methane produced by the landfill would be insufficient to heat even one house.

145. Comment: A flare bleeds gases off the top of the landfill (not just methane, but other gases, too). A resident therefore questioned if ambient air monitoring has ever been conducted and when the last test was conducted. [54q, pg. 135, ¶1]

EPA Response: Sampling and analysis of the flare gases was conducted during the predesign studies. The results are presented in the 60 % Design Report.

146. Comment: One commentor questioned why Region 5 is legally requiring IEL polluters to keep only on-site methane gas concentrations (with no mention of toxins) below its lower explosive limit of 50,000 parts per million. The commentor wondered if the lack of other requirements resulted from an EPA attempt to save the polluters money. [39, pg. 3, ¶2; 54e, pg. 78, ¶2]

EPA Response: At this time, responsibility for cleanup of IEL is being led by EPA, not the responsible parties. OEPA is assisting the Agency on this cleanup effort and is currently responsible for operation of the MVS. Also, Ohio emission limitations apply to the MVS.

147. Comment: One resident stated that EPA should comply with the NCP as was done at the 011 site in Monterey Park, California, where polluters were legally required by EPA to control laterally migrating toxic and carcinogenic vapors. The resident asked why Region 5 attorneys are only legally requiring IEL polluters to keep methane gas levels under control. Not including methane, 150 tons of toxic gases are generated by the landfill yearly, and this is a low estimate according to technical experts a few years ago. [54e, pg. 77, ¶2 and 3]

EPA Response: EPA believes it has consistently applied the applicable requirements of the NCP in cleanup efforts for IEL. In the 1980s, the Agency responded to landfill gases migrating to adjacent homes, posing a serious danger to the homeowners, by quickly installing the MVS on the site, and temporarily relocating the homeowners while work to control the landfill gases was on-going. These actions were done as expeditiously as possible via emergency authorities EPA has under the NCP. The overriding concern was to protect residents from real and potential dangers posed by the migrating landfill gases and this was accomplished. Based on data collected to date, landfill gas is not migrating off site. Moreover, ARARs for the amended remedy include Ohio regulations which establish emission standards for a wide range of landfill gases.

SECTION 10: PROPERTY VALUES

Groundwater Risks

148. Comment: The longtime public turmoil regarding the health and safety of the surrounding area has done great damage to property values and marketability in the Uniontown area and more remote areas of Lake Township, especially those serviced by perfectly good wells. [29, pg. 1, ¶2; 29a, pg. 1, ¶2]

EPA Response: EPA has no information on property value trends in the area surrounding the landfill. But EPA believes that the actions it has taken to date and will take in the future at the site should have a positive effect on property values.

SECTION 11: PROPOSED BUYOUT

Buyout Rationale

149. Comment: One resident who lives 1 block south of Route 619 and not far north of the IEL site stated that many residents that live further north were compensated at one time because of the turmoil over IEL. Several residents pointed out that residents south and west of the site were not the only ones affected. [9, pg. 1, ¶1; 41, pg. 1, ¶1]

EPA Response: EPA is unsure what compensation this comment is referring to. EPA did buy properties immediately adjoining the landfill in order to provide space for construction activities and to accommodate the proposed cap. The only other compensation EPA is aware of occurred in connection with Desario v. IEL, et al., a private lawsuit in which EPA had no involvement.

SECTION 12: PROPOSED PLAN

General

150. Comment: According to the evaluation criteria in the January 1999 EPA fact sheet, the number one factor in evaluating a plan's effectiveness is the overall protection of human health and the environment. Allowing contaminants to remain in soil does not accomplish this goal. [28, pg. 1, ¶2]

EPA Response: The area is fenced in, preventing unauthorized persons from being in contact with the contaminated soil. A new fenceline will be constructed as part of the remedy, extending further west (closer to Cleveland Avenue) than the current one. Also, as explained in another section above, excavating the soil and waste materials in a landfill such a IEL may pose more hazards and health and safety issues than just leaving it in place and capping it. As at other sites around the country, EPA believes that a containment remedy employing a suitable cap is the best remedy for a landfill.

151. Comment: One commentor wants safe and thorough cleanup of the landfill [26, pg. 1, ¶3]

EPA Response: EPA believes the amended remedy will be protective of human health and the environment, and will conform with the objectives of Superfund law.

152. Comment: Residents are puzzled by EPA's slow approach and wonder why EPA would leave that much contamination and potential hazard in such a densely populated area. [10, pg. 1, ¶1; 29a, pg. 1, ¶3]

EPA Response: EPA contends that it effectively addressed all immediate hazards posed by IEL in order to prevent anyone from being exposed to harmful levels of landfill contamination. EPA did this by installing and operating a gas venting system, providing bottled water, installing air strippers, and forcing the PRPs to connect approximately 100 homes to a municipal water supply. Hence, even though a permanent remedy has yet to be installed, EPA has protected public health and the environment in the interim. Now, after a long period in which EPA collected and analyzed a great deal of additional data, the Agency hopes to move forward quickly with a permanent remedy.

153. Comment: A very concerned homeowner in Uniontown asks the EPA Administrator to block EPA from finalizing its "absurd" plan to let the IEL "clean itself up." Many individuals witnessed the dangerous contaminants deposited several years ago into the landfill and have been willing to testify about what they saw out of concern for health and well being of the community. [32, pg. 1, ¶1]

EPA Response: . This comment ignores the landfill cap and gas treatment components of the proposed remedy. Because these are the main aspects of the proposed remedy, EPA maintains that it is quite inaccurate to characterize the Agency's proposal as a plan to let the landfill "clean itself up."

154. Comment: A concerned CCLT member has written EPA Administrator Carol Browner asking that she immediately halt the entire IEL cleanup process because it is a "sham." [39, pg. 2, ¶1]

EPA Response: Region 5 does not know what is meant by a "sham." The Region's reasons for proposing a change in the IEL remedy are a matter of public record. They are based on groundwater monitoring data collected over several years. The Region has diligently followed the process set out in the National Contingency Plan, both for choosing and amending the IEL remedy.

155. Comment: EPA is determined to move ahead with the cap and groundwater monitoring regardless of findings. The commentor would like to know why EPA is so determined to select this remedy without investigation. [38, pg. 2, ¶7]

EPA Response: EPA's evaluation of current site conditions in the context of historical trends was the primary driving force in making revisions to the original remedy outlined in the July 1989 ROD.

156. Comment: It is not too late for EPA to overcome the increasing appearance of impropriety in its handling of the Uniontown situation. The community needs EPA's favorable judgment in a state whose own EPA is notorious for low standards and "coziness" with industry. [35, pg. 1, ¶2; 41, pg. 1, ¶1]

EPA Response: EPA-Region 5's handling of the IEL site has been reviewed several times: by Clean Sites, by the Science Advisory Board, and by EPA's Inspector General. None of these reviews found any impropriety of any kind. Nor does EPA believe it has engaged in any inappropriate "coziness" with industry. If nothing else, the degree of opposition the Rubber Companies have raised to EPA's proposed remedy should make that clear.

157. Comment: Before EPA spends money on cleanup, it should make sure that the selected remedial option works. [54t, pg. 141, ¶1]

EPA Response: EPA believes the IEL remedy will work based on experience with cleaning up sites similar to IEL.

SECTION 13: POTENTIALLY RESPONSIBLE PARTIES

General

158. Comment: One commentor stated that the public is never given the "benefit of the doubt" but industry always is. [35, pg. 1, ¶3]

EPA Response: EPA believes this is not the case. The Agency's handling of the project, such as performing additional studies to address community concerns on insufficient data and convening the TIC to provide a forum for the community to comment on the design of the remedy, demonstrates its willingness to involve the public on matters involving IEL.

159. Comment: One commentor asks how many companies and government bodies are on record as using the landfill and why only four companies (PRPs) are being held responsible. [49, items 13 and 14]

EPA Response: Liability under Superfund is not based on "using" a landfill; it is based on the disposal of hazardous substances. While EPA has information that hundreds of businesses used IEL, it has evidence of disposal of hazardous substances for only a handful of those businesses. EPA named all of them as PRPs and attempted to find others. EPA's efforts included sending Superfund Information Requests to over 300 businesses. EPA made the information it obtained available to the named PRPs and invited them to submit any evidence they developed on their own to EPA. EPA has always been willing to name additional PRPs if evidence of disposal of hazardous substances could be found. Unfortunately, these efforts have not led to the identification of many additional parties.

160. Comment: One commentor asks if the four companies known as the PRPs complied with the law during the period IEL was open (in other words, was their use of IEL legal). The commentor also asks if the IEL site operated in compliance with federal, state, county, and township laws and regulations. [49, items 1 and 2; 54p, pg. 125, ¶2]

EPA Response: First of all, there are more than 4 PRPs. EPA named 15 parties in the notice letters it sent out in 1989. It later named 13 parties as defendants in its cost recovery suit. EPA does not know whether the PRPs complied with the law, or whether the IEL site operated in compliance with all laws and regulations. Responsibility for cleaning up a Superfund site is not based on violating the law; it is based on having disposed of hazardous substances, legally or not, or on having owned or operated a site where hazardous substances were disposed of.

161. Comment: A resident wonders if the NRC was involved in the cleanup and monitoring of the IEL site and if not, why. [47, pg. 4, ¶4; 54b, pg. 61, ¶3]

EPA Response: EPA has jurisdiction over sites such as IEL and does not anticipate that the NRC will be involved in future cleanup and monitoring of the site. NRC has looked into possible radiological contamination at this site in the past and concluded there is none.

Conflict of Interest

162. Comment: A resident inquired if EPA was paid off by PRPs. [15, pg. 1, ¶1]

EPA Response: No.

Costs

163. Comment: A commentor wonders what has been spent on legal fees by the four PRPs, the state EPA, and the federal EPA. [49, items 15 and 16]

EPA Response: EPA does not know.

164. Comment: Citizens are concerned that the PRPs are not going to pay, and either Uniontown will end up paying or the scope of work will keep decreasing, which will mean less money spent by the PRPs. [5, pg. 1, ¶1; 6, pg. 1, ¶1; 18, pg. 1, ¶1; 19, pg. 1, ¶1; 49, item 17]

EPA Response: Funds to finance cleanup of IEL will come from either the Superfund Trust or participating responsible parties, not the community. EPA's preference would be that the responsible parties finance the cleanup, with the Agency providing oversight. This is the way the majority of Superfund cleanups are being financed.

Sampling

165. Comment: One commentor asked if it was a conflict of interest to allow the PRPs to conduct testing. [13, pg. 1, ¶1]

EPA Response: EPA routinely allows responsible parties to conduct testing at Superfund sites. EPA oversight of this testing is designed to prevent problems that might arise from a conflict of interest.

166. Comment: EPA allowed representatives of the polluters in 1997 and 1998 to send water samples to their own noncertified laboratory but would not provide samples to the community. The 1998 tests were also led by the polluters with minimal direct oversight by EPA employees. Mr. del Rosario was present for a whole 2 or 3 days of the 2 weeks of testing. No core sampling, testing for radiation, or double blind tests were conducted. Allowing polluting corporations to take the lead in testing to determine contamination will affect cleanup plans and the cost of these plans is akin to allowing tobacco corporations to test and determine whether smoking causes cancer. This conflict of interest violates the public trust and threatens public interests. [54h, pg. 90, ¶3; 54h, pg. 91, ¶1 through 3]

EPA Response: See previous responses to Comment #'s 119 and 122 regarding the laboratories used by responding parties in 1997 and 1998. While radiation testing was not conducted during these rounds of sampling, EPA did establish in 1997 procedures for collecting additional radiation samples at IEL. As part of the procedures established, EPA agreed it would collect the samples and send them to the laboratory chosen by the interested party (primarily CCLT, American Friends Service Committee, or the Lake Township Trustees) for analysis. However, the responsibility for paying the laboratory work was left with the interested party. In preparing for the 1998 survey, EPA asked all interested parties if any of them would be interested in having radiation sampling conducted at IEL, in addition to the sampling for organics/inorganics planned by the responding parties. None of the interested parties indicated it was willing to participate in such sampling. Consequently, the 1998 survey at IEL went ahead without any radiation sampling. While Mr. del Rosario, the Agency's project manager for the site, was not present the whole two weeks of the 1998 survey, OEPA personnel and Agency contractors, who were also taking samples, were onsite. The Agency contractors were, in fact, present for most or all of the time the survey took place. As a point of clarification, Mr. del Rosario did revisit the site prior to completion of the survey to check on the progress of the work. Summing it up, Mr. del Rosario was at the site a total of four days. See also response to Comment # 165.

Source Removal

167. Comment: The PRPs should have cleaned up the site 10 years ago. [29a, pg. 1, ¶5]

EPA Response: Ten years ago, the July 1989 ROD was just being signed. Work on the remedy design, including design studies, was not completed until about 1995. This meant that construction could not have begun until 1996. There are many reasons why EPA did not proceed with the remedy at that point. But, in any event, EPA is now poised to go forward, whether or not the PRPs agree to do the work.

PRP Comments

168. Comment: The best course of action for IEL is to maintain existing engineering controls (i.e., vegetated soil cover, methane venting system, fence/security, water supply), continue to monitor the natural attenuation processes at the site, and take no action that would interfere with the natural attenuation processes. This course of action is recommended since, among other things, 1) there is no unacceptable risk to human health or the environment under current site conditions 2) current data

supports the use of natural attenuation and 3) it is the best option available when evaluated against the Agency's nine criteria remedy selection process under the NCP. '58, Comments Section, pg. 1, ¶5.

EPA Response: EPA disagrees with the course of action for the IEL site advocated by the Responding Companies[1]. The Agency believes the Responding Companies' comments here and elsewhere rest on a false assumption: they argue as if EPA's goal was to clean up the landfill portion of the IEL site itself, to reduce the contamination within the landfill's source areas to background levels. This is simply not the case. While that might be a laudable objective, it is one which EPA virtually never pursues with landfills. Typical co-disposal landfills such as IEL contain too large a quantity of heterogeneous wastes to make contaminant reduction, e.g., via off-site disposal or on-site treatment, a practical solution. The preamble to the NCP acknowledged this finding in describing conditions found at municipal landfills (55 FR 8704). Because treatment usually is impractical, EPA generally prescribes containment, through the use of an engineered cap, as the appropriate response action or the "presumptive remedy" for the source areas of CERCLA landfills (see OSWER Directive 9355.0-49FS). Presumptive remedies are preferred technologies for common categories of sites such as landfills, based on historical patterns of remedy selection and the Agency's technical evaluation of the performance of these technologies as they are implemented. Indeed, reliance on landfill cap technology is so widespread in the United States that it is written into most state municipal and hazardous waste regulations, including Ohio's. That is, most states, including Ohio, requires the installation and maintenance of an engineered cap for closure of all hazardous waste landfills.

The Responding Companies argue that no expensive treatment or disposal is required in order to eliminate contamination at IEL. Instead, all that is needed, according to them, is to let nature take its course. Natural attenuation will clean up the landfill. The Responding Companies point to a drop in the levels of various contaminants within the landfill over the past decade as evidence that natural attenuation will work.

EPA endorses the use of natural attenuation in appropriate circumstances. Indeed, EPA's own proposal for changing the IEL remedy calls for natural attenuation of contaminated groundwater downgradient of the site boundary. In the off-site area, where EPA has collected and analyzed samples for many years, the Agency believes that the nature and extent of contamination are well defined. EPA maintains that the limited amount of groundwater contamination existing downgradient of the site can be addressed through natural attenuation, with no significant risk to human health or the environment. However, the situation is different with the source area - the landfill itself. Here, approximately 1,000,000 gallons of liquid wastes containing hazardous substances and 780,000 tons of solid waste, which may have contained hazardous substances, were disposed of. Records describing the amount and type of wastes disposed of at IEL are extremely limited. While we have good information about what several PRPs dumped at IEL, we have virtually no records on what hundreds of other IEL customers disposed of. The upshot of this is that EPA is much less certain about contamination within the landfill than outside it. With a containment remedy, this uncertainty does not present a problem because the landfill cap system is designed to contain within the landfill all contamination, whatever it may be. The same cannot be said of a natural attenuation approach. There, the ability to predict a successful period of cleanup, with no short-term threat to human health and the environment, depends on knowing much more about the amount and type of contaminants to be attenuated.

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[1]The Responding Companies consist of The Goodyear Tire & Rubber Company, Bridgestone/Firestone, Inc., The BFGoodrich Company, and GenCorp.

The Responding Companies argue that past is prologue with respect to the landfill. They contend that, because levels of contamination within the landfill have declined over the past decade, they will continue to decline in the future. This may be a reasonable assumption; but it is not a sufficient basis to select natural attenuation as the remedy for a source area, the complexity of which can easily defy prediction. In fact, a dramatic increase (one or two orders of magnitude) occurred only recently in one key contaminant of concern - benzene - in the north central portion of the landfill. This increase does not comport with the Responding Companies' prognosis. But it reinforces EPA's belief that a complex landfill source area is not the place to conduct a natural attenuation experiment. This is particularly true where, as here, there are people who depend upon residential wells for drinking water nearby. While EPA required the PRPs to provide municipal water to approximately one hundred homes down-gradient from the landfill, there are residents just beyond this area who still depend on individual wells and who could be adversely affected by a release of contamination from the landfill.

The Responding Companies maintain that the best remedy for IEL would be to preserve the status quo: to forego any changes in the current landfill cover, to continue monitoring the ground water, and to impose institutional controls to restrict land use. They contend that this remedy fits the nine evaluation criteria provided in the National Contingency Plan better than does EPA's proposed remedy. EPA disagrees. Perhaps the most obvious contradiction here is with respect to state agency acceptance and community acceptance. OEPA strongly supports the remedy EPA has proposed and, just as strongly, rejects a remedy for IEL that would rely completely upon natural attenuation, as the Responding Companies have recommended. OEPA has expressed these opinions both at meetings with the Responding Companies and in written comments. With respect to community acceptance, the Responding Companies contend that they can detect no significant difference in community support for their proposal and EPA's. We disagree. Most of the comments from the general public on the proposed ROD amendment suggest that more should be done to address the landfill, not less. Even more important than these discrepancies, however, is the fact that the Responding Companies' proposal would not meet the two threshold criteria set forth in the NCP: protection of human health and the environment; and compliance with applicable or relevant and appropriate requirements. With respect to protection of human health, the Responding Companies suggest that EPA and ATSDR "agree that under current conditions there is no threat to human health or the environment." If, by this statement, the Responding Companies mean that EPA believes there is no one currently exposed to hazardous substances from IEL, that is true. But, the key question is what might happen in the future. As noted above, the Responding Companies are content to assume that landfill contamination will steadily decline, such that no further threats to human health should be expected. But EPA, as the government agency with the primary responsibility for protecting public health in this situation, believes it must take a more conservative approach, one that takes into consideration the uncertainties inherent in predicting the behavior of landfills. Landfill cap technology has a long record of success in containing contamination; natural attenuation of landfill source areas is a technology in its infancy. Due consideration for protecting human health requires EPA to choose a proven remedy rather than an experimental approach here.[2] With respect to ARARs, the Responding Companies argue that the current landfill cover met

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[2]Recently, the Responding Companies submitted a comment noting that EPA Region 3 decided to forego installing a cap over a landfill at the Woodlawn Site in Maryland, and selected natural attenuation instead. The Responding Companies argue that, because EPA chose natural attenuation at Woodlawn, the Ageny must choose it at IEL. The Agency disagrees. If remedy evaluation could be reduced to toting up examples of Agency decisions, then cases where EPA rejected natural attenuation in favor of capping to address landfill source areas would surpass by far any case where the Agency chose to rely on natural attenuation alone. But, in any event, EPA remedy decisions are not interchangeable.

state requirements at the time it was installed, and that therefore, it meets ARARs. EPA believes the record on state approval is far from clear. But, even if it were, the key question is not whether the state approved the current cover back in 1979; but rather, whether the current cover meets state standards as of 1999. At Superfund sites where disposal of hazardous substances took place, EPA has long maintained that state regulations for hazardous waste facilities are, at the very least, relevant and appropriate. Ohio currently has a number of regulations that require hazardous waste landfills to have caps capable of reducing infiltration to a negligible amount. The remedy EPA has proposed would meet the Ohio standards; the remedy the Responding Companies have proposed would not.

169. Comment: Data collected to date show that installation of an impermeable cap is inappropriate for the IEL site, is potentially harmful, will interfere with the natural attenuation processes occurring at site, and prolong the time to remediate the site. [58, Comments Section, pg. 2 ¶1, page 3, pg. 5 ¶1, pg. 10 ¶3, pg. 11 ¶1]

EPA Response: EPA disagrees. As explained in the response above, the Agency believes the use of an impermeable cap and MNA together at sites like IEL is appropriate, is the remedy of choice at many Superfund sites similar to IEL, and, more importantly, will achieve the goal of protecting human health and environment. The existing earthen cover simply does not meet this threshold criterion since its design allows contaminants from the source area to continue contaminating groundwater underneath the landfill, potentially threatening any well user downgradient of the site. Moreover, as in their other comments, the Responding Companies do not distinguish here between portions of the IEL site. EPA is not concerned about natural attenuation within the landfill itself; but only with respect to contamination outside the landfill in the downgradient area. That is the portion of the site which EPA has proposed to address by natural attenuation rather than by the pump-and-treat system selected in 1989. That portion will not be covered with a cap, and therefore, for this part of the site, arguments about the negative impact of caps on natural attenuation in the soil below them do not apply.

170. Comment: The existing vegetated cover meets the Ohio solid waste landfill requirements that applied to IEL at the time of closing (OAC 3745-27-9, effective July 29, 1976, formerly EP-20-9 & 10). [58, Comments Section, pg. 5, ¶2]

EPA Response: The Responding Companies apparently believe that the legal standards that an IEL remedy must meet are those that were in effect in 1979, when the original landfill "cover" was installed. That is simply not the case. EPA is making a remedial decision now, and it must evaluate the current state and federal standards that apply or are relevant and appropriate. The only exception to this requirement is where the Agency recommends a "no-action" remedy. There, because no action is being taken, there is no particular action to compare to federal and state standards. But that is manifestly not the case here. The Agency is recommending a number of actions be taken to address the IEL site and those actions must meet ARARs. Even the Responding Companies' recommendation is not "no-action" in that it relies on the adoption of institutional controls to limit land use at the site. EPA deems the imposition of institutional controls as an active remedy, such that compliance with ARARs must be

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Each case presents unique characteristics. To choose natural attenuation to address a source area is a new, less tested approach than capping, and as such, the Agency is more likely to try it where there is strong state and public support. Those elements were apparently present at Woodlawn, where the State of Maryland strongly supported the natural attenuation alternative, and where only four comments were received during the public comment period, none of them negative. The situation is quite different at IEL, as noted in our discussion of Ohio's position and public opinion earlier in this response.

evaluated. The Responding Companies' reliance on the standards of 20 years ago will not suffice to explain how their recommended remedy meets the standards of today.

171. **Comment:** Responsible parties disagree with Dr. Luanne Vanderpool's December 9, 1998 assessment that a landfill cap is needed to control any future releases from the landfill. (58, Comments Section, pg. 9, ¶2)

EPA Response: EPA stands by Dr. Vanderpool's assessment. EPA asked Dr. Vanderpool to review IEL groundwater data and judge whether the concentrations of major pollutants were high enough to warrant the installation of a landfill cap. Dr. Vanderpool found that, "while there is not a plume in the classic sense, there are persistent if sporadic detections of metals downgradient of the landfill as well as elevated levels of benzene within the landfill. Capping the landfill will reduce the potential for further releases from the landfill waste". Dr. Vanderpool concluded that, with the landfill capped, "the analytical data suggests that natural attenuation processes will reduce the levels of off-site contamination in the groundwater."

172. **Comment:** The need for oxygen in groundwater is a critical point that argues against putting an impermeable cap on the landfill. An impermeable cap will interfere with the transport of oxygen to depth and will thus interfere with the natural attenuation processes. (58, Comments Section, pg. 8, ¶5)

EPA Response: The parts of the site for which EPA has chosen natural attenuation as the remedy will not be covered by an impermeable cap. See also responses to Comments #'s 168 and 169 above.

173. **Comment:** Before finalizing the proposed remedy described in the Proposed Plan, EPA should consider taking a look at documents, attached as appendices to the commentor's submittal, that describe advancements in the state-of-the-practice in natural attenuation. (58, Comments Section, pg. 1 ¶4, pg. 10 ¶3)

EPA Response: EPA did review the documents in question, but found no reason to change the remedy as the Responding Companies propose.

174. **Comment:** Responsible parties' approach is consistent with Superfund guidance on updating remedy decisions that recognizes the potential for technical advances over time and for natural attenuation to be effective at site remediation. (58, Comments Section, pg.7, ¶2)

EPA Response: The question here is not one of following versus not following Superfund guidance on updating remedy decisions. EPA's own proposal follows that guidance and takes advantage of technical advances and the Agency's experience with natural attenuation. But for reasons explained at length in response to Comment #168, EPA concluded that, with respect to the source area, a modified cap was the surest way to protect human health and the environment.

175. **Comment:** Reference is made to EPA project manager's request for assistance in reviewing the 1997 natural attenuation report prepared by Geraghty and Miller. An internal memorandum requesting such assistance stated that review of report is critical to agency's determination of relevance of an alternative landfill cover proposal made by the responsible parties. Responsible parties believe that the evidence in that report shows that the vegetated cover soil is the proper remedial approach. (58, Comments Section, pg. 7, ¶4)

EPA Response: For reasons already stated above, EPA disagrees with the assertion that the existing vegetated cover is appropriate for the site.

176. **Comment:** MNA is an appropriate remedy for IEL, meeting all criteria described in the directive. (58, Comments Section, pg. 7, ¶5)

EPA Response: EPA agrees that MNA is an appropriate remedy for part of the IEL site, but not for the source area. See our response to Comment #168.

177. **Comment:** Ten years of reliable groundwater data are very effective in estimating the effectiveness of the natural attenuation processes in meeting site remedial goals. Responsible Companies do not see the need to estimate the contribution of each process to achieving remediation goals. (58, Comments Section, pg. 8, ¶1)

EPA Response: EPA maintains that determining the rate of biodegradation occurring at IEL will help EPA evaluate whether MNA is meeting cleanup objectives within an acceptable time. The collection of such data in future monitoring surveys will be necessary to assess the efficacy of MNA at IEL.

178. **Comment:** Responsible parties believe that the approximately 100 homes served by the alternate water supply are not threatened by contaminated groundwater. (58, Comments Section, pg. 4, ¶7)

EPA Response: While those residents connected to the alternate water system are not threatened, there are residents just beyond the limits of the system (and a few residents within the limits who are not hooked up) who depend on private wells and who could be threatened by further releases of contamination from the landfill. Moreover, the ground water downgradient from the landfill is part of a usable aquifer which should be restored. Protecting this ground water from further contamination will preserve it as a usable resource for the future.

179. **Comment:** Responsible parties do not believe that the groundwater west of the site is contaminated with organic and inorganic compounds. Responding Companies believe that no inorganic constituents have migrated from IEL at levels of concern, believing that many detections of metals in groundwater are related to inadequate sampling techniques or background conditions and are not indicative of an IEL source. (58, Comments Section, pg. 5, ¶5)

EPA Response: There are still a few contaminants of concern, primarily metals, detected above MCLs west of the landfill boundaries. These include antimony, arsenic, beryllium, cadmium, chromium, lead, and nickel. While new, more accurate low-flow sampling has revealed lower metals concentrations than in the past, certain metals still exceed MCLs downgradient from the landfill.

180. **Comment:** The entire body of evidence collected to date indicate that the plume is not now expanding and is in fact contracting markedly. There is no evidence of hazardous constituents in downgradient groundwater and there is compelling evidence that the downgradient groundwater is getting cleaner. (58, Comments Section, pg. 10, ¶1)

EPA Response: See response above.

181. **Comment:** When compared against the nine criteria used to evaluate different alternatives under the Superfund program, responsible parties' alternative is superior to that proposed by the U.S. EPA. (58, Comments Section, pg. 6, ¶1)

EPA Response: EPA disagrees. See our response to Comments # 168 and 169. EPA maintains that the Responding Companies' proposal fails to meet the NCP's two threshold criteria: protection of human health and the environment; and compliance with applicable or relevant and appropriate requirements.

182. Comment: Decisions made in the 1989 ROD were based on incomplete data, without the benefit of adequate scientific evaluation, and did not have the benefit of the additional site specific data now available. [58, Comments Section, pg. 6, ¶2]

EPA Response: The purpose of the 1999 comment period was to solicit comments on EPA's current plan to change the IEL remedy. The purpose was not to re-open the comment period on the 1989 ROD itself. Consequently, the Responsible Parties' current views on the original remedy are not pertinent.

SECTION 14: PUBLIC HEALTH EVALUATION

General

183. Comment: The IEL site currently poses no unacceptable risk to human health or the environment. [56]

EPA Response: EPA disagrees with this comment. Risk assessments conducted by the Agency have shown that IEL poses an unacceptable risk to human health and the environment and requires remedial action.

184. Comment: One resident wonders what EPA's contractor meant by its statement that it is "ok" to "drink plutonium." [27, pg. 2, ¶4]

EPA Response: It is certainly not EPA's position that it is "ok to drink plutonium," whatever a contractor may or may not have said. That is why the Agency took the time and resources to investigate claims that radioactive waste was disposed of at IEL. EPA found no indication of any radioactive contamination.

185. Comment: Dr. Finley updated the 1995 baseline risk assessment for the IEL site based on the 1998 groundwater sampling data and concluded that there is no present risk to human health from the IEL site. Cancer hazards are 100 to 10,000 times lower than the regulatory standard for remedial action under CERCLA, and noncancer hazard indices are all below their respective benchmark value of 1.0. [57]

EPA Response: In 1995, without affording EPA any opportunity to review or comment upon their plans, the PRPs proceeded with their own IEL risk assessment. The PRPs then presented the finished product to the Agency, claiming that it showed IEL posed no risk to human health or the environment. In looking at the PRPs' report, the Agency noted fundamental shortcomings in the PRPs' methodology, such that EPA could not then and cannot now accept the PRPs' results. Had the PRPs been serious about conducting an objective analysis of whether risk levels had changed at the site, they would have consulted with the Agency before they proceeded with their risk assessment. As it was, the assumptions they made (which EPA would have rejected) operated to minimize the risks they found.

186. Comment: The fatality risk of a truck driver or equipment operator installing a cap at the IEL site is 20,000 times greater than any risks posed by the IEL site. [57]

EPA Response: While EPA does not believe truck traffic in and out of the landfill poses a bigger risk than the wastes on-site, it does recognize its potential for significant risks to the surrounding community (e.g., road accidents). The potential for a road accident is further exacerbated by the rather narrow lanes found along Cleveland Avenue, the main thoroughfare leading to the site. The amended remedy addressed this concern by minimizing the truckloads of borrow soil that will be used in constructing the cap, thereby reducing the potential for accidents to occur, on the road or at the site.

187. Comment: With regard to the ill effects of the IEL site, initial problems resulted from the migration of methane and well contaminants onto adjacent properties. The solution was to install a methane purging and flaring system and to provide city water to the most affected properties. The worst problems have therefore been effectively addressed. [29, pg. 1, ¶4]

EPA Response: EPA agrees that the worst, immediate problems posed by IEL have been effectively addressed for the short term. But, absent a long-term solution, the release of contamination from the landfill will continue to pose a potential threat to human health and the environment. The cap EPA has proposed addresses that concern.

188. Comment: Because the landfill contains 780,000 tons of waste, it's a chemical plant, not a landfill. By law, a chemical plant, its gases, and its influence would be tested every so many months. IEL has not been tested for at least 2 years now. [54q, pg. 134, ¶4]

EPA Response: EPA disagrees with this analysis. As discussed previously, IEL is not much different from other Superfund landfills around the country. The wastes buried on these sites are a mixture of residential, commercial, and industrial types. Comparisons with a chemical plant are simply inappropriate.

189. Comment: One resident put a health data survey together. She will walk around every night speaking with the citizens of Uniontown. This resident claims that she has a sheet that provides sufficient data that classical illness clusters are present within the community that require attention by all parties involved. If this is the case, avenues will be explored on how to provide optimum health options such as grants. [54l, pg. 109, ¶2; 54l, pg. 110, ¶3]

EPA Response: ATSDR has not received the health survey from this resident. ATSDR can be contacted at their toll free number at 1-800-422-8737.

190. Comment: One resident had a blood test conducted by Environmental Laboratories at 990 N. Bowser Road, Suite 800, in Richardson, Texas. Although the resident was not working, his testing levels increased. [44, pg. 1, ¶4]

EPA Response: ATSDR did follow up blood testing and reported the results in June 1998. The report is entitled "VOC Testing of Blood of Persons Living Near the IEL NPL Site, Uniontown, Ohio". This and other ATSDR reports are available at the IEL repositories located in Hartville, Ohio.

191. Comment: The threat of certain wastes to humans and other organisms is not universal; therefore, EPA should not depend on the risk analysis to assess exposure of receptors to contaminants from the IEL site. More federal resources should be utilized to further investigate the risk to all receptors. [21, pg. 2, ¶2]

EPA Response: EPA believes the risk posed by contaminants from IEL to humans and the environment has been adequately evaluated and, consequently, further risk analyses are unnecessary.

192. Comment: Many residents who do not have the benefit of an alternate water supply may have been "filtering toxic chemicals through [their] bodies" because EPA has not practiced good science in a reasonable timeframe. [54a, pg. 43, ¶1]

EPA Response: EPA maintains that it provided residents who live in the area potentially affected by IEL with the opportunity to hook up to a municipal water supply. Those residents "who do not have the benefit of an alternate water supply" either decided not to hook up to the system or live in areas that are not currently impacted by IEL.

Cancer Risks

193. Comment: One resident wants to know how EPA accounts for the numerous health problems (that is, cancer) in the local area. [3, pg. 1, ¶1; 16, pg. 1, ¶2]

EPA Response: ATSDR is the public health agency which reviews health outcome data. ATSDR has determined that is unlikely that sufficient information will ever be developed on the extent, duration, and levels of past exposure. Without this information, it is not possible to perform a meaningful health outcome data evaluation.

Groundwater Risks

194. Comment: One commentor does not believe that his well was contaminated by anything other than the IEL site and stated that the truth about how many residences were affected should be made known. [41, pg. 1, ¶1]

EPA Response: EPA has made its groundwater sampling results, including results from residential wells, available to the public on a regular basis for years.

195. Comment: The schedule and conclusions of the proposed ROD for the IEL site should be reorganized because since the Superfund activities began at the site, the region has changed from a rural to a suburban setting. Hundreds of new homes that are potentially located over the active plume use well water exclusively. The proposed ROD assumes that the setting is rural, which is no longer true. [53, pg. 1, ¶2]

EPA Response: EPA disagrees with this comment. First of all, the Agency has not identified an "active" plume. To the contrary, the Agency has found no evidence that a plume of contamination currently exists outside of the landfill. That is not to say, however, that the threat of a release of contaminants that could reach residential wells, including new construction, downgradient from the site is gone. To address this threat, the Agency has retained the capping component of the 1989 ROD.

Radiation Risks

196. Comment: An ad hoc group identified as Concerned Citizens of Lake Township has continuously challenged EPA's conclusions. This is especially true with regard to nuclear radiation. Fears with regard to radiation are real, and EPA must respond in a clear and forceful manner if these fears are ill-founded. [29, pg. 1, ¶2]

EPA Response: The September 1994 SAB report on EPA's conduct of radiation work at IEL (1990-1993) stated it was adequate and appropriate. Based on four rounds of validated sampling results, the Agency found that the radiation levels in and around IEL are indicative of natural background conditions.

Although there were recommendations on future monitoring for radiation contained in the SAB report, this would be conducted after the remedy has been installed at the site. EPA indicated in the March 2, 1999, public meeting that it was amenable to future radiation testing at the site to insure the health and welfare of the nearby community is not being threatened by radiological sources that could originate from the landfill. The location, parameters tested, frequency and other key criteria will be spelled out in a long-term monitoring plan that will be developed in the near future.

197. Comment: The presence of so many types of radioactive materials and the energy levels being emitted at the IEL site and in surrounding groundwater constitute a very serious problem and could create long-term health hazards. The radioactive materials identified at the IEL site have extensive half-lives. NRC should be notified of this problem immediately and be brought in to help solve the problems. [47, pg. 4, ¶1; 47, pg. 5; 54b, pg. 60, ¶3]

EPA Response: EPA disagrees strongly with this comment. The commentor's suggestion that harmful levels of radiation are present at IEL is not supported by the extensive data EPA has collected at the site.

198. Comment: One resident went to the Cleveland Clinic in 1978 and had some testing done. The doctors asked where the resident was stationed in the service, but the resident was never in the service. Three months later, Cleveland Clinic sent the resident a letter stating that for health reasons, the resident should move. [44, pg. 1, ¶2]

EPA Response: EPA forwarded this comment to ATSDR. As noted above, connecting health problems to an environmental cause generally requires looking at many cases.

SECTION 15: RECOMMENDATION

General

199. Comment: One resident asked if Dr. Magel was a part of the Technical Information Committee and if he could monitor the committee's activities for the public. [54m, pg. 117, ¶4]

EPA Response: Dr. Magel is currently not a member of the Technical Information Committee. The meetings are generally open to the public and he could attend and listen to the discussions.

200. Comment: One commentor asked the facilitator of the meeting to select speakers in a better way. The commentor stated that he felt many people had left and that no one stayed to listen to him. [54p, pg. 125, ¶1]

EPA Response: All of the representatives from the various governmental agencies were present during the entire public comment session. Because the commentor's comments have been included in this responsiveness summary, the commentor can be assured that EPA listened to his comments.

Independent Investigation

201. Comment: One resident felt that Bob Martin should perform a lot more in-depth investigation using money the PRPs want to save. [54k, pg. 107, ¶1]

EPA Response: At this time, Mr. Martin is in the midst of completing his preliminary review of the site. Once he completes this task, Mr. Martin will make his recommendation to Agency management on the next course of action.

202. Comment: Current remedial designs and plans drafted by EPA for the IEL site should be discarded. An independent investigative body of experts with no ties to the military-industrial "complex" should be immediately constituted and allowed to conduct a full waste characterization of the IEL site. [50, pg. 2, ¶6]

EPA Response: See previous responses under Section 1 above.

Nature and Extent of Contamination

203. Comment: One resident requested that the IEL problem be resolved so that future generations can learn from the situation and learn to act in a responsible way. [54i, pg. 96, ¶2]

EPA Response: EPA agrees with this statement and will work to move this project to completion as quickly as possible.

204. Comment: One resident commented that EPA should quantify IEL pollutants and order them removed. [54r, pg. 137, ¶2]

EPA Response: EPA has found that the best way to deal with mixed waste landfills like IEL is to cap them. Given the huge volumes of most landfills, removal of the pollutants is simply impractical. In its RI Report, issued in 1988, EPA did quantify pollutants at IEL to the extent the data and landfill records permitted.

No Further Action

205. Comment: Based on new information about the site and generally accepted scientific information issued or made available since the July 1989 ROD was issued, no further action should be taken at the site, and it should be delisted from the National Priorities List of Superfund sites. [51, pg. 2, summary]

EPA Response: EPA disagrees. The Agency maintains that, with the limited information we have concerning what went into the landfill, we cannot predict with sufficient assurance the consequences of taking no further action. Without a proper cap in place, it is entirely possible that the landfill could release contamination that would threaten residents in the area who depend on private wells for drinking water. On the other hand, with the installation of the cap EPA has proposed, the Agency is quite confident that no significant release of contamination would occur.

Phytoremediation

206. Comment: If phytoremediation is conducted, perhaps sunflowers should be used instead of poplar trees because they were used at Chernobyl and are prettier. [39, pg. 4, handwritten marginal comment]

EPA Response: EPA has no plans to conduct phytoremediation at the Site.

Water System

207. Comment: One commentor stated that instead of spending money on cleaning the water table, money should be spent on a water system that supplies clean water to the community. [14, pg. 1, ¶1]

EPA Response: As a matter of general policy, EPA does not favor providing municipal water as a substitute for cleaning up an aquifer. As stated in the National Contingency Plan, in implementing the

Superfund program, "EPA expects to return usable ground waters to their beneficial uses wherever practicable, within a timeframe that is reasonable given the particular circumstances of the site." 40 C.F.R. 300.430(a)(1)(iii)(F). In the case of IEL, EPA called for the provision of municipal water in 1987 to about 100 homes that EPA thought might be impacted by contamination from IEL before a permanent remedy could take effect. But EPA did not consider that this action eliminated the need to clean up the aquifer. Consequently, in its 1989 Record of Decision, EPA called for a pump-and-treat system to return ground water to federal and state drinking water standards. EPA now believes that, with the landfill properly capped, natural attenuation will restore the aquifer outside the source area, i.e., outside the landfill boundaries.

208. Comment: One resident wants the best possible cleanup for this site based on proper scientific testing in less than 3 years and alternate water provided to all residents who have not yet been able to hook up to city water. [54f, pg. 86, ¶3]

EPA Response: Please see previous responses above regarding the rationale for implementing the amended remedy and discussions on the alternate water supply.

Additional Monitoring Wells

209. Comment: The closest well downgradient from the site is approximately 700 feet from the site boundary. One commentor wonders if the point of compliance for the site is the property line or a residential well. The commentor also recommends installing monitoring wells along the west side of Cleveland Avenue. [38, pg. 1, ¶5]

EPA Response: The point of compliance for this site is the landfill boundary, i.e., the IEL property line.

Alternative Remedial Actions

210. Comment: The responding companies urge EPA to adopt a remedial approach for the IEL site that accomplishes the following:

- Maintains the existing engineering controls, including the existing MVS, the existing fence and related security, and the alternative water supply
- Provides for continued monitoring of natural attenuation processes [56]

EPA Response: Please see response to Comment #168 above.

Analytical Methods

211. Comment: Laboratories must use better quality assurance and quality control (QA/QC) during laboratory analysis to avoid estimated concentrations that exceed MCLs. [55, pg. 55, ¶4]

EPA Response: EPA believes the situation where detection limits exceeded key criteria (i.e., MCLs) occurred in only a few situations during the September 1998 survey. The Agency will make the necessary corrections to insure this does not happen in future surveys at IEL.

Background Wells

212. Comment: New background wells should be installed. [55, pg. 54, ¶4]

EPA Response: EPA agrees new background wells need to be installed at IEL.

Cap

213. Comment: The proposed modified RCRA Subtitle C cap should be installed. [55, pg. 56, ¶7]

EPA Response: EPA agrees with this comment.

Monitored Natural Attenuation

214. Comment: A monitoring plan for natural attenuation should be created. [55, pg. 54, ¶5]

EPA Response: EPA agrees with this comment.

215. Comment: Various soil gas samples for MNA should be collected. [55, pg. 55, ¶1]

EPA Response: In developing the monitoring plan for IEL, EPA will look at what parameters are appropriate in the implementation of MNA. It may be that soil gas sampling could be a useful component for monitoring to enable the Agency to determine the efficacy of this remedy in meeting cleanup goals in a timely manner.

216. Comment: Various subsurface soil samples for MNA should be collected. [55, pg. 55, ¶2]

EPA Response: See response to Comment #215 above.

217. Comment: Precipitation records to correlate with contaminant concentrations should be maintained. [55, pg. 55, ¶3]

EPA Response: The United States Meteorological Service collects precipitation data nationwide.

Methane Venting System

218. Comment: The MVS and design for maximum contaminant destruction and minimum pollution should be expanded, and the flare system should be permitted. [55, pg. 56, ¶7]

EPA Response: The MVS will be expanded as part of the remedy for IEL. The flare system, which is an integral part of the MVS, will likewise be upgraded. This has not changed from the original plan described in the July 1989 ROD.

Nature and Extent of Contamination

219. Comment: Recommendations to better define the nature, extent, and fate of contaminants previously released from the IEL site include groundwater modeling using data from pump tests, tracer tests, and numerous other tests; sediment sampling in any surface water body east, west, and south of the site; ecological surveys; utility trench investigation for methane, radon, and VOC gas migration; air

sampling in the basements of residences within 1,000 feet of landfill; and surface soil sampling downwind of the site to determine which metals are attributable to the IEL site. [55, pg. 55, ¶5]

EPA Response: See responses to comments under Section 1 above.

Off-Site Subsurface Soil

220. Comment: No subsurface investigation has been conducted downgradient of Metzger's Ditch south of the landfill. [38, pg. 1, ¶6]

EPA Response: EPA does not believe such an investigation would have been useful. This is based on studies and field investigations conducted by EPA during the design studies (1991-1992) and those conducted by the USGS on behalf of the Agency in 1994.

Radiation Testing

221. Comment: Groundwater should be sampled for radiation and to prove that fly ash is the source of radioactivity. [55, pg. 57, ¶2]

EPA Response: EPA has sampled ground water for radiation on four separate occasions in 1992 and 1993 (not counting the two invalidated sampling results from 1990). It found no evidence of radiation above natural levels.

Health

222. Comment: An appropriate health survey should be conducted to allay or confirm resident fears. [55, pg. 57, ¶1]

EPA Response: ATSDR conducted a public health assessment on this site in July 1989, subsequently updated in September 1992. In addition, health consultations on radiation/groundwater/air quality data, community concerns, and health outcomes were also prepared, the latest ones in March 1999. These recent health consultations were on the proposed remedy and results of residential wells sampled by the Agency (this particular health consultation was performed by the Ohio Department of Public Health under a cooperative agreement with ATSDR). With regard to the proposed remedy, ATSDR recommended that the Agency proceed with the design and construction of the cap, developing a monitoring and sampling plan to evaluate effectiveness of proposed natural attenuation remedy, and give consideration to, among other things, evaluating and addressing any remaining private water supply wells in the area of the original alternate water supply. As far as the residential sampling results, the Ohio Department of Public Health recommended that downgradient well users in the vicinity of IEL be identified and have their wells monitored for site-related organic and metal compounds.

SECTION 16: REMEDIAL ALTERNATIVES

Phytoremediation

223. Comment: One resident opposes any cap and stated that EPA and OEPA have dragged this cleanup effort on for so long that nature has started solving the problem. The resident proposes either leaving the site as is or accelerating the natural cleanup process with phytoremediation. [49, pg. 1, ¶2 and 3]

EPA Response: See previous responses to comments under Sections 1 and 13 on why there have been delays on cap construction and EPA's position on implementing phytoremediation at IEL.

224. Comment: A resident wanted to know if phytoremediation is being used at any sites similar to the IEL site and if phytoremediation can be used at IEL. [49, items 18 through 20]

EPA Response: Phytoremediation is being used at a very small number of sites, which differ markedly from IEL. EPA concluded that capping is a much surer remedy than phytoremediation for a site like IEL.

Pump and Treat

225. Comment: A commentor asked why the pump-and-treat system from the proposed plan was abandoned. [7, pg. 1, ¶3]

EPA Response: As explained in previous sections above, the pump and treat system was eliminated from the IEL remedy because there no longer is evidence that a plume of contamination exists beyond the site boundary.

Source Control

226. Comment: According to EPA's seminar on MNA, "MNA will typically be used in conjunction with active remediation measures or as follow-up to such measures." Another remedial alternative therefore could be used along with MNA. The only other alternative researched was a cap. Another alternative to contaminant source control should be evaluated. [20, pg. 3, item 7; 54a, pg. 49, ¶1]

EPA Response: EPA did evaluate a number of source control alternatives in 1989. The Agency concluded that a cap was the best way to address the source area at IEL. Nothing has occurred to change the Agency's views on this particular point.

Source Removal

227. Comment: It would be more prudent and benefit the community more if any remaining contaminants are removed prior to capping the site. In fact, capping may not be necessary if contaminants are removed. [28, pg. 1, ¶5]

EPA Response: As at virtually every other Superfund landfill, the Agency concluded that it would be impractical to remove the contamination in IEL. This is explained in more detail in the response to Comment #81 above.

228. Comment: One resident does not want the IEL site capped and would prefer either natural attenuation or removal of contaminants as remedial alternatives. [30, pg. 1, ¶1; 36, pg. 1, ¶3]

EPA Response: See previous responses to comments under Section 13 above.

229. Comment: The federal government should dig up the radioactive wastes and properly dispose of them. [33, pg. 1, ¶1; 34, pg. 1, ¶2]

EPA Response: As stated in other responses above, EPA has found no evidence that radioactive material is buried at IEL.

Timeframe

230. Comment: Citizens are concerned with time issues related to the IEL site. Remediation plans have been discussed for over 10 years, but it seems no end is in sight. [6, pg. 1, ¶1; 7, pg. 1, ¶1; 8, pg. 1, ¶1; 12, pg. 1, ¶1; 49, item 21]

EPA Response: See response to Comment #1 above.

SECTION 17: TENTATIVELY IDENTIFIED COMPOUNDS

General

231. Comment: EPA's statement regarding the tentatively identified compound (TIC) analysis is of great concern because TICs were raised repeatedly as a concern by CCLT's Technical Assistance Group experts and a great deal of time and money was spent trying to persuade EPA to do a better job identifying TICs. One resident requested EPA to explain why it is ignoring Dr. Ben Ross and other experts on this issue. [27, pg. 1, ¶6]

EPA Response: EPA disagrees with the assertion that it ignored the community's experts on the subject of TICs. With the exception of one sampling round, TIC analysis was conducted on all surveys conducted by the Agency at IEL. In general, this type of analysis is conducted in the early phases of the remedial work (site inspection/remedial investigation), not at this stage of the project. TICs typically represent non-priority pollutants such as fatty acids, amino acids, polysaccharides, etc., in addition to common laboratory contaminants. In the case of IEL, EPA explained in previous correspondences with the community and local media that the significant number of TICs could be explained by common laboratory contamination (e.g., toluene, methylene chloride, bis-2-ethylhexyl phthalate, etc.).

232. Comment: One commentor especially objects to the use of ridicule and attacks on the personnel and testing laboratories employed to gather, test, and analyze the data. [29, pg. 1, ¶3]

EPA Response: EPA is committed to dealing with all personnel in a responsible and professional manner.

Breakdown Products

233. Comment: EPA stated that a majority of the compounds identified as TICs were deemed to be common laboratory contaminants or breakdown products of substances that have been detected at IEL, but many TICs are listed as unknowns. EPA should provide written proof to support its statement that a majority of the TICs are common breakdown products and explain whether TICs include or exclude all the "unknowns." [27, pg. 1, ¶6]

EPA Response: EPA believes that the laboratory data generated by EPA for IEL, when reviewed by a laboratory analyst familiar with Agency procedures, support the conclusion EPA made regarding TICs at IEL. There is an inherent level of uncertainty involved with any TIC analysis and it is possible that some compounds cannot be identified. Identifying a TIC involves the comparison of mass spectra of an unknown compound detected during the analyses with the known library of mass spectra associated for a particular compound. The accuracy of identifying the TIC as a particular compound depends, to a certain degree, on the skill of the analyst. Mass spectra of different compounds may also be very similar. Consequently, there is uncertainty on whether a particular compound identified as a TIC is really present. This is just the inherent nature of TIC analyses.

234. Comment: One commentor wants to know if the "breakdown products" of substances already detected at the IEL site include radiation or radiation-related compounds. [27, pg. 1, ¶6]

EPA Response: The analytical methods used in detecting the "breakdown products" does not detect radioactive particles of any type. Screening tests to detect the presence of such radioactive particles were conducted in separate surveys (1990-1993).

Risk

235. Comment: A commentor wants EPA to state in writing with 100 percent assurance that none of the TICs at the IEL site are harmful. [27, pg. 1, ¶6]

EPA Response: As indicated above, TIC analyses involves some level of uncertainty, unlike parameter-specific analyses. EPA continuously sampled for TICs, in spite of questionable usefulness in doing it beyond the remedial investigation stage.

236. Comment: EPA is once again sweeping all the TICs under the rug. A scientist that worked on the Blanton Beltz case informed one resident that top secret Army nuclear weapons waste material is buried at the IEL site. The commentor is greatly concerned that EPA and polluters continue to dismiss the TICs and unknown compounds that have routinely been detected for years. [39, pg. 3, ¶3]

EPA Response: EPA has not ignored concerns about TICs. Indeed, the Agency has conducted TIC analyses at IEL over and beyond what has been done at other Superfund sites. See also our response to Comment # 253 below.

SECTION 18: WASTE CHARACTERIZATION

Buried Drums

237. Comment: One resident wonders what type of barrels are in the on-site pit and what kind of geological structure they rest on. [29a, pg. 1, ¶6]

EPA Response: Barrels used during the years of disposal at IEL were commonly made of metal. They were likely placed in the landfill mixed with and on top of other waste material.

238. Comment: One commentor stated that wastes from decomposing barrels in the landfill continue to contaminate the aquifer sporadically over time. The NCP states that EPA must not act only on releases of toxics but also on the threat of releases. EPA should excavate the barrels and remediate any resulting contamination. [54a, pg. 47, ¶4]

EPA Response: The data the Agency has collected does not support the claim that buried containers in the landfill are continuing to contaminate the groundwater. On the contrary, the groundwater quality within and outside of the landfill continues to get better. Any threat that this situation could change for the worse will be addressed by installation of the proposed landfill cap.

Data Gaps

239. Comment: It is questionable whether wastes in the landfill have been fully characterized because EPA and the PRPs have resisted the idea of drilling more soil borings. A thorough investigation and proper characterization of wastes should be conducted by Ombudsman Robert Martin. [23; 38, pg. 1, ¶7]

EPA Response: Full characterization of the wastes in a large landfill like IEL is impractical and unnecessary. Since the landfill cap EPA has chosen will contain contamination within the landfill, it is not crucial to know the characteristics of the wastes at the level of detail that this commentor advocates.

240. Comment: One commentor stated that with no comprehensive waste inventory, there can be no projection of by-products of waste degeneration over the next generations. Therefore, he asks that 1,000 local wells be tested for the broadest spectrum of wastes, including radioactivity, until a true statistical background level can be identified. Samples should be analyzed based on filtered groundwater samples. [11, pg. 1, ¶1]

EPA Response: EPA maintains that it has more than sufficient information to support its decision to cap the Industrial Excess Landfill. The cap is expected to contain all contamination within the landfill, such that an elaborate analysis and projection of by-products of waste degeneration is unnecessary.

241. Comment: CCLT has requested numerous times that a core monitoring program be implemented. CCLT believes that a core monitoring program is a more effective test to detect the presence of radioactive material in the landfill than a groundwater monitoring program. CCLT believes EPA has ignored its request and wonders why representatives such as Mr. Kern of the Ohio Attorney General's office and Ross del Rosario of EPA do not know what CCLT means by "a core monitoring program." [22, pg. 4, ¶2; 54c, pg. 69, ¶1 through 3; 54c, pg. 70, ¶1 and 2]

EPA Response: First, EPA believes that enough data exists to demonstrate that no radioactive material is buried at IEL and the 1994 SAB report supports that conclusion. Second, EPA is not sure what CCLT means by a "core monitoring program." The term "core" has a very specific meaning in the environmental field which refers to a piece of cored bedrock. To monitor bedrock 70 feet below the landfill for the existence of radioactive material within the landfill does not make sense. However, assuming CCLT means waste characterization of borehole samples from the landfill when it uses the term "core monitoring program," EPA does not believe that such an effort would be worthwhile. During the planning for the design studies (1991-1992), EPA conducted a statistical analysis (at the request of Senator John Glenn's staff) comparing the probability of detecting radioactive contaminants by sampling waste material in the landfill and by sampling groundwater. The results of the study showed that groundwater sampling was more likely than waste sampling to detect radioactive contaminants if they have been disposed of at IEL.

242. Comment: EPA should conduct core testing at more than two wells. [34, pg. 1, ¶2]

EPA Response: See response to Comment #241 above.

243. Comment: A remediation effort cannot be implemented when there is not a complete inventory of chemicals at IEL. [2, pg. 1, ¶1]

EPA Response: As stated previously, a complete inventory of the wastes disposed at IEL is not necessary to determine an appropriate remedy, nor would it be possible to conduct a complete inventory of wastes disposed of at IEL.

244. Comment: A resident asks EPA to include his letter and enclosure in the public comments. The letter affirms the repeated use of IEL by the Army. The resident believes that the IEL site is in immediate need of full waste characterization. [45, pg. 1, ¶ 6]

EPA Response: See above responses.

Radiation

245. Comment: One resident wondered whether Kittinger Trucking Co. and the owner of the IEL site had an NRC license to receive and store radioactive material. [47, pg. 4, ¶7]

EPA Response: EPA believes the Kittinger Trucking Company did not apply for or receive any type of NRC license to handle radioactive materials. In response to requests by the community regarding the radiation issue at IEL, the NRC conducted an investigation to determine if there were possibly any NRC-issued licenses or licensee material used or involved at IEL. This investigation included reviews of all NRC licenses from a period of 1970 to 1985 (1970 is as far back as NRC records exist). Additionally, NRC conducted an evaluation of approximately 33,000 Atomic Energy Commission (AEC) licenses, which was its predecessor, and other NRC licenses which have been terminated since the NRC took over the licensing and inspection responsibilities from the AEC. Finally, NRC reviewed EPA's radiological data collected from the site. The NRC found no evidence that any NRC-licensed materials were disposed at IEL and no data showing radioactivity above natural levels.

246. Comment: Several commentors wonder whether the IEL site met the requirements for a disposal site for radioactive materials as specified in USC Title 10. [47, pg. 4, ¶8; 54b, pg. 62, ¶2]

EPA Response: No. Please see response to Comment #245 above.

247. Comment: Several commentors wonder whether the Army held an NRC license to transport and dispose of radioactive material at the IEL site. [47, pg. 4, ¶5; 54b, pg. 62, ¶1]

EPA Response: EPA believes the U.S. Army never had an NRC license to transport and dispose of radioactive materials at IEL.

248. Comment: Residents claim that radioactive wastes were observed being discarded in the landfill. [13, pg. 1, ¶1]

EPA Response: EPA has investigated this issue to the fullest extent practicable. The Agency conducted extensive tests to determine if levels of radiation are above normal at IEL. EPA also sent information requests to IEL customers who could have generated radioactive wastes. This information was shared and discussed with the community as they became available.

249. Comment: One resident said she saw many trucks labeled "U.S. Army Corps" enter the IEL site in the early 1970s. The flatbed trucks were loaded with stainless-steel canisters that were marked hazardous. She said tanker trucks would drive to the site all night and dump materials and that some tanker truck drivers even had their own keys to the gate. [44, pg. 1, ¶1]

EPA Response: IEL customer records show that some military units, e.g., the Ohio Army National Guard, occasionally used IEL. Military units generate ordinary trash, just like civilian commercial facilities. They are also capable of generating hazardous wastes. To find out what IEL's military customers may have dumped at the site, EPA sent out Superfund information requests. None of the responses to these requests indicated that the military disposed of hazardous substances at the site. EPA made all of this information public, but continued to receive anecdotal reports from citizens who believed they had seen at some time in the past military trucks, bearing hazardous and/or radioactive materials, enter the landfill. In view of the persistence of citizen fears that radioactive wastes were disposed of covertly at IEL, EPA decided to conduct radiation testing at the site. On the basis of the test results, EPA

found no reason to believe that radioactive wastes had been disposed of at IEL, whether by the military or anyone else.

250. Comment: One resident claimed that there has been a coverup by Army and EPA officials regarding radioactive wastes generated and indiscriminately dumped at the IEL site. The resident said his coverup conclusion is reasonable because documented evidence shows the following:

- The Army dumped waste at IEL and lied about it.
- The Army lied about the radioactive waste and material shipped to and from its Ravenna Army Ammunition Plant arsenal, a major weapons production, testing, and storage facility near IEL. Furthermore, internal Army communications as late as 1997 reveal extensive concern over any connection being made between IEL and the Ravenna Army Ammunition Plant arsenal.
- EPA and other government agencies deceived the public about radioactive waste generated by RMI, a nuclear weapons production subcontractor, that was dumped in and around the waterways in Ashtabula County, another northeast Ohio community victimized by extensive radioactive pollution and subsequent coverups. [50, pg. 1, ¶3 through 6]

EPA Response: Whatever may be the case at some other site in Ohio, EPA maintains that there is nothing to support the allegation that the Army has tried to cover up indiscriminate dumping of radioactive waste at IEL. The commentor bases his charges of a cover up on instances in which the Army allegedly "lied" about various matters. In the first instance, the commentor cites letters from the Army denying that it had any involvement at IEL, when, in fact, there is at least one dump ticket listing the Army as an IEL customer. It would be fair to say that the Army's statement was inaccurate. But to conclude that the Army "lied" requires evidence of an intent to deceive. EPA has no such evidence. Indeed, inaccuracies in statements about involvement at dump sites are not unusual, particularly when the activities in question occurred many years ago and, as is generally the case with large organizations like the Army, the individual responding to EPA inquiries has no personal knowledge about what happened. EPA regrets the inaccuracies that result, but we do not generally conclude that a respondent lied to the Agency. In the second instance cited by the commentor, EPA finds no evidence of inaccuracy, let alone lying. The Army reported that the only known sources of radioactivity at the Ravenna Arsenal were X-ray machines and monazite ore. The commentor cites a 7/25/90 memo from the Olin Defense Systems Group as evidence that the Army lied about radioactivity at Ravenna, when in fact the Olin memo corroborates the Army's statement: it identifies as the sole sources of radioactivity at Ravenna cobalt-60 used in X-ray machines, and monazite ore. Furthermore, the Olin memo states that waste radioactive materials from Ravenna were sent to Rotterdam, Holland, and to a site in Kentucky. There is no evidence of any disposal at IEL. Finally, the commentor's suggestion that internal Army communications about a connection between Ravenna and IEL are suspicious seems particularly misplaced. Because the Army was receiving requests for information on this subject under the Freedom of Information Act, it would have been strange had there <u>not</u> been internal Army communications concerning it.

251. Comment: One resident asked whether the owner/operator customer list indicated that the Ravenna Army Ammunition Plant disposed of waste at the IEL site in 1969 and 1970. The resident also asked that the comment period be extended. [46, pg. 3, ¶2]

EPA Response: See response to Comment # 250 above.

252. Comment: A resident said that around Christmas 1989, an Army engineer came to her home in Uniontown and said he was inspecting the premises. She wondered what he was doing there if the Army had no part in the dumping at the IEL site. [44, pg. 1, ¶3]

EPA Response: EPA has investigated anecdotal references to possible dumping of radiological materials at IEL, particularly by the military, in the past and has found no factual evidence that this occurred. As part of this investigation, the Agency sent formal information requests to nearby military installations and commercial entities that could have potentially disposed of such wastes at IEL. None of the respondents indicated they disposed of radiological wastes to IEL. In spite of this, the Agency went ahead, during the remedial design stage, and tested the groundwater for possible radiation contamination, the results of which were negative.

253. Comment: A resident said she has been told by scientists that worked on the plans for the Beltz case that top secret Army nuclear weapons and many waste materials are buried at the IEL site. She is concerned that EPA is dismissing TICs and unknown compounds detected in wells at the IEL site year after year. [54e, pg. 79, ¶2]

EPA Response: An article in the *Canton Repository* reported that Dr. Robert Simon, an expert retained by the plaintiff in Beltz v. Hybud Equipment, et al., 1993CV00720 (Stark County Common Pleas), said he had seen classified documents indicating that Army nuclear weapons waste had been dumped near Uniontown. Early in 1999, the Ohio Attorney General's Office contacted Dr. Simon and asked him about the newspaper report. Dr. Simon said that he had reviewed some documents in the case, but he did not recall any connection to the Industrial Excess Landfill. EPA then sent out information requests to the defendants in the Beltz case, asking for all the documents shown to Dr. Simon. In reviewing the responses, EPA found nothing to indicate radioactive wastes had been disposed of at IEL. EPA notes further that the Army was never named as a defendant in the Beltz case. If indeed there was good evidence showing that Army nuclear wastes were disposed of at IEL, surely the Army would have been named as defendant in the lawsuit, either by the plaintiff or by the initial defendants through a third-party complaint. A review of the court docket shows that, while the complaint in the Beltz case was amended twice, neither the Army nor any other part of the federal government was ever named as a defendant.

254. Comment: A resident wonders how hard EPA really "tried to get to the bottom" of the radiation issue at the IEL site. He restated that eyewitness testimony presented at recent hearings confirms that vehicles bearing radioactive markings entered the landfill. [54h, pg. 93, ¶2]

EPA Response: See various responses to radiation issues above.

255. Comment: A commentor said she is very unhappy with how EPA has handled the radiation issue and wonders why after 15 years of testing, the issues discussed in 1999 are the same issues discussed in 1980. [54q, pg. 134, ¶3]

EPA Response: As far as EPA is concerned, the Science Advisory Board's final report in 1994 eliminated radiation as a factor in the IEL cleanup. Consistent with the recommendations outlined in the SAB report, EPA will conduct radiation sampling as part of the long-term monitoring program.

256. Comment: A resident stated that in December 1992, EPA radiation expert Dr. John Broadway from Montgomery, Alabama, acknowledged that plutonium 239 should not be showing up at 92 feet below ground surface on top of bedrock under the landfill. Dr. Broadway told the resident that plutonium 239 was actually one of the most dangerous substances known to man. The resident believes

EPA disregarded this plutonium finding and deemed it only a trace level in groundwater samples collected from the site and other locations. [54e, pg. 79, ¶3]

EPA Response: EPA did not disregard any plutonium data generated as part of the radiation surveys conducted in 1991 and 1992. This is explained in detail in EPA's December 1992 fact sheet entitled "Questions & Answers About the Industrial Excess Landfill Superfund Site", distributed to the interested public and available for viewing at the IEL site repositories in Hartville, Ohio. The relevant information is found on page 8 of the document. In summary, the few samples collected during 1991 and 1992 surveys did show plutonium as borderline detected *on the first test*. However, the results were too low to confirm the presence or quantity of plutonium, making it statistically impossible to state with absolute accuracy or confidence that plutonium was present. Regardless of the level found, each sample which indicated the presence of plutonium on the first round of sampling was retested. All retested samples, including a field blank which contained only distilled water, showed no detectable levels when retested. This and the rest of the data generated during the radiation surveys in 1991-1993 were used as the basis for EPA's determination that radiation levels in and around IEL are indicative of background levels, a position supported by the 1994 SAB report.

257. Comment: A resident wondered if radiation can naturally attenuate and if so, how many years, decades, or centuries are required based on the half-life of some of the materials. [54h, pg. 93, ¶3]

EPA Response: Radioactive contaminants have never been linked to IEL and the groundwater contaminants being addressed by the MNA remedy do not include radioactive compounds.