SDMS US EPA Region V

Imagery Insert Form

Document ID: 168165

Some images in this document may be illegible or unavailable in SDMS. Please see reason(s) indicated below:

[X] Illegible due to bad source documents. Image(s) in SDMS is equivalent to hard copy.

Specify Type of Document(s) / Comments:

FIGURE 3, TABLE 4

[ ] Includes _____ COLOR or _____ RESOLUTION variations.
Unless otherwise noted, these pages are available in monochrome. The source document page(s) is more legible than the images. The original document is available for viewing at the Superfund Records Center.

Specify Type of Document(s) / Comments:

[ ] Confidential Business Information (CBI).
This document contains highly sensitive information. Due to confidentiality, materials with such information are not available in SDMS. You may contact the EPA Superfund Records Manager if you wish to view this document.

Specify Type of Document(s) / Comments:

[ ] Unscannable Material:
Oversized _____ or _____ Format.
Due to certain scanning equipment capability limitations, the document page(s) is not available in SDMS. The original document is available for viewing at the Superfund Records center.

Specify Type of Document(s) / Comments:

[ ] Document is available at the Records Center .

Specify Type of Document(s) / Comments:

Rev. 07/10/02

RECORD OF DECISION AMENDMENT

INDUSTRIAL EXCESS LANDFILL SUPERFUND SITE
UNIONTOWN, STARK COUNTY, OHIO

SEPTEMBER 2002

PREPARED BY
THE U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 5

TABLE OF CONTENTS

MAPS/FIGURES

TABLES

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), supports the remedy changes, provided certain conditions are met. EPA believes these conditions are met in the selected remedy set forth in this document. A State concurrence letter on this decision is expected in the near future.

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 selected remedy described in the March 2000 ROD Amendment 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:

- Augmenting the existing vegetative cover with selected planting of trees and other plants at the site;
- Natural attenuation of groundwater contaminants both offsite and onsite;
- Monitoring of groundwater and landfill gas;
- Upgrading the existing monitoring well network by installing new wells, upgrading and/or abandoning other wells, as needed;
- Perimeter fencing;
- Deed Restrictions;
- Maintenance of Alternate Water Supply; and
- Additional Design Studies

This remedy is identical to the preferred remedy described in the Proposed Plan issued by the Agency on April 5, 2002. The key difference between the March 2000 cleanup plan and this revised cleanup plan center on replacing the modified RCRA-type cap with a design to augment the existing vegetative cover with additional trees and other plants at selected areas of the landfill. This cleanup plan was prompted by continued improvements in groundwater quality, particularly onsite, and the willingness of the Ohio Environmental Protection Agency (OEPA) and the local community government to accept an alternative to a containment remedy for the landfill. Other important aspects of this cleanup plan are that EPA expects cleanup goals inside the landfill will be achieved sooner than with the previous plan and that it affords greater flexibility for future redevelopment of the site.

STATUTORY DETERMINATIONS

The final selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable to or relevant and appropriate for the remedial action, and is cost-effective. Because monitored natural attenuation (MNA) is not an active engineered technology, EPA does not view it as satisfying the CERCLA preference for treatment. Nevertheless, in breaking down contaminants, thereby reducing the toxicity, mobility, and volume of contamination, MNA can achieve the same beneficial results as engineered treatment. Also, 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. Munn

William E. Munn, Director
Superfund Division
Region 5

9/27/02

Date

RECORD OF DECISION AMENDMENT
INDUSTRIAL EXCESS LANDFILL
UNIONTOWN, OHIO

I. INTRODUCTION

This document amends the Record of Decision (ROD) for the Industrial Excess Landfill Superfund Site ("IEL" or the "Site") located in Uniontown, Stark County, Ohio (see Figure 1). The original ROD was signed on July 17, 1989 ("1989 ROD") and was amended on March 1, 2000.[1]

With this second ROD amendment, the remedy for the site will now consist of the following components: *1) Selective planting of trees and other vegetation throughout the site in order to enhance the effectiveness of the existing soil cover; 2) Natural attenuation of both onsite and offsite groundwater contamination; 3) Monitoring of both ground water and landfill gas to ensure the remedy continues to be effective. The existing groundwater monitoring network will be upgraded by installing new wells and abandoning others, as needed; 4) Perimeter fencing; 5) Institutional Controls; 6) Maintenance of the alternate water supply; and 7) Additional design studies.*

EPA decided to modify the 2000 ROD remedy for two principal reasons: (1) groundwater monitoring indicated that natural attenuation is cleaning up onsite ground water; and (2) the Ohio Environmental Protection Agency (OEPA) and the local community government appeared willing to accept an alternative to a containment remedy for the landfill. The basis for the ROD amendment is described at length in Section IV below.

In changing the IEL remedy, 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 United States Environmental Protection Agency (EPA) is the lead agency for the remedial action at this site, while the OEPA is the support agency. OEPA has indicated it favors the changes to the remedy.

---

[1] In this document, we will refer to the remedy selected in July 1989 as the "1989 ROD remedy," the remedy as amended in March 2000 as the "2000 ROD remedy," and the remedy as amended herein as the "2002 ROD remedy."

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, 40 C.F.R. §300.825(a)(2). An index to the administrative record is attached to this document for convenience. The administrative record, including the Responsiveness Summary and the March 2002 Focused Feasibility Study (FFS), is available for viewing at the site information repositories whose addresses are provided in Section IX of this document.

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 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. Located between Akron and Canton, the area has become increasingly residential with many new homes being built nearby. According to the 2000 Census, 2,802 people live in Uniontown, while Lake Township has a population of 25,892.

For a more detailed description of the site, please refer to the July 1988 Remedial Investigation (RI) report prepared for IEL, copies of which are available for viewing at the site repositories in Hartville, Ohio (see information in Section IX). In summary, the RI revealed the following conditions at the site: 1) 80-85 percent of the site was covered with various types of waste; 2) about 780,000 tons of waste were eventually disposed of at the site, including 1,000,000 gallons of liquid waste; 3) at the time the RI was issued, groundwater contaminated with IEL-related wastes, such as vinyl chloride, was found in some residential wells nearby; and 4) a groundwater plume of contamination extended approximately a thousand feet west of the landfill boundary along Cleveland Avenue. Since the RI was completed, groundwater conditions at IEL have changed significantly, as described in Section IV below.

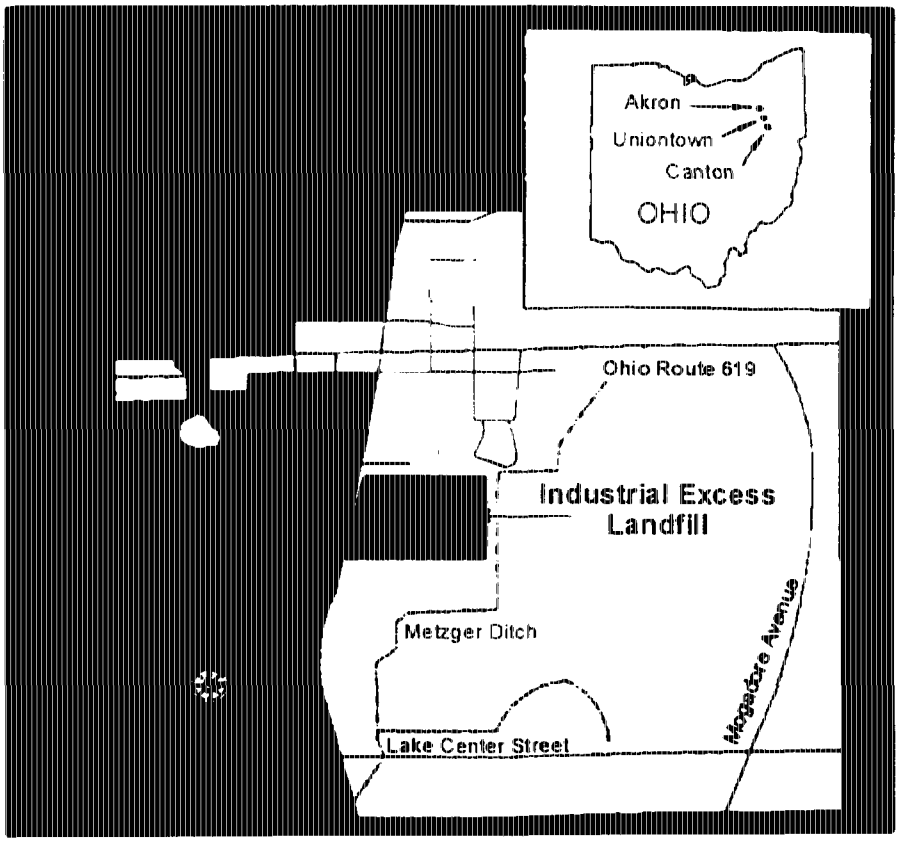
III. SITE HISTORY

For a more complete description of the site history, please refer to the RI, July 1989 ROD, and March 2000 ROD Amendment, copies of which are available in the site repositories.

Figure 1

Industrial Excess Landfill

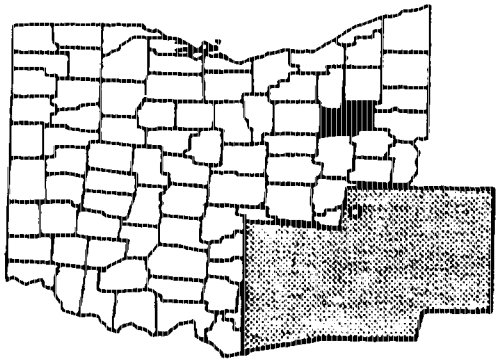
EPA ID# OHD00377911

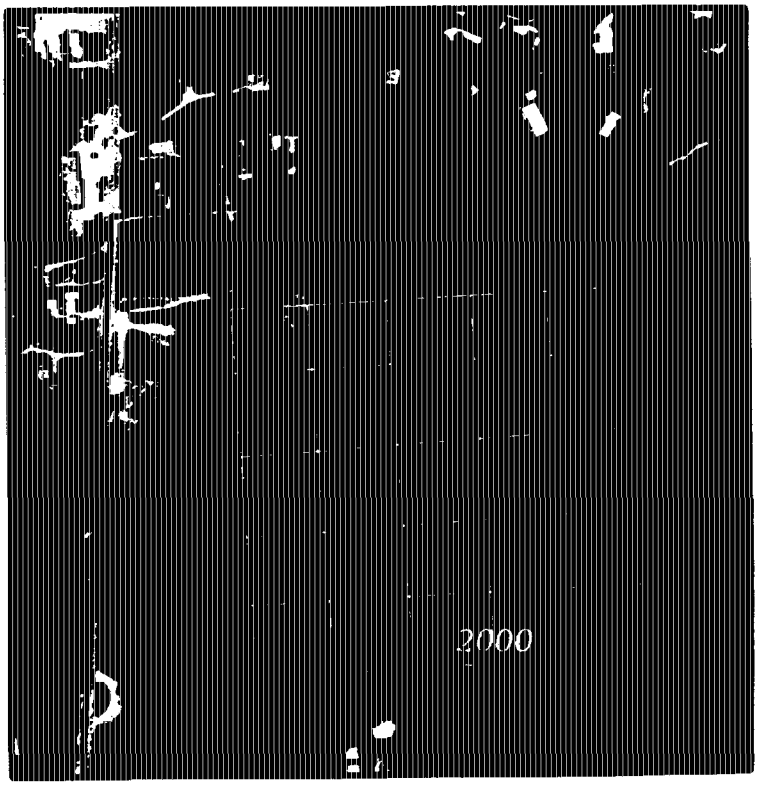


EPA Region 5

Stark County

10 miles from Akron





July 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:

1. Installation of a multi-layer RCRA Subtitle C-compliant cap over the entire surface of the landfill;

2. Expansion of the existing methane gas venting system;

3. Extraction and treatment of contaminated groundwater beneath and near the landfill until cleanup levels are achieved;

4. Extraction of groundwater to maintain the water table level beneath the bottom of the wastes to protect groundwater from further contamination;

5. Installation of a fence around the perimeter of the site;

6. Placement of deed restrictions on the future use of the site property; and

7. 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 1989 ROD remedy, the Agency took steps to protect public health during the period before the 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 Responding Companies - a group of Potentially Responsible Parties, including B.F. Goodrich, Goodyear, Bridgestone/Firestone, and GenCorp. 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 (MVS) it installed in 1986. The MVS 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 included: 1) the temporary relocation of some residents whose homes were located adjacent to the landfill and 2) the installation of a

perimeter fence to restrict site access.

The March 2000 ROD Amendment

After issuing the 1989 ROD, EPA installed 30 new monitoring wells at IEL (MW-13 through MW-28) and continued to monitor the ground water, with the last EPA-lead groundwater survey conducted in September 1998. This consisted of sampling five residential wells in homes located near the landfill. With EPA and OEPA oversight, the Responding Companies conducted additional groundwater surveys in 1997 and 1998. EPA took approximately 26 split samples with the Responding Companies during this survey and performed the data validation. A comparison of groundwater data collected in the 1988 RI with data from 1997 and 1998 showed levels of contaminants of concern decreasing. 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. While certain metals were detected above MCLs outside the landfill, the total number detected was less than in 1988, the concentrations were lower on average, and the exceedances appeared to be sporadic in nature. Sampling of nearby residential wells in 1998 detected few metals, and those found were at concentrations well below MCLs. Because of these changes in site conditions, the Agency concluded that a pump-and-treat system was no longer justifiable, and that this component of the 1989 remedy should be eliminated. Consequently, EPA determined that an amendment to the 1989 ROD remedy was necessary, resulting in the March 2000 ROD Amendment. Groundwater monitoring data and technical evaluations the Agency used in making this decision can be found in the IEL information repositories.

The following remedy components were prescribed in the March 2000 ROD Amendment:

1. Modified landfill cap (clay liner eliminated)
2. Natural attenuation of contaminants in ground water offsite
3. Expansion of existing methane venting system (MVS) to collect and treat landfill gases
4. Monitoring the cap, ground water, and MVS to ensure effectiveness
5. Deed restrictions on the future use of the site property
6. Fencing

Site Developments since March 2000

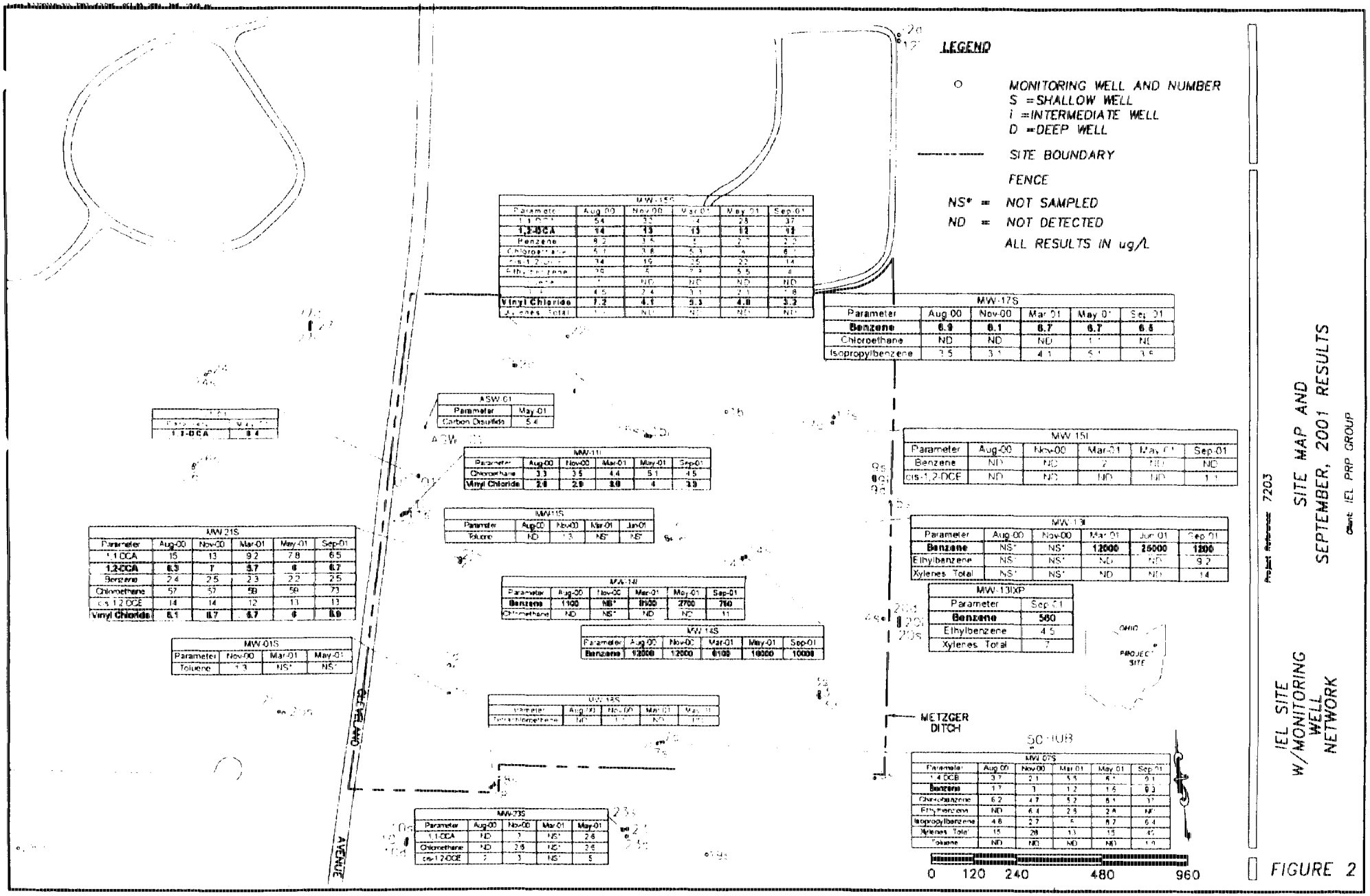
Additional Groundwater Sampling: Since the March 2000 ROD Amendment was

issued, the Responding Companies, with EPA concurrence, conducted five (5) additional rounds of groundwater sampling at the site. These quarterly surveys were conducted from August 2000 to September 2001 and were overseen by EPA and OEPA. The samples were analyzed for volatile organics, metals, and radionuclides. EPA performed the review and validation of all the data generated by the Responding Companies during this period. A summary of selected groundwater data results at key monitoring wells at IEL is provided in Figure 2. In addition, Table 1 presents a comparison of selected 2000-2001 groundwater data with health- and risk-based values.

Change in Local Government Position Towards Capping: In July 2000, the local government for the area around IEL - the Lake Township Trustees - asked EPA to delay construction of the landfill cover prescribed in the March 2000 ROD Amendment so that additional onsite groundwater tests could be carried out. The Trustees subsequently expressed interest in finding a remedy that would protect public health, but would also provide more flexibility in terms of land use than a traditional engineered cap. The cap selected by EPA in previous remedy decisions would require restricting vegetation to grass over the 30-acre site. No public access was contemplated. The Trustees asked EPA to consider remedial alternatives that would permit more varied vegetation and public access for recreational uses, e.g., as a nature preserve.

Petition from Responding Companies To Change Remedy: In November 2000, the Responding Companies submitted a petition to EPA, requesting a change in the overall site remedy for IEL. The Responding Companies argued that natural attenuation of contamination was occurring within the landfill itself as well as offsite, and that EPA should select a remedy that would promote that process rather than hinder it. According to the Responding Companies, the cap called for under the 2000 ROD remedy would inhibit natural attenuation, entombing contaminants without changing them, and would require maintenance in perpetuity. They proposed that EPA change the remedy to a "biodiverse phyto-cap/enhanced natural attenuation remedy." Such a remedy would allow natural attenuation of the landfill proper to proceed and would provide a varied habitat for wildlife as well.

Focused Feasibility Study and Proposed Plan: Subsequent to the Lake Township Trustees' and the Responding Companies' requests, EPA agreed to delay construction of the 2000 ROD remedy. The Agency also agreed to review the Responding Companies' petition. Ultimately, EPA decided that the Responding Companies' petition had sufficient merit to warrant a Focused Feasibility Study (FFS), comparing the 2000 ROD remedy with a remedial alternative based on the Responding Companies' proposal. EPA released the results of the FFS on April 4,



IEL SITE W/MONITORING WELL NETWORK

SITE MAP AND SEPTEMBER, 2001 RESULTS

Project Reference: 7203

Client: IEL PRP GROUP

FIGURE 2

TABLE 1
IEL SELECTED 2000-2001 GROUNDWATER QUALITY DATA
COMPARISON WITH HEALTH AND RISK-BASED VALUES

(All values in micrograms per liter, ug/L)

Contaminant of Concern	MCL[1]	R9 PRG[2] Residential Value (10^{-6} risk)	Adjusted PRG-based Value (10^{-4} risk)	Background Well[3] Values	On-site Well[4] Values	Off-site Well[5] Values	MDL[6]
1,2 Dichloroethane	5	0.12	12	<MDL	<MDL - 14	<MDL	1
Benzene	5	0.35	35	<MDL	<MDL - 25,000	<MDL	1
Tetrachloroethene (PCE)	5	1.1	110	<MDL	<MDL - 1.1	<MDL	1
Vinyl Chloride (VC)	2	0.041	4.1	<MDL	<MDL - 7	<MDL	1
Barium	2,000	26,000	260,000	74-276	69 - 1,880	64 - 809	0 12
Nickel	-	730	73,000	2-40	<MDL - 156	3 - 150	
Lead	15 (action level)	-	-	<MDL	<MDL - 8	<MDL - 24	1 2
Arsenic	10[7]	0.045	4.5	<MDL - 10	<MDL - 72	<MDL - 71	1.7
Chromium	100	110	11,000	<MDL - 10	<MDL - 57	<MDL - 244	0.67

NOTE: Groundwater pathway includes ingestion, inhalation, and dermal contact. Does not currently include migration of groundwater vapors into receptor sites.
[1]Maximum Contaminant Levels (MCLs) are legally enforceable standards that apply to public water systems.
[2]Preliminary Remediation Goals (PRGs) are tool for screening and evaluating contaminated sites. They are risk-based concentrations derived from standardized equations, combining exposure information assumptions and EPA toxicity data. They are viewed as Agency guidelines, not legally enforceable standards.
[3]Background Wells - MW-12 and MW-20
[4]On-site Wells - MW-1 through MW-7, MW-9, MW-11, MW-13 through MW-18, MW-21, and MW-22
[5]Off-site wells - MW-8, MW-10, MW-19, MW-23, and MW-24 through MW-28
[6]MDL means minimum detection limit.
[7]The MCL for arsenic changed recently (early 2001) from 50 to 10 ug/L, but compliance with more stringent standard is not expected for another 5 years.

2002, and subsequently issued a Proposed Plan, formally stating the Agency's intention to change the 2000 ROD remedy.

IV. BASIS FOR ROD AMENDMENT

The main reason for EPA's decision to amend the 2000 ROD remedy is that improvements in groundwater quality on-site have convinced EPA that natural attenuation is capable of cleaning up ground water within the landfill itself. EPA believes that an enhanced vegetative cover over the landfill will help promote the natural processes that are reducing contaminant levels. EPA's decision is also based on the fact that there seems to be substantial State and local support for choosing a remedy that does not rely on the traditional containment approach and that might permit more flexibility in land use. These factors are discussed at length below.

Improvements in Groundwater Quality

EPA's rationale for selecting containment of wastes as a major component of the 1989 and 2000 ROD remedies for IEL was to protect ground water from further contamination. However, despite the fact that an engineered cap has never been installed at IEL, groundwater quality has generally improved. Groundwater data collected in 2000-2001 confirmed that this trend is continuing, with fewer exceedances of federal drinking water standards compared to previous data. For illustration, Table 2 compares the results generated during the 2000-2001 surveys with historical high values reported for selected contaminants found at IEL. It is readily apparent that most of the values reported in 2000-2001 are significantly down from their historical highs. This trend is even more apparent in a comparison of the number of organic contaminants detected at IEL since the mid-1980's (see Figure 3). From approximately 80 organic compounds detected since the mid-1980's, the number has steadily shrunk to where only 13 have been detected in 2001.

Suitability of Monitored Natural Attenuation as a Remedy for Onsite Contamination

EPA's confidence that natural attenuation is occurring and that it will continue to clean up contamination at the landfill in a satisfactory manner is based on the following considerations:

- Groundwater data from 1985 to the present has been available to EPA for review. In all, results from fourteen (14) rounds of groundwater surveys were available to the Agency since 1990. As previously stated, the data

Table 2 - IEL Groundwater Data

Compound	Target Cleanup Levels	2000-2001 Results	Highest Value Reported Prior to 2000
1,2 Dichlorethane (DCA)	5	ND-14	100
Cis 1,2 dichlorethene (DCE)	70	ND-34	960
Benzene	5	ND-25,000	8,300
Chloroethane	4.6	ND-73	31
Vinyl Chloride	2	ND-7	32
Arsenic	10*	ND-73	139
Chromium	100	ND-244	739
Lead	15	ND-24	268
Nickel	730	ND-156	1,700
Thallium	2	ND-13	12

Note: All values are in parts per billion (ppb).

*** See Table 3 for explanation on Arsenic**

Organic Compounds Detected at IEL (Mid-1980's to Present)

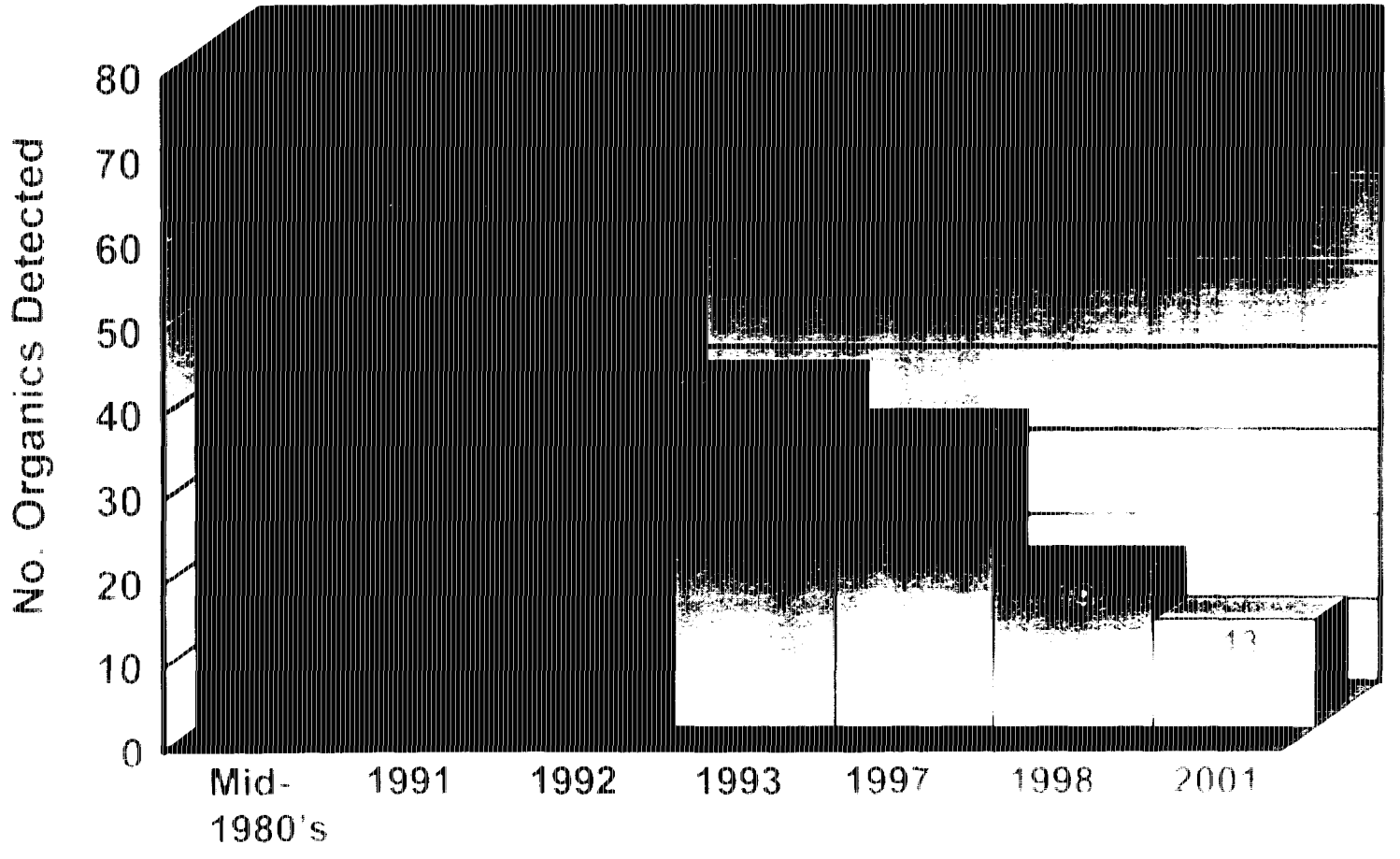


Figure 3

demonstrated that groundwater contaminants are generally decreasing in both concentrations and in the frequency of detection over time. Data from 1997 and 1998 was used to determine that a groundwater plume of contamination outside of the landfill no longer exists.

- Existing hydrologic and geochemical conditions, which have made possible the trend towards improving groundwater quality, are not expected to change.

- Based on landfill gas data, it does not appear that landfill contaminants are migrating to this medium. In fact, the levels of major landfill gases such as carbon dioxide and methane continue to diminish over time.

- The presence of breakdown products (i.e., daughter compounds) near the edge of the landfill, such as vinyl chloride, has been observed over the years.

- Concentrations of inorganics such as metals appear to be stable or decreasing. Studies conducted by Responding Companies in 1997 on possible degradation mechanisms for metals at IEL suggested sorption or precipitation as the most likely routes. If this assessment is accurate, the mobility, toxicity, and/or bioavailability of these class of compounds has been more or less mitigated.

- EPA studies in the early 1990's found no evidence of dense non-aqueous phase liquids (DNAPLs) in the landfill.

EPA's conclusion that the IEL site is a good candidate for monitored natural attenuation is supported by Agency guidance in this area, specifically: "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites" (OSWER Directive 9200.4-17P), an EPA guidance document issued in April 21, 1999. The guidance sets forth a number of factors to consider in determining whether natural attenuation is appropriate for a given site:

> *Whether the contaminants present in soil or ground water can be effectively remediated by natural attenuation processes.*

As noted above, data collected over a twenty-year period show that VOCs in ground water have been greatly reduced. The presence of natural breakdown products, such as vinyl chloride, indicate that natural attenuation has been at work.

Whether or not the contaminant plume is stable and the potential for the environmental conditions that influence plume stability to change over time.

There is no indication of a plume at IEL. EPA does not foresee any likely change in environmental conditions that would alter this situation.

Whether human health, drinking water supplies, other groundwaters, surface waters, ecosystems, sediments, air, or other environmental resources could be adversely impacted as a consequence of selecting MNA as the remedial option.

EPA sees little possibility of an adverse impact on human health or drinking water supplies. Residents living near the landfill who are downgradient are connected to a municipal water system. In the event of an unexpected, negative change in groundwater quality, EPA would have ample time to address it before contamination reached any potential receptors. Nor does EPA foresee an adverse impact on other groundwaters, surface waters, ecosystems, sediments, air or other environmental resources as a result of choosing MNA rather than a containment remedy. To date, EPA has not seen any impact of groundwater contamination at IEL on surface waters, ecosystems, sediments, or other environmental resources. EPA sees no reason why this should change during the time natural attenuation continues to improve groundwater quality. As for any possible contribution of contamination from ground water to the air via landfill gas emissions while MNA is underway, the methane venting system at the landfill will handle that as it has to date.

Current and projected demand for the affected resource over the time period that the remedy will remain in effect.

EPA is unaware of any demand for the ground water within the 30 acre boundaries of IEL. Outside the site, ground water is already meeting, for the most part, drinking water standards.

Whether the contamination, either by itself or as an accumulation with other nearby sources (on-site or off-site), will exert a long-term detrimental impact on available water supplies or other environmental resources.

EPA sees little possibility of this. Already, groundwater contamination appears to be largely confined to the landfill itself. As natural attenuation continues, even

ground water onsite should reach drinking water standards. EPA therefore expects no long-term detrimental impact on available water supplies or other environmental resources.

Whether the estimated time frame of remediation is reasonable compared to time frames required for other more active methods.

The amount of contamination coming off the landfill in ground water in recent years is so small that it does not lend itself to an active remedy, such as a pump-and-treat system. For that reason, in March 2000, EPA eliminated the pump-and-treat component of the original remedy. Hence, at IEL, it is not a question of comparing MNA to an active remedy since no active remedy, other than gas venting that is already in operation, is practicable. The comparison at issue is between an inactive remedy - containment - and MNA. As between those two alternatives, MNA is preferable even if it takes a long time because it offers the possibility of eventually cleaning up the site, while containment does not.

The nature and distribution of sources of contamination and whether these sources have been or can be adequately controlled.

Wastes were disposed of throughout the 30-acre landfill, although liquid wastes were at times concentrated in a lagoon, located in the west-central part of the property. Source control actions to date consist of the placement of a soil/vegetative cap over the landfill just after its closure in 1980. While this cap does not completely prevent the infiltration of surface water into the waste mass, it does reduce it. Groundwater data gathered over time indicate that the degree of source control provided by the current cap is sufficient, as evidenced by the lack of a contaminant plume at the site.

Whether the resulting transformation products present a greater risk due to increased toxicity and/or mobility than do the parent contaminants.

One of the contaminants of concern found in the landfill is 1,2 dichloroethane. Its breakdown product - vinyl chloride - is indeed more toxic than the parent compound. But, while vinyl chloride has been found in ground water at IEL (as we would expect if natural attenuation is occurring), the concentrations are low - near its MCL of 2 ppb - such that the increase in the toxicity of the daughter compound is not a significant concern.

The impact of existing and proposed active remediation measures upon the monitored natural attenuation component of the remedy, or the impact of remediation measures or other operations/activities in close proximity to the site.

The sole active component of the remedy is the methane venting system. This operates to remove some VOCs from the soil and ground water at the site in the process of extracting and venting landfill gases. EPA sees no negative effects on natural attenuation. EPA knows of no other operations/activities in close proximity to the site that might have an impact on natural attenuation.

Whether reliable site-specific mechanisms for implementing institutional controls (i.e., zoning ordinances) are available, and if an institution responsible for their monitoring and enforcement can be identified.

EPA believes that legal instruments, such as easements or covenants, could be drafted for the IEL site that would preclude the use of the property in ways that would interfere with natural attenuation or would increase the risk of exposure to contamination. Monitoring and enforcement of the land use restrictions could be made part of a settlement agreement for the IEL site.

Suitability of an Enhanced Vegetative Cover over the Landfill

EPA concluded that an enhanced vegetative cover over the landfill could accomplish three things: (1) provide a varied habitat for wildlife and increase the biodiversity of the site; (2) aid the natural attenuation of subsurface contaminants; and (3) reduce the infiltration of water into the waste mass below. With respect to the first objective, a PRP-led biological survey conducted in 1999-2000 identified a thriving and diverse ecosystem (wetlands, grassland, forest edge, and woodlands) at IEL, including diverse wildlife and flora. Based on these findings, the authors of the survey recommended various habitat enhancements (e.g., nesting program for birds, promoting a balanced predator/prey relationship, controlling invasive species, etc.) that could be implemented with a vegetative cover.

With respect to the second objective, EPA anticipates that natural attenuation processes will benefit from planting additional trees and other plants in the landfill. The various ways plants are able to clean up, or remediate, contaminated sites such as IEL by removing contaminants from the soil and water are described in more detail in the phytoremediation guidance attached as Appendix B to the FFS. The use of living plants to remove, degrade, or contain organic and inorganic

contaminants in soil or ground water is a passive technique to clean up sites with low to moderate levels of contamination, as is the case at IEL. Although this technology is used at fewer Superfund sites than more conventional technology, phytoremediation has been studied extensively in research and small-scale demonstration projects. Studies have shown that plant roots affect soil conditions by increasing aeration and moderating moisture. This provides an environment in which indigenous microorganisms (yeast, fungi, or bacteria) break down organic contaminants (food source) into smaller, less harmful products. This process is called biodegradation. Another possible mechanism for contaminant degradation is metabolism within the plant. Trichloroethylene (TCE) may degrade in certain tree species, such as poplar, with the carbon used for tissue growth while the chloride is expelled through the roots.

As for the third objective: preliminary calculations show an enhanced vegetative cover to be capable of removing enough water to render the portion percolating through the soil/waste mixture to be minimal. Computer modeling (HELP) indicates the existing vegetative cover at IEL allows about 10 inches of infiltration yearly, based on an annual precipitation of 36.8 inches (see Appendix C of FFS). With additional plants, it may be possible that up to 90 percent of the annual precipitation may be prevented from ever penetrating the soil layer, leaving about 4 inches of rainwater to percolate. With a calculated total water holding capacity (existing soil cover + top 5 feet of waste) of around 6.5 inches, it is conceivable that the enhanced vegetative cover may effectively prevent as much infiltration as a conventional cover (see Appendix D of FFS). There is a caveat to this - the plants' ability to reduce infiltration is dependent, to a large degree, on the season. It is expected the plants will not be very effective during the dormant season where there is significant moisture (snow/ice) on the ground. Thus, the plants' ability to minimize the amount of water percolating to the ground is not expected to be consistent throughout the year. In any event, it must be emphasized that EPA is not advocating the enhanced vegetative cover as a containment remedy. To the extent that it does in fact achieve containment by preventing water from percolating into the waste mass, well and good. But EPA does not view the possibility that water may from time to time infiltrate the waste mass to be a reason to reject a vegetative cover. Based on a review of nearly two decades of IEL groundwater data, EPA believes that some infiltration into the waste mass can occur without any significant negative effect.

State and community acceptance of an alternative to containment

In July 2000, the local government for the area around IEL - the Lake Township Trustees - asked EPA to delay construction of the landfill cover prescribed in the

March 2000 ROD Amendment so that additional testing at IEL may proceed. To allay any lingering fears about the site, Lake Township Trustees and the Responding Companies agreed in 2000 to conduct sixteen (16) rounds of groundwater testing, more or less on a quarterly basis, starting with the August 2000 sampling event. After further discussions with EPA and Responding Companies, the Trustees subsequently expressed interest in finding a remedy that would protect public health but would also provide more flexibility in terms of land use than a traditional engineered cap. The cap selected by EPA in previous remedy decisions would require restricting vegetation to grass over the 30-acre site. No public access was contemplated. The Trustees have asked EPA to consider remedial alternatives that would permit more varied vegetation and public access for recreational uses, e.g., as a nature preserve. OEPA expressed its willingness to consider alternatives to constructing a traditional landfill cover at IEL, including the approach described in the November 2000 petition from the Responding Companies.

V. DESCRIPTION OF ALTERNATIVES

Remedial Action Objectives

EPA's remedial action objectives for the landfill portion of the IEL site are as follows:

- *Reduce migration of contaminants in waste to ground water;*
- *Prevent potential future exposure to contaminants by ingestion and through dermal contact;*
- *Return ground water to beneficial use wherever practicable, within a reasonable time frame, given the circumstances of the site; and*
- *Ensure continued protection of community from undue risks posed by landfill gas.*

Cleanup Levels

Cleanup levels for contaminants of concern found onsite are provided in Table 3 below.

TABLE 3

Cleanup Levels for IEL Contaminants of Concern

Compound	*Concentration (ppb)*	*Cleanup Basis*
1, 2 Dichloroethane (DCA)	5	MCL - Final
cis 1,2 Dichloroethene (DCE)	70	MCL - Final
Acetone	610	R9 PRG
Benzene	5	MCL - Final
Chloroethane	4.6	R9 PRG
Methylene Chloride*	43	R9 PRG
Vinyl Chloride	2	MCL - Final
Arsenic	10**	MCL - Final
Chromium	100	MCL - Final
Lead	15	MCL - Action Level
Nickel	730	R9 PRG
Thallium	2	MCL - Final

** Effective January 22, 2001. Drinking water systems need to comply with this standard by 2006.

Description of Remedial Alternatives

The following remedial alternatives were analyzed and compared in the FFS:

Alternative 1 - No Action

"No action" is included in every EPA remedy comparison. It serves as a kind of baseline from which to judge active remedial alternatives. In this case, "no action" means "maintaining the status quo" rather than strict no action, since we do not intend to halt the operation of the existing methane venting system.

Total Capital Cost: None expected

Total Present Worth Cost over 30 years: $390,000 (2001 $). This estimated cost is based on operating and maintaining the existing MVS for 30 years. If the MVS were to discontinue operations before that, the cost would be lower.

Alternative 2 - March 2000 ROD Amendment

Alternative 2 is described in more detail in the March 2000 ROD Amendment and March 2002 FFS. For convenience, the following evaluation summary is provided:

- 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)

(Note: Assuming 3% inflation rate, net present worth of project in 2001 $ is **$15,380,000**)

Alternative 3 - Augmented Vegetative Cover/MNA

This alternative is based on November 2000 petition from Responding Companies, with some additions. It consists of the following components:

- Augmenting the existing vegetative cover with selected planting of trees and other plants at the site;
- Natural attenuation of ground water contaminants both offsite and onsite;
- Monitoring of groundwater and landfill gas;
- Perimeter fencing;
- Deed Restrictions;
- Maintenance of Alternate Water Supply; and
- Additional Design Studies

Total Capital Cost: $3,158,610 (2001 $).

Present Worth Cost of O & M over 30 years: $3,915,552 (2001 $)

Net Present Worth of Project = Total Capital Cost + Present Worth of O &M
= $3,158,610 + $3.915,552
= $7,074,162 (2001 $)

A more detailed description of Alternative 3 is as follows:

Augmented Vegetative Cover: Additional trees/plants would be planted in areas of the landfill that have less vegetative growth than other parts of the site. See Figures 5-7 of FFS showing the existing and future ecological regimes of the site (assuming the augmented vegetative cover is implemented). To the extent possible, the same type of tree species currently found in the landfill (e.g., poplars) would be used in the plantings. Due to the marshy conditions and the slope found along the eastern edge of the landfill, the type of vegetation that could be planted on this area may be limited to low-lying shrubs or grasses.

Natural attenuation of both offsite and onsite groundwater contamination: A principal objective of this alternative is to let natural attenuation processes continue within the landfill, complementing what is currently occurring in the offsite areas. By doing so, EPA believes that onsite ground water will eventually meet drinking water standards. Indeed, unlike a conventional cap remedy where the point of compliance for ground water is established somewhere outside the capped

area, this alternative will require compliance with ground water standards throughout the site.

Monitoring of Ground Water and Landfill Gas: The current groundwater monitoring network would be upgraded by installing new wells and abandoning others, as appropriate. A long-term groundwater monitoring program would be instituted in order to: 1) ensure natural attenuation processes are degrading contaminants of concern in a timely manner; 2) track progress in meeting cleanup goals along the western edge of the landfill; and 3) provide adequate notice, via off-site monitoring wells, of groundwater contaminants migrating toward areas still dependent upon residential wells for drinking water. Monitoring of gas would be required to evaluate threats, if any, to offsite homes and businesses as well as to onsite visitors.

Perimeter Fencing: The current fence around the perimeter of the landfill is deteriorating. It would be replaced and maintained until such time as it could be shown that there are no risks to those entering the landfill property.

Deed restrictions: Legal instruments, such as easements or covenants, would be drafted that would run with the land and would prohibit drinking water wells and residential development within the site boundaries until such time as it could be shown that there are no risks associated with such uses. These instruments would be recorded in the land records for the property.

Maintenance of interim measure that supplied public water to residents west of the site: The municipal water supply to the area designated in EPA's 1987 ROD needs to be maintained. Given the continued operation of the municipal water supply, in the event that any groundwater contaminants migrated away from the landfill, residents in this area would not be adversely affected.

Additional Design Studies: Design studies that include: 1) investigating elevated benzene levels in the north-central portion of the landfill; 2) a site-wide evaluation of landfill gas emissions to determine the appropriate means of gas control (i.e., passive or active); 3) investigating metallic objects detected along western edge of landfill during the October 2000 field survey work performed by the Responding Companies; and 4) an analysis of risks, if any, associated with the projected land use for the site: a nature preserve with possible public access and recreational use.

VI. EVALUATION OF ALTERNATIVES

Each alternative described above must be evaluated against the nine criteria established under §300.430(f)(5)(i) of the NCP before a remedy is selected for the site. The evaluation criteria are separated into three groups, based upon their application to the evaluation process:

Threshold Criteria:

The threshold criteria relate to statutory requirements that each alternative must satisfy in order to be eligible for selection.

- Overall Protection of Human Health and the Environment - This criterion describes how the alternative, as a whole, protects and maintains protection of human health and the environment. The overall assessment of protection is based on a combination of the other criteria, including long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs. In effect, this criterion is a final check to assess each alternative.

- Compliance with ARARs - This criterion assesses compliance with federal and state applicable or relevant and appropriate requirements. The detailed analysis summarizes requirements which are applicable or relevant and appropriate to an alternative. The analysis also summarizes the ability of an alternative to fulfill these requirements. If an ARAR is not met, the justification must be discussed fully. For convenience, an ARAR table is included in this report, summarizing the list of ARARs for this site (see Table 4).

Balancing Criteria

Balancing criteria are the technical criteria upon which the detailed analysis is primarily based.

- Long-term Effectiveness and Permanence - Examines the protection of human health and the environment after construction and implementation of the remedial alternative. This criterion addresses the long-term adequacy, reliability, and permanence of the remedial alternative and the magnitude of the risk posed by treatment residuals and/or untreated wastes.

				Regarding the Context of Remedy
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)

[redacted]				[redacted] Detail Regarding [redacted] Context of [redacted] Remedy?
II. ACTION-SPECIFIC				
1. Capping/containment of wastes (Applies to Alternative 2 only)				
a. State design operating reqmts. for hazardous waste landfills	OAC 3745-57-03(A) through (I)	Relevant and Appropriate	Establishes design and operating reqmts. 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 landfills.	Pertains to cap gas system design.
c. State reqmts. for general landfill closure, applicable performance stds. 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 landfill, incl. final cover & maintenance; 3745-55-11(A)-(C): Requires that all haz. waste facilities be closed in a manner that minmizes need for further maintenance and controls: 3745-55-17(B): Specifies post-closure requirements, incl. maintenance, monitoring, and post-closure use of property	
2. Monitored Natural Attenuation (MNA)				
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

3. Stormwater Discharge				
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 Gas Management				
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 HEL if the stack is a source air contaminants.
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
Organic emissions control from stationary sources.	OAC 3745-21-09	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

				Details Regarding Its Use in the Context of the Remedy
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.
5. Remedy Construction Activities				
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 equipment for activities conducted at the Industrial Excess Landfill Site
State rules governing grading, excavating, etc. 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 emissions from a hazardous waste facility.	ORC 3734.02(I)	Relevant and Appropriate	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.

[redacted]				
Standards for total suspended particulates.	OAC 3745-17-02(A), (B), and (C)	Applicable (to construction activities)	Establishes specific standards for total suspended particulates.	Relevant for stack emissions from expanded methane venting system and construction activities.
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.
6. Well Abandonment				
State requirements for well abandonment	OAC 3745-9-10	Applicable	State requirements for well abandonment	Obsolete wells will be abandoned in accordance with State standards.
III. LOCATION-SPECIFIC				
Hazardous Waste Facilities and Old Landfills				
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 record-keeping requirements.	IEL gas treatment system must meet these standards before operating in a passive mode.

III. LOCATION-SPECIFIC (cont.)				
Hazardous Waste Facilities and Old Landfills				
State prohibitions on certain air emissions from a hazardous waste facility.	ORC 3734.02(I)	Relevant and Appropriate	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.
Prohibition of nuisances	ORC 3767.13(A)	Relevant and Appropriate	Prohibits noxious exhalations or smells.	Pertains to any site that may have noxious smells.
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.

- Reduction of Toxicity, Mobility, or Volume - Examines the extent to which the remedial alternative achieves the statutory preference for remedial actions which permanently and significantly reduce the toxicity, mobility, and volume of contaminants.

- Short-term Effectiveness - Examines the protection of the community, worker health, and environment during construction and implementation of the remedial alternative. This criterion also evaluates the time required to implement and achieve remedial response objectives.

- Implementability - Considers the technical and administrative feasibility of each alternative, as well as availability of required resources. Factors considered in assessing this criterion include construction, reliability, operation, and maintenance of the remedial alternative, potential problems which may be encountered during the implementation of an alternative, required approvals and permits from regulatory agencies, availability of required off-site treatment or disposal services, and availability of necessary equipment, materials, and personnel.

- Cost - Involves development and evaluation of the capital cost of construction, equipment, buildings, engineering, services, and project administration, and operation and maintenance (O & M) costs of labor, spare parts, materials, and administration. In addition, the present worth of annualized costs associated with each alternative is calculated using an annual discount rate of 7% before taxes and after inflation. Costs are then compared on a common, present-worth basis in terms of a base year.

Modifying Criteria

- State Acceptance - Identifies the State's apparent preference or concerns about alternatives.

- Community Acceptance - Identifies the community's apparent preferences or concerns about alternatives.

Analysis of Alternatives

Alternative 1 - No Action

1. *Overall Protection of Human Health and the Environment:* The No Action alternative does not provide adequate protection of human health and

environment. The existing fence needs to be replaced in order to adequately prevent unauthorized access to the site. While the MVS continues to prevent off-site migration of landfill gas in an acceptable manner, there is uncertainty if the present level of landfill gas poses undue risk to authorized personnel working onsite. Lastly, there is no provision which tracks groundwater contaminant levels in and around the landfill, enabling regulatory agencies to take appropriate measures in case contaminants threaten to reach residential wells downgradient from the landfill.

2. *Compliance with ARARs:* ARARs do not pertain to "no action" decisions. ARARs only come to bear on plans for active remedial measures.

3. *Long-term Effectiveness and Permanence:* Not effective. The MVS system, along with associated extraction and collection wells, has been operating since 1987. It is not known how long this system will continue to operate in an acceptable manner. The existing fence, segments of which are in various stages of disrepair, may not be adequate in preventing unauthorized persons from entering the site in the future. This alternative does not provide a means to track the progress of natural attenuation in degrading contaminants in the ground water and to estimate how long it will take to meet cleanup goals.

4. *Reduction of Toxicity, Mobility, and Volume:* Deficient. No active treatment to reduce toxicity, mobility or volume of contamination would occur, other than continued operation of the methane venting system.

5. *Short-term Effectiveness:* There are no short-term impacts associated with implementation of the no action alternative because no construction or monitoring activities, other than what the Responding Companies already have under way, will be performed.

6. *Implementability:* No design, construction, or technical difficulties are associated with its implementation.

7. *Cost:* With the exception of operating the existing MVS, no capital or annual operation and maintenance costs are expected with this alternative. The present value of the projected annual costs of operation and maintenance of the MVS is $390,000.

8. *State Acceptance:* Due to the failure of this alternative to establish enforceable cleanup objectives, State acceptance of the no action alternative is not expected.

9. *Community Acceptance:* Based on previous dealings with local government officials and community groups, the no action alternative is not expected to be acceptable to the community.

Alternative 2 - March 2000 ROD Amendment Remedy

Alternative 2 is described in more detail in the March 2000 ROD Amendment. For convenience, the following evaluation summary is provided:

1. *Overall Protection of Human Health and the Environment:* Protective. Monitoring of natural attenuation will allow timely intervention if any unexpected increase of contamination occurs. Cap will prevent direct contact with waste.

2. *Compliance with ARARs:* Complies with ARARs. EPA expects ground water outside of landfill to meet drinking water standards. It already meets MCLs for VOCs.

3. *Long-term Effectiveness and Permanence:* Provides long-term effectiveness and permanence by reducing level of contamination off-site.

4. *Reduction of Toxicity, Mobility, or Volume:* No active treatment to reduce toxicity, mobility or volume of contamination would occur, other than continued operation of the methane venting system.

5. *Short-term Effectiveness:* Construction of the cap will present little risk to the community. There will be a temporary increase in the volume of traffic along the main road during construction.

6. *Implementability:* Cap is proven technology and easily implementable. MNA is passive type of treatment requiring minimal oversight.

7. *Cost:* $15,380,000 (2001 $)

8. *State Acceptance:* State concurred with this remedial alternative during the public comment period leading to the March 2000 ROD Amendment.

9. *Community Acceptance:* Not supported by either local government officials or local community groups during public comment period leading to the March 2000 ROD Amendment.

Alternative 3 - Augmented Vegetative Cover/MNA

1. *Overall Protection of Human Health and the Environment:* Protective. EPA believes that all significant risks posed by the landfill are addressed under this alternative. The main risk - ground water contamination - is addressed by natural attenuation through which ground water both offsite and onsite should eventually meet drinking water standards. The risks from gas are addressed by operation of the MVS, while the risks from direct contact with wastes are addressed by improving and maintaining the vegetative cover over the site. Long-term monitoring will ensure that any unexpected change in site conditions will be detected and addressed, long before it could adversely affect human health or the environment.

2. *Compliance with ARARs:* Will comply with ARARs. EPA expects that ground water both offsite and onsite will ultimately meet MCLs.

3. *Long-term Effectiveness and Permanence:* EPA has been monitoring ground water at IEL for many years. As a result, the Agency is relying on the historical pattern at the site, rather than on theoretical projections, to assess the prospects for natural attenuation. EPA believes that the site conditions promoting natural attenuation are permanent, and that they will continue to operate over time, ensuring that any contaminants entering ground water from the wastes buried in the landfill degrade naturally into harmless bi-products long before they reach any potential receptors.

   EPA believes that maintaining the vegetative cover over the landfill over the long term will not be difficult. Current site conditions indicate trees and other vegetation are thriving in the landfill. It is expected that, with proper care, the additional trees and other vegetation planted will also thrive. Based on information from other sites planted with trees and vegetation, a percentage of the original plants is expected to die off and will need to be replaced.

4. *Reduction of Toxicity, Mobility, and Volume:* No active treatment to reduce toxicity, mobility or volume of contamination would occur, other than continued operation of the methane venting system.

5. *Short-term Effectiveness:* There will be considerably fewer vehicles entering the site during construction, compared to Alternative 2, reducing the possibility of road accidents or mishaps. Construction will be completed sooner - planting of trees and other vegetation should be completed in within one construction season. The time required to meet cleanup objectives is expected to be shorter than Alternative 2 due to phytoremediation from the additional trees and plants.

6. *Implementability:* Easily implemented. The primary concern is providing essential nutrients, along with adequate moisture, to maximize the number of trees/plants that will survive to maturity (2-3 years). Agronomic data on what plant species is best suited for a particular climate in the U.S., soil/nutrient information, etc. is readily available from various sources, including federal agencies such as the Department of Agriculture.

7. *Cost:* $7,074,162 (2000 $). See Appendix E of FFS for a more detailed cost breakdown. A net present value analysis, capital, and operations & maintenance (O & M) costs were tabulated over the life of the project (30 years). Using Alternative 2 as the baseline cost for a conventional alternative, the alternative technology associated with Alternative 3 represents more than a 50% reduction in cost.

8. *State Acceptance:* The State supports this remedial alternative.

9. *Community Acceptance:* Lake Township supports this remedial alternative.

Comparison of Alternatives

This section compares the relative strengths and weaknesses of Alternatives 1, 2, and 3 against the nine criteria of the NCP.

Overall Protection of Human Health and the Environment

The No Action alternative (Alternative 1) does not provide adequate assurance that human health and the environment will be protected. Alternatives 2 and 3 both

provide adequate protection of human health and environment, albeit in very different ways. Alternative 2 relies primarily on containment. It uses proven methods to isolate the wastes in the landfill, preventing contamination from leaching into ground water. Alternative 3, on the other hand, relies primarily on chemical transformation of the contaminants. It builds on the observed groundwater trends at the site which indicate that whatever contamination leaches into ground water is rendered harmless, long before it reaches any receptor.

Compliance with ARARs

Alternative 1 would not need to meet any ARARs because ARARs do not pertain to "no action" decisions. ARARs only come to bear on plans for active remedial measures. Nevertheless, it is clear that "no action" would not meet the standards enumerated as ARARs for the active alternatives. Alternatives 2 and 3 would comply with their respective sets of ARARs. Note that while Alternatives 2 and 3 share chemical-specific and location-specific ARARs, the action-specific ARARs for Alternatives 2 and 3 differ, in that action-specific ARARs for capping do not pertain to natural attenuation. Moreover, the point of compliance would differ between Alternatives 2 and 3: for Alternative 2, the point of compliance, i.e., the point at which groundwater ARARs would have to be met, would be the landfill boundaries. For Alternative 3, EPA would require groundwater ARARs to be met throughout the site, not just at the landfill boundaries.

Long-term Effectiveness and Permanence

There is no telling what the long-term effectiveness and permanence of Alternative 1 would be, because it does not call for any further monitoring. While natural processes would be at work at the site, EPA would not be able to determine how well they were working, and would not be in a position to intervene in a timely manner in the event that site conditions changed. The long-term effectiveness and permanence of Alternative 2 depends upon the continued integrity of the landfill cap. EPA requires caps to be designed and built to prevent infiltration of rain water and snow melt into the ground below. As long as they are properly maintained, they should continue to prevent infiltration indefinitely. But, continued operation and maintenance in perpetuity is required. Plants other than shallow-rooted grasses, etc. have to be continually eliminated. Continual vigilance must be maintained to restrict access and prevent activities on the surface that might impair the integrity of the cap. The long-term effectiveness and permanence of Alternative 3 on the other hand depends upon the maintenance of the conditions that promote natural attenuation at the site. These are natural conditions requiring far less tending than a conventional landfill cap. Some replacement of trees or plants may be necessary, but the ultimate objective is to leave the landfill as a natural system that maintains itself. In sum, Alternatives 2 and 3 would both

provide long-term effectiveness and permanence; but this would require much more of an O&M effort with Alternative 2 than with Alternative 3.

Reduction of Toxicity, Mobility, and Volume

Under all three alternatives, landfill gas would be collected and treated through a gas venting system, and to this extent, all three alternatives satisfy CERCLA's preference for using treatment to reduce the toxicity, mobility and volume of contamination. In addition, all three alternatives would reduce contaminant levels in the ground water offsite via natural attenuation. Because natural attenuation is not an active, engineered technology, EPA does not view it as satisfying the CERCLA preference for treatment. Nevertheless, in breaking down contaminants, thereby reducing the toxicity and volume of contamination, natural attenuation can achieve the same beneficial results as engineered treatment. As noted above, under Alternative 1, the degree to which natural attenuation achieves reductions in groundwater contamination would be a matter of speculation, since this alternative has no provisions for regular monitoring. Alternatives 2 and 3 on the other hand would both require regular monitoring so that reductions in toxicity, mobility and volume of contaminants could be assessed. Alternative 2 would give natural attenuation less to work on, in that its impermeable cap would prevent the creation of contaminant-laden leachate. Contamination would remain locked in the landfill. Alternative 3 would enhance natural processes ongoing at the site in an effort to speed up and increase the effectiveness with which contaminants degrade into benign byproducts. In so doing, Alternative 3 appears to have the best potential for reducing the toxicity, mobility and volume of contamination at the site.

Short-term Effectiveness

Alternative 2 will require an estimated thirteen thousand truckloads of soil to be brought to the site. This increased traffic along the main transportation route may potentially present risks to residents, primarily in the form of accidents involving trucks and other vehicles on the road. Construction activities associated with Alternative 2 are not expected to result in any health risks to residents or site workers, although there may be fugitive emissions as a result removing existing monitoring wells and putting a new gas collection/extraction system in place. To minimize this, some form of dust suppression may be necessary during these activities. Alternative 3 will involve significantly less intrusive work on the landfill, along with significantly fewer materials trucked into the site.

Implementability

All of the alternatives can be implemented without undue difficulty. Alternative 1 has no technical feasibility considerations since no design or construction work is

planned. Alternative 2 is the presumptive remedy (i.e., containment) for sites such as IEL. Construction of the landfill cap/gas system at IEL is expected to be routine, having been used at numerous Superfund landfills nationwide. It is estimated construction would be completed in 18-24 months, with some time provided for shakedown of the system. Materials used in the cap/gas system are readily available (e.g., geomembrane, geonet, gas extraction well, etc.). Reliability of geomembrane and geonet, both constructed of synthetic materials, has been shown to be excellent under conditions like those found at IEL (e.g., repeated freeze/thaw). Maintenance of the cap would be minimal, primarily involving a visual inspection to ensure cover integrity is intact (e.g., check for ruts, leachate/erosion problems, mowing, weed control, etc.). The gas management system would be inspected and maintained to ensure gases are collected and treated per design specifications. Alternative 3, a technology first evaluated by EPA in 1989 to clean up contaminated sites, involves the selective planting of trees and other plants in the landfill, requiring some expertise on tree planting, knowledge on nutritional needs of plants, and proper care to maintain healthy growth of the plants. Once the plants establish themselves (2-3 years after planting), a maintenance program to periodically check on the health of the mature plants would be instituted. If necessary, dying or deceased plants would be replaced to ensure the system integrity is maintained. It is estimated that it would require less than 12 months to complete installation of the vegetative cover. Design studies and investigations on benzene and landfill gas could be conducted prior to planting and should be done in 6 months or less.

Cost

Alternative 1's sole cost is for operating and maintaining the current methane venting system over the long term ($390,000). Although Alternative 2's calculated cost ($13,665,709) is significantly higher than Alternative 3's ($7,074,162), there is a higher level of uncertainty associated with the true cost for Alternative 3 because the use of this innovative technology in Superfund projects has been limited so far.

State Acceptance

Alternative 1 is unacceptable to OEPA. The State accepted the 2000 ROD remedy (Alternative 2) at the time it was proposed; but it now supports the 2002 ROD remedy (Alternative 3).

Community Acceptance

Alternative 1 is unacceptable to the community. The local government prefers Alternative 3 to Alternative 2, but has asked for further assurances that Alternative 3 will be sufficiently protective.

Table 5 is shown below, summarizing the comparison of the three alternatives.

TABLE 5
Summary of Remedial Alternatives

Evaluation Criteria	*Alternative 1 No Action*	*Alternative 2- March 2000 ROD Amendment*	*Alternative 3 Augmented vegetative cover/ Monitored natural attenuation*
1. Overall Protection of Human Health & Environment	Not Protective	Protective	Protective
2. Compliance with ARARs	N/A	Will meet ARARs	Will meet ARARs
3. Long-term Effectiveness and Permanence	No	Provides long-term effectiveness and permanence	Provides long-term effectiveness and permanence
4. Reduction of Toxicity, Mobility, and Volume (TMV)	No active treatment other than MVS	No active treatment other than MVS	No active treatment other than MVS
5. Short-term Effectiveness	N/A	Little risk to community. Temporary increase in truck traffic on main road	Lower risk to community than Alt. 2 due to less truck traffic
6. Implementability	N/A	Easily implemented	Easily implemented
7. Cost	$390,000	$13,665,709 (1997$) ($15,380,000 in 2001 $)	$7,074,000 (2001 $)
8. State Acceptance	State acceptance not expected	State previously concurred with this alternative	State supported this alternative during public meeting
9. Community Acceptance	Community acceptance not expected	Was not supported by either local gov't or community group	Local gov't supports this alternative

The Selected Alternative

EPA has determined that Alternative 3: *Augmented Vegetative Cover and Monitored Natural Attenuation* is the best remedy for the IEL site. Both the Alternative 2 (the 2000 ROD remedy) and Alternative 3 meet the threshold criteria set out in the NCP regarding protection of human health and the environment and ability to meet ARARs. However, Alternative 3 is preferable to Alternative 2 inasmuch as it offers the opportunity to reduce contamination within the landfill via attenuation, and to permit more flexibility in land use. Alternative 3 would also cost substantially less than Alternative 2, and is therefore the more cost-effective remedial alternative.

The Remedial Action Objectives that the selected remedy must meet are described above in Section V. The particular ARARs for the selected remedy are listed in Table 4 above.

VII. STATE CONCURRENCE

During the public meeting on April 18, 2002, OEPA stated that it supports the proposed changes, provided the following conditions were met:

- A comprehensive long-term groundwater monitoring plan is designed and implemented to measure the effectiveness of MNA;
- A site-wide study of landfill gases be undertaken to ensure that landfill gases from the site continue to be controlled and, through monitoring, show that no offsite migration is occurring; and
- A perimeter fence and deed restrictions be included in the remedy.

EPA believes that all three of the State's conditions are met in the selected remedy set forth in this decision document. EPA will continue to include OEPA in future discussions concerning the long-term monitoring plan, landfill gas study, and design studies planned in the future.

VIII. STATUTORY DETERMINATIONS

EPA believes that the selected remedy will protect human health and the environment and comply with ARARs. EPA also believes that the selected remedy is cost effective and utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

The selected remedy will not satisfy the preference for remedial actions in which treatment which permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances, pollutants, and contaminants is a principal element. The lack of an offsite contaminant plume removed the need for an active, engineered treatment system. MNA will be used to break down remaining hazardous substances and contaminants in the groundwater beneath the landfill, resulting in the reduction of toxicity and volume of contamination. This will achieve the same beneficial results that an engineered treatment system would accomplish.

IX. PUBLIC PARTICIPATION COMPLIANCE

Compliance with the public participation requirements of Sections 113 (k)(2)(B)(i-v) and 117 of CERCLA, 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 about April 5, 2002.

- A thirty-day public comment period was established beginning on the day of the public meeting on April 18, 2002 and ended May 18, 2002. No request for an extension of the comment period was received by EPA.

- A public meeting was held on April 18, 2002 at the Uniontown United Methodist Church 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;

the Uniontown United Methodist Church on April 17, 2002 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.

Responsiveness Summary
For
Industrial Excess Landfill
Record of Decision Amendment
September 2002

INTRODUCTION

This document is the responsiveness summary for the Industrial Excess Landfill Superfund site located in Uniontown, Ohio. According to Superfund law, before the U.S. Environmental Protection Agency (EPA) can sign a record of decision, it is required to review and respond to significant comments received regarding any proposed remedial action. Comments from the public submitted to EPA during the public comment period are summarized and responded to in the following pages. In cases where EPA received several similar comments, EPA combined them in a single summary, and responded to them as a group. 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.

In one case, EPA departs from the format it follows elsewhere in this document, i.e., a brief summary of a comment followed by EPA's response. The Project on Government Oversight or "POGO" submitted as a comment on the proposed ROD amendment a 17-page critique of EPA's handling of radiation matters at the IEL site. In a separate section at the beginning of this responsiveness summary, EPA has provided an extensive reply.

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 is included in this document. All public comments received have been compiled and are available for review in the local information repositories.

CONTENTS

ACRONYMS AND ABBREVIATIONS

AFSC	American Friends Service Committee
Army	U.S. Army
CCLT	Concerned Citizens of Lake Township
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	Contract Laboratory Program
EPA	U.S. Environmental Protection Agency
FOIA	Freedom of Information Act
FFS	Focused 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
PPB	Parts Per Billion
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

SWCO	Super Critical Water Oxidation Process
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. POGO - "Comments on the Proposed Amendment to the March 2000 Record fo Decision for the Industrial Excess Landfill", March 17, 2002.

2. David W. Russ. Fax to Dave Novak. May 17, 2002.

3. Barbara Gullace. Public Comment Sheet (Faxed). May 16, 2002.

4. M. Jane Upperman. Public Comment Sheet (Faxed). May 3, 2002.

5. Timothy & Elizabeth Muckley. Public Comment Sheet (Faxed). April 30, 2002.

6. John Schuster. Public Comment Sheet (Faxed). April 21, 2002.

7. Kenneth Boldt. Letter to Office of Public Affairs dated May 21, 2002. Faxed same day.

8. Phyllis Dickes. Fax to Dave Novak, with attachment. May 16, 2002.

9. Marvin K. Ledgerwood. Email message to Dave Novak. May 6, 2002.

10. Dean DeMarco. Letter to Dave Novak (Faxed). May 17, 2002.

11. Patricia Schorr. Email message to Dave Novak. April 13, 2002.

12. Patricia Schorr. Email message to Dave Novak. April 15, 2002.

13. John and Cheryl Groth. Email message to Dave Novak. April 16, 2002.

14. Alan Sacco. Email message to Dave Novak. April 21, 2002.

15. Chad and Amanda Montgomery. Email message to Dave Novak. April 30, 2002.

16. Cline and Michelle MacGregor. Email message to Dave Novak. May 3, 2002.

17. Email message from "prehodickj@firstenergycorp.com" to Dave Novak. May 6, 2002.

18. Marvin, Polly, and Rachel Ledgerwood. Email message to Dave Novak. May 6, 2002.

19. Tony Niziolek. Email message to Dave Novak. May 12, 2002.

20. Kristine J. Kelleman. Email message to Dave Novak. May 15, 2002.

21. Adam Arkwright. Email message to Dave Novak. May 15, 2002.

22. Thomas J. Cowman. Email message to Dave Novak. May 15, 2002.

23. Ken Millard. Email message to Dave Novak. May 16, 2002.

24. Thomas M. Whiteleather. Email message Dave Novak. May 16, 2002.

25. Ann L. Schen. Email message to Dave Novak. May 16, 2002.

26. Richard C. Laubacher. Email message to Dave Novak. May 16, 2002.

27. Patricia Letta. Email message to Dave Novak. May 16, 2002.

28. Clair Walsh. Email message to Dave Novak. May 16, 2002.

29. Email message from gimarq@aol.com to Dave Novak. May 16, 2002.

30. Shawneen Bixler. Email message to Dave Novak. May 16, 2002.

31. Linda Kissinger. Email message to Dave Novak. May 16, 2002.

32 Kathy & Don Forsthoffer, Ricky, Katy, & Kristi Neale. Email message to Dave Novak. May 17, 2002.

33. Doug Haynam. Email message to Dave Novak. Submission of comments on behalf of Responding Companies. May 17, 2002.

34. Tom Shalala. Email message to Dave Novak. May 17, 2002.

35. Dave Russ. Email message to Dave Novak. May 17, 2002.

36. Patricia Schorr. Email message to Dave Novak. May 16, 2002.

37. Gordon Schorr. Email message to Dave Novak. Contains response to article in Cleveland Scene Magazine. May 16, 2002.

38. Rick Neel. Email message to Dave Novak. May 14, 2002.

39. Matt First. Email message to Dave Novak. April 19, 2002.

40. Patricia Schorr. Email message to Dave Novak. May 16, 2002.

41. Paula M. George. Public Comment Sheet. April 18, 2002.

42. Gary Sturgeon. Public Comment Sheet. April 18, 2002.

43. Edwin Hazlett. Public Comment Sheet. April 18, 2002.

44. Harold Thompson. Public Comment Sheet. April 18, 2002.

45. Jean M. Wright. Public Comment Sheet. April 18, 2002.

46. Julie Spicer. Public Comment Sheet. April 18, 2002.

47. Joan Rowell. Public Comment Sheet. April 18, 2002.

48. David Wells. Public Comment Sheet. April 18, 2002

49. Ernest Plant. Public Comment Sheet. April 18, 2002.

50. Ron Virgo. Public Comment Sheet. April 18, 2002.

51. Fred Hermanowski. Public Comment Sheet. April 18, 2002.

52. Helen Daily. Public Comment Sheet. April 18, 2002.

53. Shumaker, Loop & Kendrick, LLP. Responding Companies' Comments on EPA Proposed Amendment to the Cleanup Plan - May 17, 2002

54. Sharp and Associates - Responding Company Comments on EPA Proposed Amendment to the Cleanup Plan for the Industrial Excess Landfill.

55. Day Ketterer, Attorneys at Law. Comments on Proposed Changes to Cleanup Plan for the Industrial Excess Landfill Superfund Site. May 17, 2002.

56. American Friends Service Committee. Letter to Dave Novak. May 17, 2002.

57. Kathryn McChesney. Public Comment Sheet. April 18, 2002.

58. John Schuster. Public Comment Sheet. April 18, 2002

59. Letter from Gordon Schorr. Undated.

60. Lake Township Trustees. Letter signed by Sue Ruley, Ellis Erb, and Don Myers. May 2, 2002.

61. Len Horst. Public comment sheet. April 18, 2002.

62. Unknown. Public comment sheet. April 18, 2002

63. Cathy Deagen. Public comment sheet. April 18, 2002

64. Don Burrier. Letter to Dave Novak. May 10, 2002

65. Anonymous. Public comment sheet. April 18, 2002.

66. Norma Rogers. Public comment sheet. April 18, 2002.

67. F.R. and L.M. Anguilo. April 18, 2002.

68. Anthony Soppi, Jr. Public comment sheet. April 18, 2002.

69. Roy Leckonby, PhD. Letter to Dave Novak. May 8, 2002.

70. John C. Birk. Letter to Dave Novak. May 7, 2002.

71. Gaynor Lanik, RN, PhD. Letter to Dave Novak. May 8, 2002.

72. Kenneth Weider (?). Public comment sheet. April 18, 2002.

73. Betty Olenger. Public comment sheet. April 18, 2002.

74. Dallas Wallace. Public comment sheet. April 18, 2002.

75. Amy Marks. Public comment sheet. April 18, 2002.

76. Nancy R. McGlone. Public comment sheet. April 18, 2002.

77. Robert L. Johnson. Public comment sheet. April 18, 2002.

78. Mary Green. Public comment sheet. April 18, 2002.

79. Joe Crawford. Public comment sheet. April 18, 2002.

80. William J. Ahola. Public comment sheet. April 18, 2002.

81. Virginia A. Wade. Public comment sheet. April 18, 2002.

82. Rob Rose. Public comment sheet. April 18, 2002.

83. Matthew Pearce. Public comment sheet. April 18, 2002.

84. Jeanine D. Sisko. Public comment sheet. April 18, 2002.

85. Elizabeth Snyder. Public comment sheet. April 18, 2002.

86. Robert Coleman. Public comment sheet. April 18, 2002.

87. Herbert & Benson. Letter to Dave Novak. May 2, 2002.

88. C. Ickes. Public comment sheet. April 18, 2002.

89. Timothy Troyer. Public comment sheet. April 18, 2002.

90. Steven M. Sombati. Public comment sheet. April 18, 2002.

91. John D. Hubbard. Public comment sheet. April 18, 2002.

92. L. Kittle. Public comment sheet. April 18, 2002.

93. Janice Leckonby. Public comment sheet. April 18, 2002.

94. Dan DeSantes. Public comment sheet. April 18, 2002.

95. Kathryn McChesney. Public comment sheet. April 18, 2002.

96. Arthur Levin. Public comment sheet. April 18, 2002.

97. Jeannine Weber. Public comment sheet. April 18, 2002.

98. Carl & Elizabeth Hervol. Public comment sheet. April 18, 2002.

99. Claude E. Cramer. Public comment sheet. April 18, 2002.

100. Betty Nicol. Public comment sheet. April 18, 2002.

101. Bryan D. Smith. Public comment sheet. April 18, 2002.

102. Kathleen Miller. Public comment sheet. April 18, 2002.

103. Donna Hanlin. Public comment sheet. April 18, 2002.

104. Thomas Cowman. Public comment sheet. April 18, 2002.

105. John Leonatti. Public comment sheet. April 18, 2002.

106. Paula Graber. Public comment sheet. April 18, 2002.

107. Mary Ellen Bare. Public comment sheet. April 18, 2002.

108. Bob Roberts. Public comment sheet. April 18, 2002.

109. Chester. C. Hampton. Public comment sheet. April 18, 2002.

110. James Hultz. Public comment sheet. April 18, 2002.

111. Dawn Stone. Public comment sheet. April 18, 2002.

112. Jim Rhiel. Public comment sheet. April 18, 2002.

113. Dora Whitmeyer. Public comment sheet. April 18, 2002.

114. Jane Martin. Public comment sheet. April 18, 2002.

115. Brad & Cassie Sponseller. Public comment sheet. April 18, 2002.

116. D. W. Clink. Public comment sheet. April 18, 2002.

117. Stanley & Sandra Hunter. Public comment sheet. April 18, 2002.

118. Ethel M. Solzmi. Public comment sheet. April 18, 2002.

119. Larry Koepp. Letter to Dave Novak. Undated.

120. Dorothy & Donald Repogle. Letter to Dave Novak. April 22, 2002.

121. Letter to Dave Novak. Name undecipherable. Undated.

122. Nancy Stermer. Letter to Dave Novak. April 23, 2002

123. Nancy Josey. Public comment sheet. April 18, 2002.

124. Robert McNamara. Public comment sheet. April 18, 2002.

125. Mary G. Gibson. Letter addressed to ?. Undated.

126. Herbert Kagarise. Public comment sheet. April 18, 2002.

127. Harry L. Westerman. Public comment sheet. April 18, 2002.

128. Theresa & Margaret Humbert. Public comment sheet. April 18, 2002.

129. Dave R. Wells. Public comment sheet. April 18, 2002.

130. Bill Jelen. Public comment sheet. April 18, 2002.

131. Cheryl Beckwith. Public comment sheet. April 18, 2002.

132. Dan Lammlein. Public comment sheet. April 18, 2002.

133. Linda Musser. Public comment sheet. April 18, 2002.

134. David Lee. Public comment sheet. April 18, 2002.

135. Paul Ruley. Public comment sheet. April 18, 2002.

136. Paula Sepilak(?). Public comment sheet. April 18, 2002.

137. Judy Brickels. Letter to Dave Novak. May 15, 2002.

138. Dorothy Kelly. Public comment sheet. April 18, 2002.

139. Rosemary E. Kelly. Public comment sheet. April 18, 2002.

140. Kathleen A. Vigars. Public comment sheet. April 18, 2002.

141. Ron & Karen Vargo. Public comment sheet. April 18, 2002.

142. Yamelet Fleming-Martinez. Public comment sheet. April 18, 2002.

143. Judi Brightwell. Public comment sheet. April 18, 2002.

144. Terry Portofe. Letter to Dave Novak. May 15, 2002.

145. Name undecipherable. Public comment sheet. April 18, 2002.

146. Delbert G. & Phyllis H. Smith. Public comment sheet. April 18, 2002.

147. Connie Jorgersen. Public comment sheet. April 18, 2002.

148. Gloria Darst. Public comment sheet. April 18, 2002.

149. Thomas Harman. Public comment sheet. April 18, 2002.

150. The Sprague Family. Public comment sheet. April 18, 2002.

151. Laurie D'Agostino. Public comment sheet. April 18, 2002.

152. Bruce Heisler. Public comment sheet. April 18, 2002.

153. Unknown author of letter to EPA. April 28, 2002.

154. Lake Township Community Advisory Group. Comment letter on proposed amendment to the IEL ROD. April 25, 2002.

155. Norma Boldt. Public comment sheet. April 18, 2002.

156. Tom Koss & Edward ?. Public comment sheet. April 18, 2002.

157. Tom & Freeda Roberts. Email message to Dave Novak. May 22, 2002.

159. Larry Antonelli. Transcript of Public Meeting. Pages 50-52.

160. Denise Leopold. Transcript of Public Meeting. Pages 52-56.

161. Terry Portofe. Transcript of Public Meeting. Pages 56-58.

162. Al Seiber. Transcript of Public Meeting. Page 58.

163. Regina Witsaman. Transcript of Public Meeting. Pages 58-65.

164. Laurie Johnson. Transcript of Public Meeting. Pages 65-68.

165. Marcia Maslanek. Transcript of Public Meeting. Pages 68-70.

166. Terry Witsaman. Transcript of Public Meeting. Pages 70-80.

167. Christine Borello. Transcript of Public Meeting. Pages 80-83.

168. Dan Clay. Transcript of Public Meeting. Pages 83-85.

169. Cathy Magel. Transcript of Public Meeting. Pages 85-86.

170. Michelle Peamer. Transcript of Public Meeting. Pages 87-90.

171. Mary Grimet-Trent. Transcript of Public Meeting. Pages 90-95.

172. Ted Walls. Transcript of Public Meeting. Pages 95-99.

173. Sue Ruley. Transcript of Public Meeting. Pages 99-100.

174. John Ondick. Transcript of Public Meeting. Pages 100-104.

175. Norma Boldt. Transcript of Public Meeting. Pages 104-106.

176. Rex Shover. Transcript of Public Meeting. Pages 107-111.

177. Charles Kittinger. Transcript of Public Meeting. Pages 111-112.

178. Joe Mosyjowski. Transcript of Public Meeting. Pages 113-117.

179. Fred Hermanowski. Transcript of Public Meeting. Pages 117-119.

180. Tom Shalala. Transcript of Public Meeting. Pages 119-125.

181. Larry Prinze. Transcript of Public Meeting. Pages 125-127.

182. David Kidd. Transcript of Public Meeting. Pages 127-130.

183. Darlene Lansing. Transcript of Public Meeting. Pages 130-133.

184. Warner Mendenhall. Transcript of Public Meeting. Pages 133-134.

Comments from POGO [1]

Introduction

The Project On Government Oversight, or "POGO," submitted as a comment on the Agency's proposed ROD amendment an extensive critique of EPA's handling of the IEL Superfund site, focusing on radiation issues.[1] POGO views the IEL case as emblematic of the Superfund program, and hence, EPA's alleged shortcomings with respect to IEL are taken to be shortcomings of the program as a whole. In particular, POGO criticizes EPA's use of Potentially Responsible Parties to do work at sites like IEL.

POGO has publicized its conclusions by providing copies of its IEL critique to the media and to the Superfund, Toxics, Risk and Waste Management Committee of the United States Senate. In view of this publicity, EPA believes it is especially important to set the record straight. In the discussion that follows, EPA will show how POGO's critique is ill-judged and inaccurate. It consists largely of allegations unsupported by facts, illogical conclusions, partial quotations taken out of context, and carefully selected expert opinions without acknowledging the existence of contrary opinion. In general, POGO appears to be so interested in pushing its own arguments about Superfund policy that it is willing to abandon any sort of fairminded review of the record.

1. Who speaks for the community?

POGO begins by portraying IEL as a site marked by contention between "the community" and EPA over radiation issues. Over the years, there certainly has been contention between EPA and one particular community group - the Concerned Citizens of Lake Township (CCLT). But EPA would not say that CCLT speaks for the community as a whole. In fact, if we define the community to be residents of Uniontown and its environs, EPA believes that the community is, overall, supportive of EPA's current approach to the IEL Site, including radiation issues.

EPA comes to this conclusion for two reasons. First, the Board of Lake Township Trustees supports EPA's current plan to change the IEL remedy, and has pointedly dissociated itself from the opinions of CCLT about radiation at the IEL Site. The Board constitutes the local governing body for Uniontown and vicinity. Because they must periodically stand for election, the Board members are more likely to reliably reflect community sentiment than self-appointed community spokesperson like CCLT. Hence, EPA considers the position of the Lake Township Trustees to be a significant indicator of community support. Second, EPA has seen a marked change in the proportion of public comments favoring its choice of remedy for the IEL Site. EPA solicited public comment on its original remedy choice in 1989, and again, on its amended remedy proposal in 1999. In both of those instances, comments expressing outright support for

---

[1] "Comments on the Proposed Amendment to the March 2000 Record Of Decision for the Industrial Excess Landfill," The Project On Government Oversight, March 17, 2002. Hereinafter, we shall cite this document as "POGO."

EPA's remedy proposals were few and far between. However, during the most recent public comment period, many citizens filed comments favoring the proposed change in the IEL remedy. Indeed, of the 133 comments which indicated either support or opposition to the current remedy proposal, 53 percent endorsed the Agency's proposal.[2]

POGO appears to be allied with CCLT and a few others who are opposed to the Agency's actions at IEL. In view of the information presented above, however, EPA believes that POGO cannot describe its own efforts as reflecting the wishes of the community.

2. POGO mischaracterizes the issue

POGO claims that the issue before EPA is to determine "the potential for radioactive contamination" at IEL, and that, to date, the results have been "inconclusive as to whether or not radioactive contamination exists at IEL." (POGO, p. 1). POGO goes so far as to say that the data have been "highly" inconclusive - "neither indicative of the presence or absence of radioactive contamination." (POGO, p. 3).

EPA disagrees with POGO's formulation of the question. IEL is not an academic exercise where every hypothesis about radiation might be investigated. Rather, IEL is a Superfund site with known conventional contaminants where EPA must make risk management decisions in order to protect human health and the environment. The fundamental question here is whether there is any health threat posed by radiation at IEL requiring EPA to do something in addition to what it has already done or proposes to do. EPA believes the answer to this question is a definite "no."

Nor does EPA agree that the radiation data for IEL are inconclusive. With respect to radiation at IEL, EPA has examined many rounds of radiation tests over the years, and based on the consistent pattern in the data, concluded that there is no indication of radioactive contamination. For POGO to label the results of radiation testing as "inconclusive," as if this question were virtually a toss-up, simply ignores the evidence that exists.

POGO, in its reliance on the word "inconclusive," appears not to grasp the fact that to prove the negative - i.e., to prove that there is no radioactive contamination at IEL (or, for that matter, at any other site or location) - is inherently impossible to do with 100 percent confidence. Even though sampling results consistently show no evidence of radioactive contamination, someone can always suggest one more test. As EPA's Science Advisory Board (SAB) stated at the conclusion of its exhaustive, 2-year review

---

[2]The proportions given are based on comments sent to EPA or made in person at the April 18 public meeting, and not on the poll taken by the Rubber Companies or the petition circulated by the American Friends Service Committee. EPA wishes to emphasize that it does not consider the comments received to be a true poll of public opinion. Those individuals sufficiently motivated to take the trouble to submit comments may or may not represent the broader public. But within the universe of those inclined to comment on EPA proposals, it is clear that support for EPA's actions has grown since 1989.

of radiation testing at IEL, "[i]ndeed, it is not now (and never will be) possible to unequivocally establish the absence of contamination."[3] Instead, one must evaluate the weight of the evidence, rather than demanding "conclusive" proof. This the SAB did and concluded that it was highly unlikely that radioactive contamination is, or was, present at IEL.

One final comment about POGO's general approach: POGO appears to believe that any indication of non-natural radiation at IEL is significant, no matter how low the levels of such radiation might be. EPA does not agree. For radiation to be significant, it would have to be at levels above health-based standards and there would have to be pathways by which people could be exposed to it. While EPA does not believe there is any good reason to conclude that non-natural radiation exists at IEL, even if there were, the levels of radiation reported at IEL are well below health-based standards. Nor does there appear to be any viable pathway of exposure, given that nearby residents downgradient from the landfill were connected to a municipal water supply over ten years ago.

3. POGO has a distorted view of the basis for radiation testing at IEL

In reviewing POGO's critique of EPA's efforts to address radiation issues at IEL, we should begin at the beginning: why test for radiation at IEL in the first place? Radiation testing is not a part of the standard battery of analyses used to evaluate Superfund landfill sites. What prompted the Agency to include it IEL? EPA's answer is that, in 1989, when EPA made its first overall remedy decision, concern about possible disposal of radioactive material at IEL seemed to be widely shared in Uniontown. EPA believed that one way to address that concern would be to conduct radiation tests at the landfill.

Prior to 1989, the Agency had received some anecdotal reports about military vehicles with radiation symbols entering the landfill when it was operating in the late 1960s and 1970s. EPA followed up by reviewing IEL's customer records, looking for invoices listing a "military" customer; and by sending CERCLA information requests to military installations that might possibly have used IEL. These efforts produced nothing unusual. A few dump "tickets" did show a military customer. But nothing on the tickets indicated that anything other than ordinary trash was dumped at IEL. With respect to the CERCLA information requests, none of the military installations we contacted reported having disposed of anything at IEL, let alone hazardous or radioactive materials. EPA made public the results of its investigations, but community concern about radiation continued. Hence, when EPA decided to undertake some basic radiation testing in 1989, it was not because EPA thought it likely radiation contamination would be found, but rather that the results of radiation tests would help allay citizen fears.

---

[3] *An SAB Report: Review of EPA's Approach to Screening for Radioactive Waste Materials at a Superfund Site in Uniontown, Ohio,* U.S. EPA, Science Advisory Board, EPA-SAB-EC-94-010, September 1994, p. 7. Hereinafter, we shall cite this document as "SAB."

POGO has a completely different view of the need for radiation testing: POGO takes it to be virtually certain that local residents were exposed to radioactivity from radioactive material sent to IEL by the military, making radiation testing imperative. On what does POGO rely for this conclusion? First, POGO finds proof positive for landfill radiation contamination in the "numerous illnesses near IEL which typically tend to be caused by radiation." (POGO, p. 2). POGO tells us neither what these illnesses are nor the number of cases involved. POGO does not tell us anything about whether there are family histories of these illnesses, whether those who got sick were exposed to other potential causes (for example, at work), or whether the rate of incidence of these illnesses near IEL is significantly greater than in the general population. Nor does POGO explain how or why, even if an illness (e.g., cancer) can be attributed to the landfill, one can attribute that illness to radiation rather than to the known chemical carcinogens at IEL, like vinyl chloride and benzene. Finally, POGO ignores the difficulties in proving that a disease was caused by anything in the environment. The Agency for Toxic Substances and Disease Registry (ATSDR) has looked into reports of illness and birth defects in the vicinity of IEL a number of times. In its Health Consultation of July 25, 1996, ATSDR described how linking current health problems to past exposures is a very difficult process requiring extensive studies. ATSDR concluded that it could not definitively link current health problems in Uniontown residents to exposures possibly related to IEL. Apparently, POGO feels that ATSDR's reservations are not even worth mentioning.

The one case of illness that POGO does report comes in a quotation from a Dr. Elaine Panitz: "the case of Patient #1 . . . presents disturbing evidence that radiation (and possibly other carcinogens such as benzene, vinyl chloride, and chlorophenols) may be causing neoplasms [tumors] among residents surrounding the IEL site." (POGO, p. 12). The first problem with this testimony is that it is on its face equivocal. Dr. Panitz herself suggests that neoplasms could be caused by chemical carcinogens, and names several that are known to be in the landfill. Why then does POGO assume that radiation contamination, which is not known to be in the landfill, is the culprit? The second problem is that POGO neglects to explain the context in which Dr. Panitz offered her opinion. Her opinion was not offered in an independent, academic context, but rather as an expert witness for the plaintiff in a toxic tort suit involving IEL. Unsurprisingly, Dr. Panitz's conclusions were not uncontested. They were challenged by other experts, hired by the defendants.[4] The final problem is that, while POGO notes that ATSDR requested Dr. Panitz's findings, POGO neglects to mention that ATSDR concluded Dr. Panitz's report lacked sufficient information to reach any conclusions about cancer in Uniontown. [5]

---

[4]The United States was not a party in the case in question, Beltz v. Hybud Equipment Co. et al., Stark County Court of Common Pleas, Case No. 1993-CV-00720. EPA's knowledge of the case is based solely on publicly available documents obtained from the Clerk of the Stark County Court of Common Pleas. The "battle of the experts" in the Beltz case was never resolved by a judge or jury, as the case did not go to trial. It was settled out of court.

[5]Agency for Toxic Substances and Disease Registry, Health Consultation, December 13, 1994, p. 8.

POGO's second reason for deeming radiation testing essential is the "vast array" of anecdotal evidence of military disposal of radioactive material at IEL. (POGO, p. 3). POGO terms these anecdotal accounts, "strikingly similar." (POGO, p. 12). The vast array turns out to be three different accounts, which, if anything, are strikingly dissimilar.

First is the account of Liz and Harlan McGregor who recalled seeing in the early 1970s "army flatbed trucks," loaded with 50 to 100 stainless steel canisters, enter the landfill at night and dump their contents. According to the McGregors, as reported by POGO, "the canisters had hazardous markings on them." (POGO, p. 12). POGO nowhere explains how it infers from "hazardous markings" that the canisters contained radioactive materials. As a kind of ominous followup to the McGregors' story, POGO adds that, "a decade later a U.S. Army engineer visited their home in Uniontown to inspect the premises." (POGO, p. 12). What POGO fails to note is that EPA purchased the McGregor home as part of a buy-out of property needed in order to construct a new landfill cap. The U.S. Army Corps of Engineers handled the real estate transactions, as it does for most such CERCLA projects. This included sending an Army Corps employee to inspect and appraise the McGregors' house. Far from being some sort of sinister snooping in the wake of illicit disposal, the appearance of the Army engineer at the McGregors' property was part of a routine real estate appraisal.

The second account POGO reports is that of the Shover brothers, James and Rex. According to POGO, the Shovers recalled seeing tanker trucks with radiation insignia enter and leave the landfill on several occasions. POGO reports that James Shover identified them as Army trucks that were "specially designed double-lined tankers designed to transport liquid radioactive material."[6] (POGO, p. 12). It is hard to see how POGO can claim the Shovers' story to be strikingly similar to the McGregors'. A flatbed truck loaded with 50 to 100 steel canisters is nothing like a tanker truck loaded with liquid waste.

The final account of military disposal of radioactive material cited by POGO is that of Mr. Charles Kittinger, the former owner and operator of the landfill. In contrast to his previous sworn testimony, Mr. Kittinger asserted in January, 2001, that the Army disposed at IEL of three, egg-shaped, stainless steel objects containing plutonium 238, which Mr. Kittinger believed were nuclear warheads. Suffice it to say here that Mr. Kittinger's description is markedly different than either the McGregors' or the Shovers' accounts.

Besides their dissimilarity, what strikes EPA about these stories is that they were all recounted long after the incidents they describe allegedly took place and that none of them have been corroborated by any other witnesses. If, as these accounts suggest, the military repeatedly visited the landfill in trucks marked with insignia indicating hazardous or radioactive contents, or bearing very strange looking objects, it is hard to explain why they were not reported at the time, and why no one else seems to have

---

[6]EPA attempted to follow-up with James Shover, arranging a formal interview with him near his home in California, to be transcribed by a court reporter. Shortly before the scheduled interview, Mr. Shover informed EPA that he would not participate.

seen them. After all, during the period IEL operated, there were many people who lived nearby who longed to see the landfill closed. These people attended meetings of the local zoning board and reported incidents that they thought might convince the zoning commissioners to shut IEL down. In the summer of 2001, attorneys from the Department of Justice and U.S. EPA reviewed all of the zoning records for IEL archived at the Lake Township offices, including the minutes of zoning hearings. It was apparent from these records that the neighbors kept a keen eye on the landfill. Minute details were recounted, like license numbers of septic tank trucks, descriptions of suspicious cars, reports of dumping from the roadway, etc. But there were no reports whatever of any military use of the landfill or disposal of radioactive material. Attorneys from DOJ and EPA also questioned Mr. Joseph Dopler, a local government inspector, now retired, who visited the landfill frequently during its operation, and who headed an office that routinely handled complaints about local landfills. Mr. Dopler said he did not receive any reports or complaints about strange objects being deposited by the military at IEL - either through his office's standard practice for receiving complaints or from hearing rumors. If the Army were openly disposing of radioactive or hazardous materials at IEL, as described variously by the McGregors, the Shovers, and Mr. Kittinger, it is very odd that Mr. Dopler never heard about it, and that no one brought it to the attention of the zoning board.

One other point to make here: It seems inconceivable that the military could repeatedly use IEL in the manner described by the McGregors and the Shovers without Mr. Kittinger, the owner and operator of the landfill, becoming aware of it. Yet, Mr. Kittinger when questioned in detail about military use of the landfill made no mention of any such incident.[7] Given that Mr. Kittinger was willing to testify about military disposal of what he thought were nuclear weapons, there would seem to be no reason why he would not include in his testimony every other recollection he had of military disposal of radioactive or hazardous materials. The fact that he apparently has no such recollections casts doubt on the accuracy of the other anecdotal accounts.

In sum, there appears to be no substance to POGO's rationale for additional radiation testing at the IEL site. The equivocal opinion of one expert witness in a toxic tort case and three inconsistent narratives concerning military disposal do not provide any good basis for concluding that radioactive contamination is likely to be present at IEL.

4. POGO's Critique of the Kittinger Investigation is Unjust

Following Mr. Kittinger's new assertions in January, 2001, Judge John M. Manos of the United States District Court for the Northern District of Ohio ordered the U.S. Department of Justice to investigate Mr. Kittinger's allegations and report back to him. At the end of a painstaking, 9-month investigation, the Justice Department delivered its

---

[7]In a deposition on February 21, 2001, Mr. Kittinger did report that, on several occasions, the Army, using a stake truck, disposed of maintenance materials, including empty drums of what Mr. Kittinger thought was motor oil, and, at one time, empty canisters. Mr. Kittinger thought that one of the empty canisters had the name "Arzine" on it. (Transcript of Deposition of Charles Kittinger, 2/21/01, p. 31, line 21 through p. 37, line10, and p. 163, lines 4 through 21. Hereinafter, we shall cite this document as "K").

report. After reviewing the report and reactions to it by various parties including Mr. Kittinger, on November 28, 2001, Judge Manos issued a Memorandum of Opinion. The Opinion concluded that it is doubtful whether Mr. Kittinger's testimony describes an actual disposal event, and that it is almost certainly untrue that Mr. Kittinger's testimony describes an actual disposal of plutonium.

POGO attempts to discredit the investigation report, claiming that the government's "year-long investigation failed to seriously investigate [Mr. Kittinger's] allegations" (POGO, p. 3)[8] and that "EPA spent its resources attempting to discredit Mr. Kittinger and his allegations."[9] (POGO, p. 13). EPA finds these conclusions baseless and irresponsible, and invites interested parties to read the 126-page report, as well as Judge Manos's memorandum of opinion, and draw their own conclusions. While Mr. Kittinger's story strikes many people as outlandish on its face, DOJ and EPA took it with utter seriousness. As the report describes, the government made extraordinary efforts to follow up on Mr. Kittinger's testimony, trying to find evidence that would confirm or disconfirm Mr. Kittinger's story.

If the government had wanted simply to discredit Mr. Kittinger, it could have gone about things very differently. For one thing, Mr. Kittinger could have been asked to submit to a medical examination. Instead, he was asked at his deposition a few simple questions about his health and whether he was taking any medications. (K., p. 11, line 8, through p. 12, line 18; p. 176, line 21, through p. 177, line 19). For another, DOJ could have put considerable pressure on Mr. Kittinger during his deposition by repeatedly going over the contradictions between his former sworn testimony and his newly revealed story, and by reminding him of the penalties for perjury. Instead, the Justice Department attorneys treated Mr. Kittinger with unflagging courtesy, asking Mr. Kittinger only 2 or 3 questions about the inconsistencies in his testimony. (K, p. 134, line 8, through p. 138, line 2).

POGO presents a completely distorted rendition of the way the government undertook its investigation. POGO asserts that the government treated Mr. Kittinger's testimony inconsistently - in some cases expecting Mr. Kittinger to be completely accurate about events that happened 30 years ago, while in other cases dismissing his testimony as the product of a faulty memory. POGO suggests that the government took one tack or

---

[8]POGO's description of Mr. Kittinger's account stretches the facts. POGO asserts (POGO, p 13) that "Charles M. Kittinger ... went to EPA officials a year ago to admit that he had allowed the illegal disposal of nuclear materials by the United States Army at IEL." But Mr. Kittinger did not "go to EPA officials"; he first told his story to a lawyer for the Rubber Company PRPs, who in turn notified the Department of Justice. Several government and private lawyers then interviewed Mr. Kittinger together and immediately informed the Court of Mr. Kittinger's statements. Second, Mr. Kittinger never admitted to allowing "illegal" disposal of anything at IEL; he never said anything about whether he thought the disposal he described was legal or illegal.

[9]POGO refers continually to "EPA's investigation" of Mr. Kittinger's allegations. In fact, the investigation was ordered by the District Court judge and was carried out by the Department of Justice on behalf of the United States. EPA participated in and cooperated with the investigation, as did a number of other federal agencies.

the other solely on the basis of its own interest in discrediting Mr. Kittinger. In fact, the government was entirely consistent in how it treated Mr. Kittinger's testimony.

What strikes one about Mr. Kittinger's deposition testimony is how many details he recalls. For example, Mr. Kittinger identified the delivery vehicle not as just "a truck," but rather a "stake truck" with a flatbed, wooden slats along the sides, a gate that lifted up, etc. (K, p. 71, line 18 through p. 71 line 12). His description of the "eggs" was full of minute observations, like the shape of the doors, the number of screws and wires in them, the differences in the coating on the wires, etc. (K, p. 84, line 12 through p. 88, line 14). The government's questioning aimed at getting Mr. Kittinger to recall as many of these details as he could, and to find out how sure he felt about his recollection of them. For example, Mr. Kittinger was asked a number of questions about his identification of the contents of the egg as plutonium 238. He was asked whether it could have been plutonium 239, or uranium instead. (K, p. 112, lines 6 through 16). But in this case, as in a number of others, Mr. Kittinger declined the invitation to express any misgivings about the accuracy of his memory, and reiterated his original answer. Having obtained a more or less definitive statement from Mr. Kittinger about what allegedly happened, DOJ took Mr. Kittinger at his word and followed up on the details of his account. So, for instance, DOJ researched such things as the use and characteristics of plutonium 238, the likely weight of a 6 by 8 foot, stainless steel egg, the carrying capacity of an Army stake truck, etc., and reported the results. It was the facts that came out of this research that were used to evaluate Mr. Kittinger's account. POGO's suggestion, that the report simply appeals to memory lapse when it suits the government's alleged purposes, is simply wrong.

POGO gives but one example of this allegedly "inconsistent" appeal to memory lapse: a sentence fragment quoted from the investigation report concerning "the possibility that [Mr. Kittinger's] recollection of events has been colored." (POGO, p. 13). POGO does not mention the context of the quotation, which refers specifically and narrowly to Mr. Kittinger's conclusion that the objects he saw were nuclear weapons. Mr. Kittinger admitted that he came to that conclusion "over the years," even though no one involved in the disposal told him that the objects were bombs. (K, p. 109, lines 12 through 20). When asked how he came to his conclusion, Mr. Kittinger answered that he had done some research concerning nuclear weapons - he had read some books and seen some programs on television. (K, p. 42, line 23 through p. 47, line 6). Hence, the possibility that Mr. Kittinger was influenced by his later "research" arises directly from Mr. Kittinger's self-described thought processes. It is not some kind of self-serving disclaimer, as POGO intimates. More important, the simple observation that intervening years of "research" might color a witness's recollection does not change the fact that the only way to evaluate the veracity of a detailed narrative such as Mr. Kittinger's is to test the account that is actually given. POGO would, apparently, give "weight" to evidence that doesn't fit Mr. Kittinger's account because it might fit if one varied parts of his account, for example, by assuming that Mr. Kittinger was wrong about selected details of the depth and diameter of the disposal pit. But if one assumes Mr. Kittinger was mistaken about those details, then why not assume that he was wrong about what the "eggs" looked like, what he was told they contained, or even who brought them? And once one begins assuming that the story to test is a story different from the one Mr. Kittinger told, how is it possible to investigate his assertions?

POGO's examples of DOJ's supposed tactic of "insisting that Mr. Kittinger's memory must be entirely accurate or entirely a fabrication" (POGO, p. 13) are simply not honest criticism. First, POGO claims that DOJ gave "no weight . . . to evidence of a 1969 excavation because it is 40 feet from where Mr. Kittinger indicated and is smaller than Mr. Kittinger recalled." (POGO, p. 13). In point of fact, DOJ specifically acknowledged that such measurements "could be within the range of Mr. Kittinger's inaccuracy in estimating distances."[10] DOJ discounted this particular excavation only after reviewing several other factors, including the nature of the fill material and the topography of the area as determined from aerial photographs, both of which were quite different from Mr. Kittinger's description. POGO unaccountably chooses to ignore these parts of DOJ's analysis. POGO next charges that because remote sensing results showed an anomaly "a mere 11 feet deeper than Mr. Kittinger indicated," they were "entirely dismissed." (POGO, p. 13). Once again, POGO fails to mention that this was just 1 out of 6 reasons DOJ gave for its conclusion that sensing results do not corroborate Mr. Kittinger's testimony.[11]

One of the ways the government attempted to corroborate Mr. Kittinger's story was by locating and examining pertinent documents, such as IEL business records and Defense and Energy Department records concerning waste disposal practices in the late 1960s and early 1970s. POGO belittles these efforts, asserting that "the very fact that such a disposal [i.e., of radioactive material] would have been unauthorized, and in fact illegal, imply *(sic)* that record searches are not likely to be fruitful." (POGO, p. 3). POGO insinuates that, had the military been disposing of radioactive material at IEL, no record would have been made of it by anybody.

EPA believes this is almost certainly wrong. IEL required all customers to stop at a small office, state the size of the load they were dumping, pay a fee, receive a "dump ticket," and proceed to the fill. Based on interviews with IEL employees and depositions with the former owner/operators, EPA believes it very unlikely that a customer could have dumped something without a dump ticket. Any time a military unit disposed of something at IEL, a dump ticket would have been issued, with a copy retained for IEL's

---

[10]"Revised and Supplemented Report of Investigation by the United States of America Regarding Certain Statements by Charles M. Kittinger," U.S. v. Industrial Excess Landfill, Inc., et al., U.S. District Court for the Northern District of Ohio, Eastern Division, p. 97. (Hereinafter, "DOJ Report")

[11]POGO also mischaracterizes the evidence of the depth of the anomaly as compared with the depth of the hole Mr. Kittinger described. The mass causing the observed anomaly is estimated to be 10 to 26 feet below today's ground surface. The burial depth as described by Mr. Kittinger would be 37 to 40 feet below today's surface. The minimum distance between these two ranges is 11 feet. The maximum is 30 feet and the difference between the midpoints of the two ranges is 20-1/2 feet. The midpoint of Mr. Kittinger's estimated "egg" burial depth is more than twice as deep as the midpoint of the estimated depth of the anomaly-causing mass. (DOJ Report, p. 116.) Especially when considered in connection with aerial photographs showing that the area of the alleged "egg" disposal was excavated to a great depth after Mr. Kittinger left the landfill, this evidence makes it extremely improbable that the observed anomaly has anything to do with stainless steel "eggs" disposed as described by Mr. Kittinger. (DOJ Report, p. 117.)

records, and an entry corresponding to the dump ticket would have been made in a daily log. Indeed, Mr. Kittinger himself confirmed that dump tickets would have been issued even for the extraordinary military disposals he described. (K, p. 33, lines 2 through 21, p. 181, lines 4 through 24). Consequently, DOJ and EPA decided to examine all existing dump tickets and log sheets for the years Mr. Kittinger worked at IEL, looking for a sequence of military disposals matching the time pattern Mr. Kittinger described, i.e., 3 disposals all on the same day, or on 2 successive days. We found no such pattern.[12]

In reviewing the government's analysis of the IEL records, POGO again accuses the government of drawing self-interested conclusions; but as it does so often, POGO fails to engage the government's argument. At issue here is DOJ's conclusion that the Ohio Army National Guard appears to be the sole military user of IEL in spite of the fact that four IEL log entries list "U.S. Army" as the customer. DOJ reached that conclusion, through a deductive process that is completely set forth in its report (DOJ Report, pp. 17 - 20). Namely, DOJ looked for the dump tickets corresponding to the 4 log entries listing "U.S. Army" as the customer. Only one exists - the one for a delivery on October 26, 1970. The IEL dump tickets contain more space for entry of the customer name than do the IEL log sheets. On this particular ticket, the full name of the customer is given as "U.S. Army National Guard" - clearly indicating a National Guard unit, and not the regular United States Army. By comparing log entries and dump tickets, DOJ found many other instances in which long customer names were shortened to fit the log sheet. Based on these and other facts, DOJ concluded that it was reasonable to assume that the other 3 instances in which "U.S. Army" appeared in the log also referred to the "U.S. Army National Guard." But POGO, instead of pointing out some flaw in the government's logic, merely asserts that the evidence is "inconclusive" and that the government should not draw any conclusion that is in its own interest.[13]

POGO next dismisses as valueless the examination of records concerning U.S. government procedures for disposing of radioactive material. POGO suggests that since any disposal of radioactive material at IEL would have been outside the normal procedures, there is no use in looking at such records. This misses the point. The records show that the military and the Department of Energy had well developed ways

---

[12]Mr. Kittinger could not recall the precise year in which the disposal allegedly took place. Based on his recollections of other events at the time, it appeared that the year might have been 1968, 1969, or 1971. As POGO points out, and as DOJ acknowledged in its report, for 1968 and 1969, the existing IEL records are far from complete. A sequence matching Mr. Kittinger's description might conceivably be in the missing documents. However, EPA has a full set of IEL documents for 1971. Any military use of the landfill that year should have been reflected in the IEL records on file at EPA.

[13]POGO intimates that the government has a clear interest in absolving the Army of any responsibility at IEL. But EPA is part of "the government" and it participated fully in the investigation and the analysis of the IEL records. It is not at all clear why it would be in EPA's interest to exonerate the Army if evidence existed indicating the Army was a liable party. EPA has named the Army as a potentially responsible party and required it to conduct environmental cleanups at numerous sites throughout the country.

of disposing of such material, none of which involved taking it to local landfills. Given that authorized means of disposal existed, why would a government facility take a risk by disposing of radioactive material in an unauthorized manner at a local landfill? Moreover, if there were in fact incentives for the military or DOE to dispose of radioactive material illegally, we would expect to see many instances of such disposal around the country. But that is not the case. EPA is involved at a number of sites with radioactive contamination stemming from government activities, but none stem from illicit dumping at a municipal landfill. Rather, they came about through government storage or disposal of radioactive material on government property - a pattern repeated many times throughout the United States.

Another way the government attempted to corroborate Mr. Kittinger's story was through the analysis of historical aerial photography. DOJ compared Mr. Kittinger's description of the size and location of the hole in which he buried the eggs with topographical information gleaned from a series of aerial photographs, taken between 1966 and 1971. POGO finds this analysis flawed because the government reached the conclusion that the photos cast doubt on Mr. Kittinger's account, in spite of the acknowledged limitations of the analysis. Here again, POGO substitutes an adjective for an argument. It terms this part of the investigation "inconclusive" and leaves it at that. As a result, it never engages the government's position, which is based on a careful weighing of the evidence. POGO appears to hold that, unless evidence is 100 percent certain, it should have no weight at all. This is illogical and untenable.

POGO claims to find similar flaws in the government's analysis of remote sensing data, i.e., in spite of significant limitations in the testing technology, DOJ reports test results tending to disconfirm Mr. Kittinger's story. Once again, EPA sees nothing improper here. DOJ's approach is quite straightforward: it describes the limitations and problems involved in collecting geophysical data, and it takes them into consideration in evaluating the significance of the results. For the most part, the results of the geophysical testing were too ambiguous to be of much use.[14] Magnetometry did produce one unambiguous result, namely, that metal appeared to be scattered throughout the test area, rather than concentrated in one spot as Mr. Kittinger described. POGO ignores this, arguing instead that DOJ explained away "startling evidence" confirming Mr. Kittinger's account. POGO is referring here to the fact that an

---

[14]POGO asserts (POGO, p 15) that the "entire test ... relies on an assumption that is in direct conflict with Mr. Kittinger's statements." Apparently this is a reference to the fact that the combination of methods used in the geophysical investigation could only pinpoint Mr. Kittinger's stainless steel "eggs" (or other non-ferrous, electrically conductive material) if they were buried relatively far from masses of ferrous metal. Mr. Kittinger, however, testified that he buried the "eggs" in the vicinity of junked cars and trucks, i.e., ferrous metal. It could not be determined from his testimony whether the separation between the "eggs" and the junked vehicles would meet the limitations of the sensing technology. If the "eggs" (or any other non-ferrous conductor) were too close to the junked vehicles (or any other ferrous metal), then the remote sensing tests would be unable to distinguish the "eggs" from the cars and trucks. The investigators determined that it made more sense at least to look for isolated non-ferrous masses -- even if the "eggs" might not fit that description -- than to conduct no geophysical testing at all. One could imagine POGO's reaction had the investigators reached the opposite conclusion.

anomaly, i.e., an area of diminished electrical resistence, was detected in the disposal area identified by Mr. Kittinger. Anomalies of this type can be caused by stainless steel, the material Mr. Kittinger claimed the egg was made of. But, they can also be caused by other things common to landfills, such as brass, copper, aluminum, and landfill leachate. A computer model used to evaluate the data indicated that, whatever the nature of the underlying object, it was considerably smaller than the eggs described by Mr. Kittinger. Moreover, analysis of aerial photographs indicated that the source of the anomaly must have been buried years after Mr. Kittinger left IEL. DOJ lays out all of this evidence in its report. POGO pays no attention to any of it.

5. POGO's Review of EPA's Radiation Testing is Unsound

EPA's handling of radiation testing at IEL has been investigated a number of times: once by EPA's Inspector General, twice by Clean Sites, Inc., once by EPA's Science Advisory Board, and most recently by EPA's Ombudsman.[15] Without a doubt, the most extensive investigation of radiation testing at IEL was the one conducted by the Science Advisory Board (SAB) between 1993 and 1994. The Board formed an *ad hoc* panel, made up of 8 experts, including professors from Yale University, the University of Chicago, the Georgia Institute of Technology, Case Western Reserve University, Carnegie Mellon University, and scientists from the Oak Ridge National Laboratory. Their charge was to review EPA's approach to screening for radioactive material at IEL and to make recommendations on how such screening should be conducted at Superfund sites in the future. After holding 3 public meetings and reviewing a wealth of information, the Panel issued a final report on September 30, 1994.

POGO terms the SAB's conclusion that EPA's radiation testing was appropriate and adequate, a "seemingly" positive statement, made only on condition that further investigation of radiation take place. This is simply not so. Perhaps it would be useful to quote the pertinent passage in full:

> Based on all the evidence presented to the *ad hoc* panel, we judge it to be highly unlikely that radioactive contamination is, or was, present [at the IEL site]. Of course it is not (and never will be) possible to unequivocally establish the absence of contamination. Nonetheless, as noted in the response to the Panel Charge, the tests performed were appropriate and adequate to detect the occurrence of radionuclides that might be expected based on experience at sites that are contaminated with the most common radionuclides. Thus, the current weight of evidence argues that the issue of radioactive contamination should not be pursued further and the confirmed issue of chemical hazards and remediation thereof should proceed expeditiously.[16]

---

[15]The event that prompted these investigations was Region 5's invalidation of the data from the first two rounds of radiation sampling. Not one of these investigations found anything untoward or improper about this.

[16]Letter dated September 30, 1994 from Dr. Genevieve Matanoski and Dr. Jan A.J. Stolwijk, to Carol M. Browner

This comes from the transmittal letter to Administrator Carol Browner, signed by the Chair of the Executive Committee of the SAB and by the Chair of the SAB's *ad hoc* IEL panel, summarizing the results of the SAB's two-year long investigation. To be sure, in the full report, the SAB made many recommendations about how things could have been done better at IEL. Also, since at the time, EPA was poised to implement a pump-and-treat system for contaminated ground water, the SAB recommended that some radiation tests be included. But the overall thrust of the SAB's conclusions is quite clear: the SAB did not see any reason why EPA should continue to focus on radiation at IEL.

POGO notes that EPA's Ombudsman, in a set of preliminary recommendations issued in October 2000, called for some additional characterization, including trenching, at IEL. But it should also be noted that the Ombudsman asked the Region to submit comments on his recommendations, with the understanding that a set of final recommendations would not be made until after the Ombudsman had an opportunity to consider the Region's response. On October 20, 2000, Region 5 submitted to the Ombudsman a list of the factual errors in his report. On December 21, 2000, the Regional Administrator sent the Ombudsman the Region's formal response his recommendations, including an extensive critique of the rationale for additional characterization contained in the Ombudsman's report. To date, the Ombudsman has not issued a set of final recommendations.[17]

6. Looking in the Wrong Place?

POGO criticizes EPA's decision to look for radiation in groundwater samples, rather than in soil corings removed from the landfill. POGO cites the SAB for support here, but its use of the SAB report is quite misleading. The SAB did find fault with the studies on which Region 5 relied to support its contention that groundwater sampling was a better way to look for radiation than core sampling. The SAB found those studies poorly done. But the SAB never suggested that there was anything wrong with looking for radiation in ground water, as opposed to core sampling. The SAB found fault not with groundwater sampling itself, but rather with the fact that the Region oversold the case for groundwater sampling. In fact, the SAB found groundwater sampling a particularly efficient way to test for off-site migration of radioactive material from a landfill that could lead to exposure of the surrounding population. (SAB, p. 11)[18] The SAB also added that the only way a core sampling program would have a substantial

---

[17]Robert Martin, the EPA Ombudsman responsible for the preliminary recommendations, resigned from his post in April, 2002. EPA named as Acting National Ombudsman, Mary M. Boyer.

[18]Concerning the general use of groundwater monitoring for detecting the presence of radioactive contamination at a site, the SAB found that "[a] groundwater monitoring program is . . . an effective and appropriate method for determining both the presence and potential health implication or radioactive contamination at a site such as IEL" (SAB p.2). Regarding the specific groundwater monitoring program at IEL, the SAB deemed it "adequate to indicate the presence of radioactive contamination at IEL and provide future protection for public health." (SAB, p.3).

probability of detecting radioactive contamination not found by ground water monitoring would be if radioactive waste had a considerable horizontal extent, but somehow did not contaminate ground water during the times ground water monitoring was done.[19] (SAB, p. 19).

Unable to find SAB support for insisting on core sampling, POGO then turns to "outside scientists familiar with IEL." (POGO, p. 5). According to POGO, these experts, unlike the blue ribbon panel convened by the SAB, are "emphatic about the need to implement a soil coring program in addition to groundwater monitoring." (POGO, p. 5). POGO's use of the term, "outside scientists," deserves examination. POGO appears to have concluded that only someone outside the Agency would be sufficiently unbiased to see the necessity of core testing. Here, as in its analysis of the Kittinger investigation, POGO seems to have a crude view of EPA's interests, i.e., EPA would not want to find evidence of radioactive contamination at the landfill. This position, underlying so many of POGO's perceptions, does not bear scrutiny. It assumes that the source of any radiation found at IEL would most likely be the military, and that EPA would want to shield the military from liability. Neither of these assumptions is justified. Moreover, POGO's position implies that the SAB itself would be willing to tailor its recommendations in order to benefit the military. This makes no sense. The members of the *ad hoc* panel included distinguished academics and scientists. It is highly unlikely that they would risk their own professional reputations in order to rule out core testing.

POGO's references to "outside scientists," "experts," and "other scientists" rarely include any indication of who they are. This creates the impression that there are a goodly number, or that POGO is referring to general, disinterested scientific opinion outside the Agency. In fact, for the most part, POGO appears to be relying on only one person: Dr. Mark Baskaran, a professor at Wayne State University. At other points in its critique, POGO's outside scientists appear to include Dr. Marvin Resnikoff, a consultant hired by CCLT in the early 1990s, and Dr. Robert Simon, an expert hired by the plaintiff in Beltz v. Hybud Equipment. POGO presents no compelling reason why we should give the opinions of these three scientists more weight than that of 8 experts from distinguished universities and national laboratories who made up the SAB's *ad hoc* "outside" panel on radiation at IEL.

7. Background Wells

POGO reclaims the SAB as an authority in asserting that the background wells at IEL are inadequate. POGO goes so far as to say that "[w]ithout accurate background data for comparison, data compiled from the site is useless." (POGO, p. 6). This is not correct. The importance of background measurements at Superfund sites is to help EPA determine the source of site contamination. For example, background readings can help establish whether site contamination is naturally occurring, or whether it moved onto the site from an upgradient source. Where this analysis counts most is in

---

[19]Note that the requirement of a considerable horizontal spread would not fit Mr.Kittinger's description of disposal in one, concentrated spot.

making legal judgments about whether there is a basis for taking action and assessing liability under CERCLA. But with respect to important public health issues like ascertaining the level of contamination on the site or trends at the site over time, background comparisons are not necessary.

For the SAB, the issue of background measurements came up in relation to two different concerns: first - to determine whether the measured levels of radioactivity at IEL are significantly different from those found at other locations, and as a result of this difference, pose a public health concern; second - to determine whether there is any evidence that leakage from the site has impacted the local ground water, resulting in concentrations that are measurably higher than would have been present had the site never existed. (SAB, pp. 12 - 13). While the SAB found that problems with the IEL background wells made it difficult to answer the second question, regional background data from publicly-available data sets made it possible to answer the first. That is, IEL radiation data could be compared with radiation data from sampling stations throughout Ohio, and evaluated for any public health concerns. Based on these comparisons, the SAB concluded there was no evidence of unusual radiation concentrations in residential wells around IEL. (SAB, p. 15).

8. Tests by EPA and the PRPs

POGO attributes to EPA itself the conclusion that "there have been an inordinate number of errors and inconsistencies that cast enormous doubt on the accuracy of testing results from IEL." (POGO, p. 7). POGO provides no citation. In fact, this statement is in no way an accurate representation of EPA's views. Early on, there were errors, certainly, but perhaps not an inordinate number when one considers the complexity of doing radiation testing at a landfill site. EPA disagrees completely with the conclusion that errors inevitably make the accuracy of testing results doubtful.

The guarantor of the accuracy of IEL testing results is the rigorous quality assurance and quality control (QA/QC) procedures which EPA carries out with respect to all data. The QA/QC process involves reviewing sampling data, including records on how the data were collected and analyzed, identifying any errors or discrepancies, and deciding, based on well-established guidance, whether the data can be considered valid or not. Data can be validated even though errors have been committed, if the errors do not have a significant impact on the data's intended use. That is a judgment that EPA's data validators make on a regular basis and document in the reports they issue on the quality of the data. In contrast, POGO appears to take the view that data can be considered valid only if the contractor doing the work is error-free.[20] Rather than analyzing the effects of alleged errors, POGO simply lists them, and then jumps to the conclusion that all data ever collected by the errant contractor must be considered doubtful.

---

[20]It is ironic that POGO takes this position here, in that at other points in its critique, POGO wants EPA to consider the early, invalidated rounds of radiation tests.

POGO is shooting at the wrong target. If it wants to take aim at the accuracy of radiation testing results at IEL, it needs to look not at who is doing the sample collection and analysis, be it an EPA contractor or a PRP, but rather at who is doing the data validation. Data validation is a key component of a quality assurance project plan (QAPP), a document required for all work involving sampling at Superfund sites and which requires EPA approval. Because EPA approves the QAPP, it must concur on who will perform the data validation, be it the Agency itself (Fund-lead) or a third party with no affiliation with the laboratory performing the analysis (PRP-lead). In the case of IEL, EPA performed the data validation for all radiation data, using Agency personnel or contractor(s) trained to conduct such work. POGO at no point gives any example of a failure in EPA's data validation system - a system designed to overcome the errors and biases that POGO focuses upon.

EPA disagrees with one other aspect of POGO's analysis here: POGO objects to EPA's handing over responsibility for collecting radiation samples at IEL to the PRPs, "who have an obvious vested interest in the outcome of the tests." In fact, this is not at all obvious, at least not in the way POGO intends. EPA assumes that POGO means the PRPs would not want to find radioactive contamination. Yet, in each of POGO's accounts of alleged disposal of radioactive material at IEL, it is the U.S. Army that is named as the culprit. If, as POGO suggests, the U.S. military is the most likely source of any non-natural radioactivity at IEL, why would the PRPs be reluctant to find it? To the contrary, it would seem more likely that the PRPs would welcome an opportunity to find evidence they might use to argue that the United States is itself a liable party with responsibility to contribute financially to the cleanup at IEL.

Continuing with its critique of EPA's radiation testing at IEL, POGO finds fault with the Minimum Detectable Activity (MDA) levels that EPA obtained in its analyses of gross alpha and beta radiation in groundwater samples. POGO asserts that these levels were too high, and were in fact in excess of the levels for which federal regulations require additional radiation tests. POGO overlooks the fact that the regulations it cites apply to radiation tests of drinking water, not ground water. EPA maintains that the MDA levels that were obtained at IEL were appropriate for the kind of samples being analyzed. The presence of suspended solids in a sample can limit the amount of sample that can be analyzed by gross alpha and beta analysis which causes an increase in the MDA obtained. Drinking water generally has little or no solid material suspended in it, enabling an analyst to obtain a relatively low MDA level. In contrast, groundwater samples often have visible amounts of solid material - soil, sediment, etc. For these samples, MDA levels for gross alpha and beta analyses tend to be higher than the MDA levels for drinking water samples. EPA did do some filtering of the IEL samples in order to obtain a lower MDA level, but not the degree of filtering that would be necessary for sediment-free drinking water. Hence, MDA levels were sometimes higher than for drinking water, but were always lower than for unfiltered ground water. Regardless of the MDA levels obtained, the samples were subjected to additional analyses when the measured gross alpha and beta values exceeded 15pCi/l and 50pCi/l respectively.

POGO then shifts ground and faults EPA for filtering groundwater samples used in gross alpha and beta analyses. POGO claims that filtration introduces "an inherent

bias" insofar as radiation may adhere to the filtered material and be missed or ignored by the analyst. (POGO, p. 9). There are two things wrong with POGO's reasoning here. One is that it is contradictory: POGO first criticizes EPA for high MDA levels, and then criticizes EPA for filtering samples. But low MDA levels for gross alpha and beta analysis require filtering - you cannot have one without the other. The second problem is that POGO ignores the fact that, when EPA filters samples used in radiation testing, it measures radiation in both the filtered water and the filtrate. As a result, there is no inherent loss of radiation information as POGO suggests. POGO looks to the SAB for support on the question of filtration, but its citation of the SAB is misleading. It claims that the SAB found filtration to be "a problem," when in fact the SAB found no fault with filtration *per se*, but only with the way it had been executed in some instances at IEL. Overall, the SAB found the methods involving filtration that EPA used at IEL to be "time-tested and appropriate." (SAB, p. 4).

POGO takes as the larger question involved at IEL, the use of PRPs to do work at Superfund sites. Quoting a now 13-year old report that found PRP involvement led to cheaper remedies that "did not necessarily protect health and safety," POGO declares that one can "only assume" that increased PRP involvement since 1989 has exacerbated the problem. (POGO, p. 9). The first task here is to get straight what "the problem" is. POGO seems to view lower costs as problematic in themselves, as if it were preferable to have more expensive remedies. Unlike POGO, EPA does not view cheaper remedies as problems. Indeed, if PRPs can attain the level of protection of human health and the environment EPA requires more cheaply, so much the better.

It is the shortchanging of public safety that is POGO's more serious accusation. But to prove that charge, POGO needs to do more than simply assume that it is true. POGO needs to provide evidence. While POGO asserts that IEL is a case in point, its examples of alleged shortcomings in PRP radiation work at IEL do not bear out its claims. POGO suggests that the fact the PRPs did no radiation testing until 2000, and then reduced the number of wells tested from 50 to 7 after one round of sampling confirms the expected pattern, i.e., that of PRPs choosing to follow a cheaper, less protective course of action. POGO has it all wrong. In 2000, EPA had no plans for doing any further radiation testing whatsoever at IEL. It was the PRPs themselves who, in response to concerns expressed by the Lake Township Trustees, proposed to do the additional tests. Thus, in this instance, IEL provides an example of PRPs doing more than what EPA deemed necessary, not less.

9. Alleged Findings of Radiation

After characterizing sampling at IEL as marked by errors, inconsistencies, questionable methods and standards, and after calling data collected at IEL "useless," POGO, in a surprising turnabout, is nevertheless willing to accept certain results as "findings of radiation." (POGO, p. 10). POGO proceeds to list every instance in which it deems radioactive materials to have been "found" at IEL, including invalidated data, and data

that Region 5, Ohio EPA and the SAB all reviewed without coming to the same conclusion as POGO.[21]

Once again, POGO turns to "other scientists" to back up its contrarian claims. Dr. Marvin Resnikoff, CCLT's former advisor, is cited for the proposition that a gross alpha reading 140 times background measurements for the rest of the country "cannot be due to naturally occurring radioactivity." (POGO, p 10). Whether true or not, this statement is not relevant. EPA did not suggest that the reading was indicative of naturally occurring radioactivity, but rather was due to a laboratory error. When, as in this case, one sees a radiation reading that is out of line with all other results and cannot be replicated, the conclusion that it is due to lab error is justified.

According to POGO, Dr. Mark Baskaran concluded that the November 2000 sampling results show evidence of non-natural uranium, and plutonium not attributable to atmospheric fall-out. With respect to uranium, POGO quotes Dr. Baskaran as saying that the uranium results "can either be due to bad data or there is some serious contamination of non-natural uranium . . ." (POGO, p. 11). Dr. Baskaran apparently based his conclusion on the ratios of U-238 to U-235 found in the data. But an expert at EPA's National Air and Radiation Environmental Laboratory found in these ratios no indication of bad data, noting that, in fact, the ratios at IEL are similar to those in ground water throughout the United States.[22] POGO also cites Dr. Baskaran for the proposition that plutonium from a local source has been "found" in the November 2000 groundwater samples from IEL. EPA disagrees. The National Air and Radiation Environmental Laboratory performed a statistical analysis of the 2000/2001 groundwater samples from IEL, and found a slightly greater percentage of "detects" of plutonium in blank water samples prepared at the laboratory performing the analysis

---

[21]POGO appears to equate any reported level of radioactivity with a "finding" of radioactive contamination at IEL. This is inappropriate. It is the nature of radiation measurements that the analysis of any sample from any location will produce numerical results, i.e., some number will be reported for each radiation measurement made with the sample. But that is not the same thing as a finding of the presence of a radioactive contaminant. For each numerical result there is a reported measurement uncertainty which is an indicator of the confidence one should assign to the measured result. For environmental radioanalytical measurements at very low levels, as in the case of the IEL samples, the measurement uncertainties tend to be large, reflecting the difficulty in trying to distinguish between the presence of a substance at a very low concentration and its absence. Data of this type often requires a statistical analysis for interpretation. To take any single such measurement as proof of the presence of a radionuclide is unsound. (See Memorandum to the IEL file from John Griggs, National Air and Radiation Environmental Laboratory, re. Plutonium Analysis of IEL Samples, September 4, 2002.)

[22]Memorandum to John Griggs from Scott Telofski, National Air and Radiation Environmental Laboratory, re. Facts Concerning Uranium in Groundwater, September 6, 2002.

than "detects" in the actual IEL samples. These results support the conclusion that there is no plutonium in the samples.[23]

Turning to a different radionuclide, POGO reports that OEPA testing showed elevated levels of tritium on a number of occasions. POGO then cites the SAB as the source for the following statement: "While these levels are not direct evidence of harmful levels of radiation, because tritium is rarely found naturally in groundwater, they can be viewed as evidence of site-related radioactive contamination." (POGO, p. 11). Actually, the SAB did not say that such measurements can be considered evidence, but only that they could be. The SAB then goes on to offer an explanation:

> When considering whether the occasional elevated measurements provide evidence of radioactive dumping, it is essential to consider how often such measurements would be obtained if there had been no radioactive dumping at the site. Many hundreds of radiation measurements have been made on IEL water, and considering the difficulties in measuring radiation accurately, the observed levels do not support the contention of past dumping of radioactive waste. (SAB, pp. 15 - 16).

Finally, POGO returns to an old bone of contention, i.e., EPA's invalidation of the first two rounds of radiation tests in 1990. POGO quotes "an outside expert," in this case, Dr. Robert Simon, as saying that the results were "no more invalid than those from the EPA's own labs." (POGO, p. 11). Dr. Simon offered his opinion on this matter during a deposition taken in 1994 in connection with Beltz v. Hybud Equipment. Dr. Simon, a professional consultant, was hired by the plaintiff to help support his allegations that contamination from the IEL site caused the plaintiff's injuries. EPA was not involved in the Beltz litigation, and therefore has no notion of how much or how little of the IEL record Dr. Simon reviewed. As far as we can tell, he never spoke to anyone at EPA about the site. Dr. Simon's opinions were therefore untempered by any kind of dialogue with the government experts who had been working on IEL for almost 10 years by the time he got involved. In marked contrast to Dr. Simon's opinion is the conclusion of the SAB's *ad hoc* committee. Referring to the two invalidated rounds, the SAB committee stated in its final report that, "[t]he invalidation decision . . . becomes necessary and inevitable when breakdowns in the chain of custody occur, and USEPA was correct in invalidating such rounds." (SAB, p. 24). Unlike expert witnesses used in litigation, the SAB committee was not retained because it would support a particular position. It was selected from national experts in different disciplines who were brought together in order to review the IEL record and to offer recommendations on how radiation screening could be done at Superfund sites in the future. The SAB spent more than a year in a comprehensive review of the IEL record, and it solicited the views of EPA personnel who worked on the site, as well as members of the community such

---

[23]Memorandum to the IEL file from John Griggs, National Air and Radiation Environmental Laboratory, re. Plutonium Analysis of IEL Samples, September 4, 2002.

as CCLT. EPA believes that the SAB's view of this matter should carry much more weight than that of Dr. Simon.

Conclusion

EPA welcomes honest criticism. The Agency also believes that vigorous discussion of Superfund policy is a good thing. Unfortunately, as the foregoing review makes clear, that is not what we got in POGO's IEL critique. Time after time, in checking POGO's citations, EPA found that POGO had played fast and loose with sources. A consistent pattern emerged in which POGO would focus on a few radiation results, but ignore the rest; quote one part of the SAB report, but ignore the SAB's overall conclusions; pick out one part of an argument in DOJ's investigation report, and ignore the remainder. It is only by this kind of deliberate distortion that POGO, in the face of overwhelming evidence to the contrary, is able to continue to contend that radiation is a serious problem at IEL.

POGO claims to be devoted to the public interest. But the public is ill-served by groundless claims that radiation at the IEL site threatens public health and safety. These kinds of allegations needlessly alarm the community and undermine public confidence in government. U.S. EPA, Ohio EPA, and the other government agencies that have been involved at IEL for the past 20 years have labored long and hard to make sure that the public is protected. It would be a great misfortune if POGO's careless accusations succeeded in obscuring that essential truth.

Responding Companies [33, 53, 54]

10. Comment: The Responding Parties support the amendment of the Record of Decision (ROD) for IEL and augmented vegetative cover/natural attenuation remedy to remediate the site. The technical support for this approach to remediate the site is clearly established in the administrative record, including (1) the extensive sampling data and previous submissions of the Responding Companies on the previous RODs, (2) the pending Petition of the Responding Companies to amend the ROD dated November 14, 2000 ("Responding Company Petition"), and (3) numerous submissions by the Responding Companies regarding the appropriate use of monitored natural attenuation. [33, 53]

EPA Response: Duly noted.

11. Comment: Site is correctly named the *Industrial Excess Landfill Site*, which includes the 29-acre area used by operators of the Industrial Excess Landfill, as well as the 12 acres purchased by U.S. EPA and added to the site. Referring to the site as the "Industrial Excess Landfill" allows confusion with the historic landfilling operations conducted under that name. [54, pg. 1, Comment 1]

EPA Response: There is no confusion with regards to what constitutes the site. All the key documents prepared for this site (e.g., 1988 RI Report, 1989 ROD, 2000 ROD Amendment, 2002 FFS) clearly describe what the site encompassed at the time the

document was being prepared. In Figure 1 of the 2002 FFS, the site boundaries are clearly delineated, along with the outline of the area where landfilling operations took place. Subsequent to the 1991 property buyout executed by the federal government, U.S. EPA has consistently described the site to include the buyout property, along with the landfill area.

12. Comment: The site was properly closed by Ohio Law in 1980 and its closure was accepted by OEPA. [54, pg. 1, Comment 2]

EPA Response: The landfill was closed under order from the Stark County Court of Common Pleas. A closure plan, which the court accepted, was developed by a consultant under contract to the owner of the landfill. The landfill was covered with 2-3 feet of soil and seeded in 1980.

13. Comment: Responding Companies disagree that hazardous materials disposed at the landfill resulted in the release of volatile organic compounds (VOCs) and metals in the groundwater. There are many sources of VOCs and not all of these sources are associated with hazardous materials. The profile of VOCs found in the groundwater do not match the profile of hazardous materials disposed of at the landfill; thus, their exact source cannot be pinpointed. In addition, VOCs from the site have never been found in any off-site monitoring well at any detectable concentration. [54, pg. 1, Comment 3]

EPA Response: EPA disagrees with this description of the contamination at the site. During the remedial investigation of this site in the mid-1980's, it was determined that groundwater contaminated with volatile/semi-volatile organic compounds and metals existed at onsite locations and immediately adjacent to the landfill. Based upon monitoring well and residential well sampling, this contamination was known to have extended several hundred feet downgradient (west) of the site. The most highly contaminated monitoring well contained 400 ppb of assorted Hazardous Substance List (HSL) organic compounds and another 2,000 ppb of an array of tentatively identified compounds (TICs). Compounds of greatest concern included benzene, vinyl chloride, 1,2-dichloroethane. Also, organic and inorganic contaminated soils and sediments existed at scattered locations on the landfill property and were closely associated with miscellaneous materials and buried waste materials. Leachate tests conducted by OEPA in 1984 showed extremely high concentrations of certain chemicals including phenol, iron, manganese, and ammonia. In another site inspection by OEPA, elevated levels of methylene chloride were found.

14. Comment: Homes covered by the alternate water supply are not now threatened by contaminated groundwater and the degree to which these homes were historically threatened by contaminated groundwater is a disputed matter. [54, pg. 2, Comment 4]

EPA Response: The potential risk posed by contaminants associated with the landfill still exists due to presence of wastes at the site. The remedy for the site requires long-term monitoring of the groundwater to ensure potentially affected residents using drinking water wells are not at risk from IEL-related contaminants in the groundwater.

15. Comment: VOCs from IEL have never been present at harmful levels in monitoring wells outside the IEL site boundaries. [54, pg. 2, Comment 5]

EPA Response: EPA disagrees. Groundwater data generated in 1990-1993 indicated a few incidences of VOCs (e.g., vinyl chloride) exceeding the drinking water standards at some off-site monitoring wells.

16. Comment: Sporadic detections of metals in groundwater, characterized as "elevated", are not associated (and have never been associated) with the IEL activities. [54, pg. 2, Comment 6]

EPA Response: While there is some evidence to support this (i.e., background concentrations for some metals are also elevated), EPA cannot, with complete certainty, say this is the case.

17. Comment: The remedy does not (and should not) seek to retain water in the cover and reduce leachate. The amounts of water infiltration at the site (and the associated biologically-necessary nutrients carried to the microbes by this infiltration) have been shown to be effective at engendering the natural attenuation processes through 15 years of testing. There is no reason to believe that these processes will be enhanced by reduced leachate volume and fear that they may be interfered with, should leachate volume production be dramatically decreased. [54, pg. 2, Comment 7]

EPA Response: EPA disagrees. Section 3 of the FFS talks about the purpose of the vegetative cap in detail. The additional plants envisioned in the augmented vegetative cover are expected to further reduce infiltration, based on results from various field studies nationwide and the Agency's experience with employing this cover type in a growing number of Superfund sites. While infiltration is expected to be reduced, the added vegetation will site will also enhance biodegradation of remaining contaminants in the areas around the root zone (rhizosphere), enhancing the natural attenuation process.

18. Comment: Responding Parties believe natural attenuation satisfies CERCLA's preference for treatment. Even though it is not an engineered technology, it accomplishes significantly more treatment than the RCRA cap alternative, which is only a containment remedy. Thus, natural attenuation should be rated more highly when evaluated against the CERCLA preference for treatment. [54, pg. 3, Comment 9]

EPA Response: EPA does not view monitored natural attenuation as satisfying the CERCLA preference for treatment. Nevertheless, in breaking down contaminants, thereby reducing the toxicity, mobility, and volume of contamination, natural attenuation can achieve the same beneficial results as engineered treatment.

19. Comment: Emphasize that thallium and arsenic are present in off-site wells at background levels. [54, pg. 3, Comment 11]

EPA Response: Most recent monitoring data appears to support this comment. In the past, thallium and arsenic were detected above their respective drinking water

standards at some off-site monitoring wells. They were also detected in background wells during those same surveys.

20. Comment: Alternative 3 should be considered to "Meets Criteria" for Evaluation Criterion #4 (Reduction of toxicity, mobility, or volume). In addition, Alternative 3 better meets Criterion #3 (Long-term Effectiveness and Permanence) and Criterion #6 (Implementability) than Alternative 2. [54, pg. 3, Comment 12]

EPA Response: Although Alternative 3 does not satisfy the CERCLA preference for treatment, it is expected to achieve the same beneficial results of reducing the toxicity, mobility, and volume of contaminants in the groundwater as engineered treatment. Alternative 3 addresses Criterion #4 (Reduction of Toxicity, Mobility, and Volume) by using natural attenuation processes, aided by the phyto component of the remedy. This combination is expected to accelerate the timeframe for achieving cleanup goals from what is expected with Alternative 2. For Criterion #6, Alternative 2 is estimated to require 18-24 months of construction, while Alternative 3 would require less than 12 months.

21. Comment: Definitions for arsenic, benzene, 1,2-dichloroethane, metals, thallium, and vinyl chloride require some modification. It should be pointed out that arsenic and thallium are naturally occurring. The definition for benzene does not include any non-industrial sources such as cigarette smoke, fuel combustion, and volcanos. The definition for 1,2-dichloroethane does not include likely sources of this constituent, such as dry cleaning solvent, paints, coatings, and adhesives. The definition of metals should clarify that "positively-charged metals can dissolve in water to varying degrees. Vinyl chloride, which is a gas that is present at the site, did not come from vinyl chloride disposal. The source of vinyl chloride is the decomposition and/or natural attenuation of other chlorinated organic compounds. As a result, the vinyl chloride is not expected to ever be present at greater than part per billion levels. [54, pg. 2, bulletted items under Item 13 - Glossary]

EPA Response: Duly noted.

22. Comment: Plume maps shown in Slide 16 during the April 18, 2002 public meeting are completely inaccurate. Per EPA's FFS, page 24, there is no indication of a plume at IEL. These inaccurate maps are derived by lumping detections of a whole suite of different non-hazardous salts with the hazardous constituents. Responding Companies agree that the extent and number of constituents is much smaller. [54, pg. 4]

EPA Response: EPA stands by the plume maps depicted in Slide 16 of its presentation during the April 18, 2002 public meeting. The oldest plume map was taken from the 1988 RI report and was developed after extensive sampling of both residential and existing monitoring wells within the landfill. The more recent plume maps, based on 1992 and 1998 data, were taken from a fact sheet prepared by Sharp, on behalf of the Responding Companies, after the 1998 sampling round was completed. The statement made on page 24 of the FFS (i.e., no indication of a plume)

is clarified to mean that there is no longer evidence that a plume of contamination outside of the landfill boundaries exists.

23. Comment: On Slide 23, it should be pointed out that reduction of infiltration of water into the waste is not and should not be an objective of the remedy. [54, pg. 4]

EPA Response: See EPA Response to Comment No. 17.

24. Comment: Site-wide landfill gas emissions have already been extensively and exhaustively studied by OEPA at a time when methane generation at the site was occurring at a far greater rate than it is today. In addition, the generation of methane from landfills has been well-studied and well-modeled. [54, pg. 4]

EPA Response: EPA believes a site-evaluation of landfill gas emissions is needed. This could be performed even after construction of the remedy has been completed. In Section 3, page 29 of the FFS, the purpose of such a study is explained - it is to determine the appropriate means of gas control (i.e., passive or active). Data from such a study may also be useful in the conduct of a risk analysis associated with the projected use for the site.

25. Comment: The Responding Companies contend that access to the formerly landfilled portion of the site is not an essential part of the remedy and evaluation of risks associated should not be included with the additional design studies. They argue that an evaluation of risks associated with future land use is outside the scope of CERCLA's remedial purpose. They also assert that current site security measures, including the landfill fence, should be maintained. [54]

EPA Response: EPA mostly disagrees with these comments. EPA policy specifically provides for considering land use in selecting a CERCLA remedy. (See "Land Use in the CERCLA Remedy Selection Process," OSWER Directive No. 9355.7-04.) The land use in the near future for the landfilled portion of the IEL site is projected to be a nature area. While such a use would not require access for recreational purposes, it would not rule it out either. Indeed, presentations made by the Rubber Companies, together with the supporting materials they submitted to the Agency, clearly contemplate recreational access. For example, "Opportunities for Wildlife Habitat Enhancement at the Industrial Excess Landfill," a report written by the Wildlife Habitat Council and submitted by the Rubber Companies to EPA, states that "the site could possibly be opened to the community as a whole, or to certain groups or schools . . . . A nature trail could be incorporated into the existing grassy path that goes around the landfill . . . . Interpretive stations at certain points along the trail can be valuable educational tools. Developing these stations would also make an excellent partnership between the school or scout groups . . . . " (p. 35). The question is whether such recreational use, given the current state of contamination in the landfill, is safe or not.

Every remedy proposal EPA has made at IEL has called for deed restrictions. Their purpose is twofold: (1) to prevent interference with other aspects of the remedy, e.g., maintenance of the landfill cap, and (2) to prevent access that could result in unsafe exposure to contamination. The current remedy is no exception - it too calls for deed

restrictions. But just how restrictive they need to be will be determined during the design stage of the project. EPA sees no difference in principle between fine-tuning institutional controls during remedial design and fine-tuning engineering controls such as pump-and-treat or gas-venting systems. The last EPA-approved risk assessment of IEL was completed in 1989. Since then, much has changed. Contamination levels in ground water both on and off-site have gone down. Gas generation has declined. Moreover, for the first time, EPA is selecting a remedy that would not as a matter of course prohibit recreational use. As a result, EPA believes that remedial design should include an assessment of potential risks associated with occasional recreational use of the site, given current conditions, before the Agency finalizes plans for the adoption of institutional controls.

One potential outcome of such an assessment might be a re-evaluation of the necessity of the landfill fence. Maintaining a fence in perpetuity around the perimeter of a 30-acre landfill like IEL is not inexpensive. If a risk assessment shows that such a fence is unnecessary (at least for the purpose of preventing people from being exposed to contamination), EPA could consider eliminating it as a component of the IEL remedy.

26. Comment: Mr. Louis E. Tosi, an attorney representing the Responding Companies, submitted as a comment on their behalf an endorsement of the proposed remedy. Mr. Tosi's comment includes a discussion of the reasons the Responding Companies believe the proposed remedy is better than the 2000 ROD remedy. Also included is a discussion of deed restrictions at the site. [53]

EPA Response: EPA acknowledges the Responding Companies' endorsement of the proposed remedy, but does not agree with everything the Companies cite as reasons for choosing it over the 2000 ROD remedy. The Responding Companies assert that only the proposed remedy meets the threshold criteria of protecting human health and the environment. EPA disagrees. EPA believes that both the 2000 ROD remedy and the 2002 proposed remedy meet the threshold criteria. In its response to comments issued in March 2000, the Agency defended the 2000 ROD remedy against the very same claims that the Responding Companies raise here, and that response is incorporated herein by reference.

The Responding Companies also assert that the NCP balancing criteria favor the proposed remedy over the 2000 ROD remedy. EPA agrees with this, but our analysis is somewhat different that the Responding Companies'. Groundwater data collected since 1999 shows that improvement in groundwater quality is continuing, both off-site and on-site As a result, EPA believes that the long-term and short-term effectiveness of natural attenuation is clearer now than it was three years ago. These factors together with cost make the proposed remedy preferable to the 2000 ROD remedy. We do not agree with the Responding Companies that natural attenuation meets the statutory preference for treatment in CERCLA § 121. In the Agency's view, the statute is referring to active, engineered means of treatment, and not the passive operation of naturally occurring processes.

27. Comment: There have never been any IEL-related exceedances of federal drinking water standards off-site. The sporadically-detected exceedances were either

related to inadequate sampling methods (in the case of metals) or not IEL-related (both metals and organics). [54]

EPA Response: EPA disagrees. See response to Comment No. 13 above.

28. Comment: The identification of "a plume of groundwater contamination attributable to IEL that extended approximately 1,000 feet west of the site." is not an accurate attribution. There has never been a plume of groundwater contamination attributable to IEL west of Cleveland Avenue, let alone 1,000 feet west of the site. [54, pg. 4]

EPA Response: See EPA response to Comment No.13 above. The FFS was describing the groundwater conditions around IEL during the RI (1985-1988). It is not a description of the current situation at the site.

29. Comment: As detailed by the U.S. Department of Health and Human Services' Agency for Toxic Substances and Disease Registry (ATSDR) reports, the few constituents detected in the residential air "indicate that the detected contaminants resulted from household sources". The identification of unacceptable risks via a groundwater pathway derive from conducting that risk assessment using data collected using less accurate sources (both metals and organics). A subsequent risk assessment performed by the Responding Companies showed no unacceptable risk to human health or the environment from the IEL site. [54, pg. 4]

EPA Response: EPA stands by the risk assessment it prepared as part of the 1988 Feasibility Study, leading to the 1989 ROD. The immediate risk posed by contaminated groundwater from IEL was addressed by construction of an alternate water supply for residents found to be potentially affected by the landfill. This alternate water supply was completed in 1991.

30. Comment: Vinyl chloride and tetrachloroethylene were not found in any of the monitoring wells during the RI. They were only found in the "residential" wells located in the vicinity of 12600 Cleveland Avenue - associated with contamination that most likely came from that site. Benzene has never been detected above federal MCLs outside the landfill boundaries. Barium and nickel are naturally-occurring metals; once modern, more accurate techniques were used, detections of these constituents were shown to be associated with background conditions. Nickel no longer has an MCL. It has been withdrawn.

EPA Response: In 1988, EPA detected vinyl chloride in three residential wells (RW 05, 38, and 39) and tetrachloroethylene in one residential well. EPA disagrees with the implication that these contaminants, which are normally associated with industrial activity, came from the residences themselves. EPA believes these contaminants came from the landfill based on the known contaminants disposed at the landfill and the hydrogeology of the site.

31. Comment: The exceedance of the chromium MCL is associated with a single off-site well. No other on-site or off-site well exceeds the chromium MCL. The most recent

test of that well showed chromium concentrations to be less than MCL. The chromium detected in that well is not related to IEL.

EPA Response: The elevated chromium levels were detected in monitoring wells located in the southwest corner of the site (MW-25 and MW-18). MW-25 is an off-site well, while MW-18 is on the fenceline. The latest available groundwater survey (September 2001) indicated this parameter was significantly below its MCL at these wells.

32. Comment: Responding Companies do not agree that additional investigation of the area outside the landfill (near the back of the tire shop) is necessary. No off-site metals contamination is coming from the landfill.

EPA Response: A followup investigation is needed, in EPA's opinion, to 1) further delineate the horizontal and vertical extent of the metallic objects found and, more importantly 2) determine if there is a possibility that groundwater may be impacted by such objects (i.e., whether such objects may contain contaminants which may leak and migrate to the groundwater). This latter concern becomes more important since an impermeable cap, which would have covered the area over the metallic objects, will no longer be constructed.

33. Comment: Groundwater downgradient of the site (within 1,000 ft.) is not a realistic public drinking water source (given that public water has been supplied to that area). In addition, it is inconceivable that the local public water authority would ever consider developing groundwater resources immediately downgradient of IEL given the site history.

EPA Response: Although the alternate water supply has been in place since 1991, there are still a handful of residents in the area who use their drinking wells for various purposes, not to mention homes close to the Summit County line still using private wells. In a nutshell, there still exist potential receptors to contaminated groundwater from the landfill. Moreover, while ground water downgradient of the site may not currently be used by many residents for drinking water, absent contamination from the site, there is no reason why it could not be in the future. The National Contingency Plan calls for the return of usable ground waters to their beneficial uses wherever practicable.

34. Comment: Although MCLs may properly be considered relevant and appropriate chemical-specific ARARs, these values should only be considered relevant and appropriate at the tap of a public water system that has at least 15 water service connections or 25 users. Thus, the numerical values detailed in Table 2 as "Cleanup Levels" are relevant and appropriate only for a compliance point of the tap of a public water supply.

EPA Response: EPA disagrees with this analysis. MCLs are *applicable* to water at the tap of a public water system. EPA considers them *relevant and appropriate* standards for ground water in an aquifer that is or may be a source of drinking water.

35. Comment: The groundwater cleanup levels for IEL are risk-based and have already been achieved both on-site and off-site as noted in the Baseline Risk Assessment for the Industrial Excess Landfill Site, Uniontown, Ohio (1995), as supplemented by a Supplemental Baseline Risk Analysis for IEL in 1999. The baseline risk assessment shows that the site does not pose any unacceptable risk to human health or the environment given current concentrations found in groundwater. As a result, the risk-based cleanup standards have already been met.

EPA Response: EPA rejected the conclusions made in the 1995 Baseline Risk Assessment, submitted by the Responding Parties as part of its comments on the 60% RD Report. The Agency determined that procedures were not correctly followed in the preparation of the risk assessment. Specifically, groundwater data from certain monitoring wells were omitted from the calculations, resulting in risk values of questionable validity.

36. Comment: The sections of the Ohio Administrative Code (OAC) relating to state operating requirements for hazardous landfills should not be considered relevant and appropriate at IEL because it operated and was properly closed under Ohio law prior to the promulgation of any of these standards. In addition, the classification of "hazardous landfill" did not exist during the time IEL was operating.

EPA Response: EPA disagrees. The fact that Ohio's operating requirements for hazardous landfills were adopted after IEL closed means that they cannot be considered *applicable*. But EPA still considers them to be *relevant and appropriate* because of the similarity between the contents of hazardous waste landfills and IEL.

37. Comment: The sections of the OAC relating to closure and post-closure requirements for landfills should not be considered relevant and appropriate at IEL because the site operated and was properly closed under Ohio law prior to the promulgation of any of these standards.

EPA Response: EPA does not agree that standards promulgated after a landfill stopped operating cannot be ARARs. While not necessarily applicable, such standards may be relevant and appropriate. EPA considers the standards at issue here to be relevant and appropriate standards for capping/containment of wastes in landfills, and therefore listed them as ARARs for Alternative No. 2 (RCRA cap) at IEL

38. Comment: OAC 3745-21--07 should not be considered applicable; rather, OAC 3745-21-09 is the applicable regulation concerning control of emissions of volatile organic compounds from stationary sources (because the site is located in Stark County).

EPA Response: Agree.

39. Comment: Several of the OAC standards listed as applicable to stack emissions from the landfill gas venting are not (precisely) applicable to the stack emissions: rather, they are applicable to ambient air conditions.

EPA Response: EPA lists them as applicable to stack emissions because that is the activity at IEL that might affect ambient air conditions.

40. Comment: ORC 3734.02(H) is applicable to remedial actions, occurring on land where a solid waste facility was operated. It was a solid waste facility and not a hazardous waste facility.

EPA Response: EPA did not list ORC 3734.02(H) as applicable, but rather as relevant and appropriate.

41. Comment: ORC 3734.02(I) is not applicable to construction activities because it applies to owners or operators of hazardous waste facilities. IEL is not properly defined as a hazardous waste facility. Therefore, ORC 3734.02(I) should not be considered a location-specific ARAR.

EPA Response: This provision should have been classified as relevant and appropriate, rather than applicable; but it is still an ARAR.

42. Comment: OAC 3745-17-02(A) concerning ambient air quality standards is not rigorously applicable to any particular activity because it covers ambient air quality irrespective of source.

EPA Response: This comment does not provide a reason to eliminate this provision as an ARAR. EPA listed it under construction activities, because these are the actions most likely to have affects on air quality falling under the regulation.

43. Comment: ORC 3767.13(A) prohibits noxious exhalations or smells from a place used in the exercise of a trade, employment, or business, or for the keeping or feeding of an animal. We do not see how this section should properly be considered relevant and appropriate to the IEL remedy.

EPA Response: IEL is a place formerly used in the exercise of a business, and it may still be capable of producing noxious exhalations or smells. Consequently, EPA deems this provision to be relevant and appropriate.

44. Comment: As noted above, the parent compounds (and the subsequent daughter compounds) noted in residential wells at the western edge of the landfill during the RI appear to have a non-landfill source.

EPA Response: EPA stands by the findings made in the 1988 RI Report for IEL.

45. Comment: The Responding Companies do not believe that any additional studies are needed to select and implement the remedy.

EPA Response: EPA does not believe that additional studies are needed to *select* the remedy. But, for reasons stated in the 2002 FFS, EPA believes that additional studies are necessary to design and implement the 2002 ROD remedy.

46. Comment: The Responding Companies agree that the fence should be maintained, but do not understand why EPA would require that it be replaced.

EPA Response: The existing fence is deemed by EPA to be inadequate for the purpose of preventing entry to the landfill portion of the site. There are sections of the existing fence that are damaged and require repair. But, if an evaluation of risk, conducted during remedial design, shows that it is not necessary to prevent entry to the landfill in order to protect human health, EPA could reconsider the fence component of the remedy. (See response to Comment No. 25).

47. Comment: The site has never been planted. Although some die-off of individual plants is expected, far more plants/trees are expected to grow at the site than die off. The biologist from the Wildlife Habitat Council indicated that mowing of portions of the site may be needed to control excessive encroachment of the forest and protect the edge environments essential to several species' habitats. After establishment of habitat, additional plantings are not expected to be necessary.

EPA Response: The site was seeded as part of the closure activities completed in 1980. EPA expects a certain percentage of trees/plants that will not survive and will require replacement over the length of the project. This has been what has been observed at phyto sites that have already been operating for some time.

48. Comment: Responding Parties do not think the statement about all of the remedial alternatives being implemented without any difficulties is accurate. The simple logistics of Alternative 2, which involves an 18-24 month heavy construction project, including mobilizing heavy equipment, personnel, and >12,000 truckloads of soil, etc. guarantees difficulties with implementation.

EPA Response: EPA's statement refers to the technical and administrative feasibility of implementing the three remedial alternatives. Alternative 2, the 2000 ROD remedy employs standard technology that has been used at many Superfund sites in the past. Based on that experience, EPA would expect no significant implementation problems with Alternative 2.

Long-term Groundwater Monitoring

49. Comment: Several commenters recommended that long-term groundwater monitoring be included as part of the remedy being proposed by the Agency. [4, 15, 69, 72, 97, 99, 108, 112, 114, 115, 159, 173, 180]

EPA Response: EPA agrees. A long-term groundwater monitoring program is part of the 2002 ROD remedy. The monitoring program will be developed during remedial design, and will be implemented during the operations and maintenance phase of the project. The monitoring program will track the progress being made in meeting the cleanup goals established in the ROD Amendment and will ensure continued protection of human health and environment.

Monitoring Landfill Gas

50. Comment: The landfill gas should be monitored to ensure the landfill gases from the site continue to be controlled and, through monitoring, show that no offsite migration is occurring. [159, 173, 180]

EPA Response: EPA agrees. Recent tests suggest that little landfill gas is currently being generated. Moreover, punch bar tests performed by OEPA a few years ago - while the MVS was not operating - confirmed the absence of landfill gas on the western edge of the site. Nevertheless, the MVS will continue to be operated to ensure that there is no threat to human health or the environment from the offsite migration of landfill gases until such time as gas studies at the site indicate it is safe to shut down.

51. Comment: EPA continues to fail to monitor possible reformation of toxic gases from incomplete combustion of the flaring of the vent gases into the ambient air over Uniontown, particularly dioxins, furans, and radon. [167]

EPA Response: EPA believes that, in the case of IEL, the possibility of dioxins and/or furans forming during combustion of landfill gas is highly unlikely. This is due to the relative lack of contaminants in the landfill gas that are considered precursor compounds (e.g., polochlorinated biphenyls, chlorobenzene), the lack of an air pollution control device where dioxin/furan formations are expected to occur, and operating conditions in the MVS that feature significantly higher combustion temperatures than the ideal range for dioxin/furan formation (450°F - 750°F) and shorter residence times than incinerators or industrial boilers and furnaces.

52. Comment: Methane and other gases need to be further studied. [180]

EPA Response: EPA agrees.

Flyash

53. Comment: Bottom and flyash derived from Ohio coal has been known to exhibit low-level radioactivity. Since flyash has been known to have been disposed at IEL, there is serious concern about the migration of radon flowing with the methane out this unlined landfill. [160]

EPA Response: EPA has seen no evidence of low-level radioactivity in flyash at IEL. Testing at the site, including tests for radon, show no levels of radiation above those considered to be background for Ohio.

Phytoremediation

54. Comment: One commenter was skeptical about using phytoremediation at the site, saying that EPA has not presented data clearly demonstrating soil microbes are capable of assimilating synthetic compounds that are not found in nature. Another

commenter said it's an unproven remedy; in short, it's an experiment. Growing trees and shrubs on the land to purify the landfill is a nice idea, but it will not work at this site. This is too big an issue to just try to ignore with vegetation. [31, 39]

EPA Response: EPA does not agree phytoremediation is an unproven remedy (i.e., an "experiment"). Although it is a relatively new technology, there is adequate scientific research on phytoremediation at this point to merit its use on Superfund sites (it is currently applied at about two dozen Superfund sites and approximately 180 other sites). Regarding the comment about soil microbes, there is technical literature on the effects of plant root exudates on microbial activity in the surrounding soil. EPA sees no reason why similar effects would not occur around the roots of plants (rhizoshpere) at IEL. Consequently, EPA does not agree that further studies are necessary before the remedy can be implemented.

55 Comment: A phytocap is much more than just planting trees. The community would be involved to help the site restored to plants, trees, shrubs, wildflowers, stuff that was there before man came in and destroyed it. If this path is taken for IEL, it will establish a meaningful asset to the community and get rid of contaminants, instead of leaving it there to debate about forever. [165]

EPA Response: Duly noted.

56. Comment: One commenter wanted some statistics on Superfund sites being cleaned up with phytoremediation. [81]

EPA Response: Statistics on the use of phytoremediation at Superfund sites can be found in EPA's guidance document, *"Introduction to Phytoremediation", EPA/600/R-99/107, February 2000* and the website for the Remediation Technologies Development Forum (RTDF) at *http://www.rtdf.gov*. According to the latest information, there are approximately two dozen Superfund sites nationwide that are using some form of phytoremediation.

57. Comment: What is the exact nature of contamination in the ground at IEL? In the same Citizen's Guide, EPA states that phytoremediation "is most useful at sites with shallow, low levels of contamination." Is this the case at IEL? [81]

EPA Response: EPA assumes the comment relates to groundwater contamination, not soil. If it does, the following answer is provided - groundwater contamination at IEL is found in only a few wells within the landfill, is low level (with the possible exception of benzene), and is generally localized in the uppermost, or shallow, segment of the aquifer.

58. Comment: One commenter finds it highly unlikely that trees can produce microorganisms in the root zone to break down organic contaminants into smaller, less harmful products. [126]

EPA Response: This is incorrect. Numerous studies have found that roots do indeed promote a viable/denser microbiological community in the surrounding area (i.e., rhizosphere) as a result of the release of plant exudates (e.g., fats, sugars, etc.) around the root zone.

59. Comment: Many of the solvents would be in barrels (some could be leaking). How do the trees know where these barrels are under the ground? Depth of the contaminants are at various levels and who can predict how deep the tree roots grow or spread out to cover the entire landfill. [126]

EPA Response: Tree roots need not reach the lowest depth of contamination at IEL for the remedy to work. The most important component of the remedy is natural attenuation and that will take place even below the root zone.

60. Comment: One commenter complained that EPA's proposal did not establish a definite time period over which phytoremediation would be expected to clean up the site. [169]

EPA Response: It is difficult to predict how long it may take for natural attenuation, aided by vegetation on the surface of the landfill, to reach the cleanup levels EPA has established on-site. (Cleanup levels are already being reached off-site). Natural attenuation alternatives are sometimes faulted because the time required to clean up something by natural means may be much greater than by conventional engineering methods. For example, a pump-and-treat system might be able to clean up an aquifer much more quickly than natural attenuation. But that is not what we are dealing with here. For the IEL site, the choice is between a landfill cap, in which we assume no cleanup will take place and that the contamination in the landfill must be contained forever, and a natural attenuation remedy, under which the contamination in the landfill will progressively diminish. Even if it takes a long time to reach cleanup levels, the natural attenuation remedy is superior to the cap remedy insofar as it promises to eventually restore the site.

61. Comment: Commenter says EPA uses a "black box" process - after it takes groundwater measurements, EPA speculates that the toxins buried at the landfill have been transformed through a process unknown or unseen (thus a black box). The problem is that EPA assumes 1) the measurements are capable of detecting toxic effluent at any time that it passes outside of the containment and 2) this "black box" process will function uniformly over different conditions. In the case of IEL, these are not realistic nor safe assumptions. [39]

EPA Response: EPA is not sure what is meant by "measurements". In any case, the Agency's MNA guidance document (OSWER Directive 9200.4 - 17P) discusses various processes that act, without human intervention, to reduce the mass, toxicity, mobility, volume, and concentration of contaminants in soil or groundwater. These in-situ processes, which include biodegradation, dispersion, sorption, volatilization,

transformation, stabilization, and destruction have been studied by the Agency and are not considered "black box" processes in any way.

62. Comment: Toxins incorporated into the plant tissue can accumulate and require periodic harvesting and disposal of the plant biomass. This would be disruptive in practice; but failing to harvest and dispose of the plants would expose the community to the harmful contamination they contain. [39]

EPA Response: At IEL almost all the concern is about organic contaminants, which have been shown on many sites not to accumulate in plants at all. Some metals may move into plants, although most of those will stop in the roots. Some branch and leaf areas may accumulate trace amounts of metals and there are standard tests available to determine if the plants on this site are accumulating any inorganics of concern. Some sites have required testing for one or two growing seasons to determine if there is a valid concern. The results so far have been negative. The dense vegetation at IEL could easily be tested to see if there is any accumulation at all. Another important consideration are the various pathways by which potential toxins in the plants may be able to reach a receptor. Since the vegetation at IEL is not being grown for food (ingestion) and site access is restricted (dermal contact), there is very little probability that a person may be at risk from the potential harm from contaminated plants.

63. Comment: Forget about trees cleaning up 780,000 tons of toxic waste and, instead, use a technology that can thoroughly clean up the site. It's called the Super Critical Wet Oxidation (SCWO) process. SCWO has several merits - 1) it destroys a broad spectrum of waste, including various types of radiation in a "closed system", 2) it can destroy up to 99% of total waste onsite, and 3) it produces no air emisions or exposure to the operator(s). [41-52]

EPA Response: EPA disagrees with the reference to 780,000 tons of *toxic* waste. According to the 1988 RI, OEPA estimated that 780,000 tons of waste were disposed in the landfill. While a portion of this waste may be considered toxic or hazardous, a significant portion of the total is not. Flyash, alone, accounts for much of the wastes disposed at IEL. Garbage and trash were also disposed of at IEL in large amounts. EPA expects natural attenuation processes to clean up the site, processes whose ability to clean up contamination at IEL are evident from data collected over the past 18 years. Phytoremediation is simply a way to enhance what is already happening. Super Critical Wet Oxidation, on the other hand, is a process that is highly experimental. It is only now beginning to be marketed commercially. EPA has no experience with it at Superfund sites and it will be some time before the technology can be evaluated as a remedial alternative. In any event, EPA is not inclined to pursue an untried technology when natural processes seem to be working well.

64 Comment: What is the potential impact on wildlife in and around the site, and would contamination work its way up the food chain? [166]

EPA Response: EPA sees little or no adverse impact contaminants at the landfill would have on the wildlife in and around IEL. There is a diverse flora and fauna thriving at the site and the Agency has not seen any degradation of this diverse environment since it first became involved with the site in the mid-1980's. As far as the potential for contamination to work its way up the food chain, please see response to Comment No. 62 above.

65. Comment: According to EPA guidance, phytoremediation should be used only as a part of a remediation system of combined planted systems and mechanical, thermal, or chemical systems in treatment trains which include electrokinetics, bioventing, and surfactant addition. In addition, there has been no active remediation such as these at this site as recommended by EPA research. [166]

EPA Response: The augmented vegetative cover is being combined with monitored natural attenuation, onsite and offsite, and appropriate landfill gas control. The continuing improvement in groundwater quality suggests that the prescribed remedy will achieve cleanup goals sooner than the remedy contained in the March 2000 ROD Amendment. The Agency's presumptive remedy for landfills such as IEL is containment, with some form of active treatment such as pump and treat if site conditions warrant it (e.g., contaminant plume extending beyond facility boundary, hot spot, etc.). The site conditions at IEL simply do not warrant such active treatment at this time.

66. Comment: The use of trees and plants at a site may be premature since U.S. EPA hasn't completed its 5-year study, called the Alternative Cover Assessment Project, to see if trees and vegetation can prevent water from seeping into the landfills. [160]

Response: EPA disagrees. While the ACAP is still not completed, there has been valuable information learned from the ongoing study, some of which has been used in developing recent guidance materials on phytoremediation. In any event, the remedy EPA has chosen does not rely on trees and vegetation preventing water from seeping into the landfill. EPA expects trees and vegetation to reduce the amount of water going into the waste mass at IEL, but not to prevent it entirely.

67. Comment: Phytocap remediation should not be used at this site because a site such as IEL with mixed wastes should not be used for research for phytoremediation. The people of Uniontown deserve a proven technology with hard measurable performance standards. [166]

EPA Response: As indicated in other parts of this document, various forms of phytoremediation are being applied at around two dozen Superfund sites. Moreover, the remedy EPA is selecting relies primarily on natural attenuation, not phytoremediation. The ability of natural attenuation to clean up the site is not a hypothetical question. Its effectiveness is already evident at the site in the marked improvement in groundwater qualitiy.

68. Comment: The phytocap/phytoremediation is also inferior to an engineered cap for hydraulic control and enhanced remediation because it is limited by root depth and the weather. [166]

EPA Response: EPA never intended the augmented vegetative cover to be a substitute for an engineered cap. This was clearly delineated in the FFS. The primary objectives of the augmented vegetative cover are to provide a varied habitat for wildlife and increase the biodiversity of the site and aid the natural attenuation of subsurface contaminants. While EPA expects the remedy to reduce infiltration, it is a byproduct of using additional plants throughout the site. The caveat is that this ability to function as a containment system is dependent, to a large degree, on the season. Thus, the ability to prevent infiltration is not expected to be consistent year-round, as is the case with an engineered cap. From what we've seen at IEL, the possibility of water infiltrating down to the waste mass, from time to time, may not be deleterious at all - groundwater quality continues to improve in spite of a lack of an engineered cover.

69. Comment: One commenter found it hypocritical that, working with a state government, he was told repeatedly that he couldn't plant trees on top of capped landfills because it would break open the caps and allow gases to escape. This is just the opposite of what is being proposed for IEL. [182]

EPA Response: While low-lying grasses are typically used, trees are generally not planted on impermeable landfill covers due to the potential for the tree roots to penetrate the cover and compromise the system. The augmented vegetative cover uses a different principle of preventing infiltration, using the tree roots to absorb the moisture from the soil for its use. Thus, the use of trees as part of the cover design (i.e, phytocap) was intended and is integral to its success. Furthermore, the remedy EPA is advocating seeks primarily to transform the contamination in the landfill, rather than to contain it. Planting trees and other vegetation promotes the transformation process.

70. Comment: Phytoremediation is new technology mainly for surface contamination and volatile organics. It will not address any radiation that exists at all. [183]

EPA Response: See response to Comment No. 53 above. The cleanup plan is not intended to address radiation since, as explained in more detail in the response to Comment No. 104 below, it is not present at the site.

71. Comment: The proposed remedy is a good one because it allows for long-term testing. Also, contingencies will be in place if something should happen. [4, 8, 15, 97, 101, 168, 173, 180]

EPA Response: EPA agrees.

Grout Curtain

72. Comment: Putting a cement grout curtain around the site is feasible because the site is small, the aquifer below it is shallow, and there is sufficient area to work outside

of the actual impoundment. It would also not affect the containment area [144, 161, 162].

EPA Response: EPA does not believe it is necessary to construct a cement grout around the site.

Risk Assessment

73. Comment: A complete risk assessment needs to be performed. [78]

EPA Response: A baseline risk assessment was completed in 1988 as part of the remedial investigation. EPA believes that, if anything, the risks posed by the site have gone down since then due to improvements in groundwater quality, decline in gas generation, and the provision of a municipal water supply to many residents living near the landfill. But because assumptions about land use at the site have changed since 1988, EPA is calling for an assessment during the design phase of the remedy, evaluating the risks that current site conditions would pose for recreational use.

74. Comment: A risk assessment be done to assure that all means of exposure have been tested. [173]

EPA Response: See response to Comment No. 73 above.

New Monitoring Wells

75. Comment: New monitoring wells upgradient and downgradient of the site need to be installed. Also, damaged or dry monitoring wells need to be repaired, replaced, or abandoned [173, 180]

EPA Response: EPA agrees. As part of this effort, a revised monitoring well network will be developed during the design stage of the project.

Fencing

76. Comment: Replace the existing fence at the site [180]

EPA Response: EPA agrees, but also notes that it intends to evaluate the risks associated with recreational use of the site during the design phase of the project. If that evaluation indicates that there is no significant risk, EPA may consider eliminating the perimeter fence component of the remedy.

Residential Well Users

77. Comment: Neighborhoods being developed in the area have water. Commenter would like to know why she can't have the same privilege. [85]

EPA Response: EPA required that water be provided to an area where residential wells were threatened by contamination from the landfill. The commenter does not

appear to live in that area. EPA cannot speak to why other locations in the vicinity have not been supplied with water. The commenter should ask local authorities.

78. Comment: Residents still need to get good clean water to the rest of the community of Uniontown because of the landfill. [107, 132]

EPA Response: See response to Comment No. 77 above.

79. Commenter: There are people who live next to the landfill still on well water. [183]

EPA Response: Not all residential wells around Uniontown are impacted by contaminated groundwater linked to IEL. EPA is aware of a few residents living within the 100-home alternate water area who chose to retain their water wells for use. It is the Agency's understanding that these individuals were required by the county health department to file a variance with that agency and to have their well water tested on a periodic basis.

80. Comment: A few commenters would like to see residential wells in the surrounding area tested and the results made public. [82, 133]

EPA Response: This is a local government issue. EPA suggests that the commenter contact the county health department or local township board about this request.

Landfill Cover

81. Comment: There is not enough history to indicate a vegetative cover will solve the long-term problem at IEL. There are many things buried in the landfill that are unknown. It is recommended that wastes be removed or cap/contain the site. A cap is probably not the best solution, but is the most reasonable. [17, 22, 104]

EPA Response: EPA disagrees with this assertion for reasons explained in more detail in the FFS (see Section 4 - Detailed Analysis of Alternatives of FFS).

82. Comment: Commenter has concerns about digging up and removing materials buried in the landfill. By digging up the wastes, you are creating a far worse disaster than what you have now. He suggested that a clay dome and monitoring wells be installed. [89]

EPA Response: EPA agrees with the commenter concerning the potential dangers posed by digging up the landfill. However, the commenter's suggestion to install a clay cap is essentially what EPA called for in the 1989 and 2000 ROD remedies. For the reasons given in the FFS and the 2002 ROD amendment, EPA believes that natural attenuation with a vegetative cover is a better way to remediate the site.

83. Comment: The township might not be looking out for the best interest of the community, but looking for green space for development. Recommend that a clay cap with monitoring wells be put on the site. [115]

EPA Response: EPA, as a matter of policy, encourages the redevelopment of Superfund sites. However, any redevelopment efforts can only be undertaken after all necessary response actions have been completed at a site such as IEL. Any future use involving increased access to the IEL site would be permitted only if a risk assessment showed such use to be safe. See the Agency's response to Comment No. 81 above regarding the clay cap.

84. Comment: Based on knowledge about this site, Alternative 2 is preferred remedy. Although it may be somewhat costlier, it is apparently a proven fix that should should put this issue to rest once and for all. Commenter is also adamantly opposed to any redevelopment of this site until all known health hazards have been eliminated. [119]

EPA Response: EPA believes Alternative 3, the chosen remedy, is a better option than Alternative 2, based on the Agency's criteria for evaluating remedy options (i.e, 9-criteria evaluation). This is explained in more detail in the FFS. The redevelopment of the landfill portion of the site will only occur after cleanup objectives, which is specified in the ROD Amendment, have been met.

Health Concerns

85. Comment: Four members of the commenter's family have experienced health problems due to pollutants in the landfill. [57, 95]

EPA Response: EPA recommends that commenter contact ATSDR about the health problems experienced by her family. ATSDR can be contacted at their toll free number at 1-800-422-8737.

86. Comment: Does the Uniontown area experience any higher than normal cancers, birth defects, diseases, etc. as compared to any other area? [83]

EPA Response: Health consultations and evaluations performed by ATSDR for EPA did not reveal higher incidences of cancer, birth defects, or diseases in the area around IEL.

87. Comment: A commenter was very concerned about the drinking water in her area. She listed nine people over 60 years old, residing in her street, and who got cancer and wonders if groundwater from the landfill flowed towards her street. [103]

EPA Response: EPA believes groundwater from IEL does not flow towards the commenter's residence. As indicated before, groundwater flows in a general east to west direction at the landfill. The commenter's street address suggests it's located near Greentown, approximately two and half miles southeast of the site.

88. Comment: Please review the number of illnesses, deaths, and birth defects in the area compiled by the nurse resident in the community. [111]

EPA Response: EPA does not believe that this data has been submitted to the Agency. But EPA is willing to look at it, when and if it is submitted. EPA notes that

similar information has been submitted in the past to ATSDR. ATSDR has compiled numerous health consultations and evaluations on this site, all of which are available at the site repositories in Hartville.

Lake Township

89. Comment: A number of commenters raised the issue of how EPA is gauging community opinion about its remedy proposal. Some commenters suggested that EPA take a public opinion poll or put its proposal to a referendum. Others questioned whether certain groups or individuals should be considered part of the community when they reside or are based outside Uniontown. [2, 35, 11, 36, 87, 90. 164, 166]

EPA Response: For purposes of evaluating Superfund remedial alternatives, "community" is defined broadly to include all interested parties. EPA does not exclude comments from those living outside the immediate area of a Superfund site. These commenters may raise important issues or submit significant new information. As a matter of policy, however, EPA places the highest priority on comments received from the community to which the site potentially or actually poses a human health or environmental risk. EPA tries to assess local community opinion by a number of methods: holding public meetings, soliciting public comment, talking to local officials, etc. Because of the requirements of the Paperwork Reduction Act, 44 U.S.C. §§ 3501-20, EPA cannot undertake public opinion polls without the approval of the Office of Management and Budget. As a result, public opinion polling is generally not feasible at Superfund sites. As for a referendum, EPA believes this would not be appropriate. A referendum would give the impression that the choice of Superfund remedies is a kind of popularity contest, with the most popular remedy being selected. This is not the way Superfund remedy decisions are made. Community acceptance of a proposed remedy is a factor in the Agency's remedy selection decision, but not the most important one. The National Contingency Plan - the regulations governing Superfund response actions - terms community acceptance a "modifying criterion," i.e., a factor that may prompt modifications to the preferred remedy.

Based on the reaction of local elected officials and comments received during the public comment period, EPA believes there is considerable support in Uniontown for its proposed ROD amendment.

90. Comment: The township conditionally supports the proposed change to the remedy, provided certain conditions are met. These include: 1) groundwater monitoring for the next 30 years; 2) a contingency plan agreed to by the township and Responding Companies; 3) removal of underground storage tanks and unsightly buildings along Cleveland Avenue; 4) conducting studies on the landfill gas and benzene; and 5) installing new wells and repairing/replacing/abandoning existing ones as needed. [173]

EPA Response: The township's conditions for supporting the proposed changes to the remedy were previously discussed with them. As far as removal of the underground storage tanks and unsightly building along Cleveland Avenue (Item 3), that was completed in 2001. A long-term groundwater monitoring program is called for in the ROD Amendment to 1) ensure that natural attenuation processes are degrading contaminants of concern in a timely manner, 2) track progress in meeting cleanup goals, and 3) provide adequate notice, via offsite wells, of contaminants migrating

toward areas still dependent on residential wells for drinking. Additional design studies, including studies requested by the township above, are also included in the ROD Amendment. Lastly, the ROD Amendment calls for installation of new wells and abandoning others as appropriate, which would satisfy the condition described in Item #5 above.

91. Comment: The township is pleased that the FFS specifically provides for a risk analysis to be performed which is "associated with the projected land use for the site: a nature preserve with possible access and recreational use". [180]

EPA Response: Duly noted.

92. Comment: Half of the estimated project cost ($7 million) is expected to be devoted to operation and maintenance. So long as portions of the money will be used for testing of the groundwater and gases, conducting a risk assessment described in the FFS, and at least contingency planning, the township is in support of the proposed remedy change. [60]

EPA Response: Duly noted.

93. Comment: Under Alternative 3, Enhancing Existing Cover, there is written the word "contingencies". What does this mean and how was a price factored in? Why is this not part of the other two alternatives that were evaluated? What will be the criteria in determining when contingencies need to be implemented? Will this include a binding contingency plan, and if so, what is it? [60]

EPA Response: The final version of the FFS made no reference to "contingencies" as a separate component of Alternative 3. See EPA's response to Comment No.114 below.

94. Comment: What involvement, if any, and at what point, will the CAG have when the RP's and U.S. EPA design and construct the wildlife habitat? Are the Responding Companies still planning on having the Wildlife Habitat Council (WHC) design and build the nature preserve (as promised to the Township in the video)?. Have these plans changed? Will the CAG/community have input into this? [60]

EPA Response: EPA will provide the CAG and its consultants an opportunity to review and comment on the design documents pertaining to the remedy prescribed in this ROD Amendment. In the event the Responding Companies perform the design of the remedy, they can use the services of any consultant they choose, including WHC. Whether or not the CAG/community has any input on having WHC involved in the design work is left for the parties involved to decide.

Lack of TIC Meetings

95. Comment: One commenter asked why there have been no meetings of the Technical Information Committee in the past few years.[166]

EPA Response: The Technical Information Committee (TIC) was formed in order to allow for public involvement at a point in the remedial process where there is no standard mechanism for public input, i.e., after a remedy decision has been made and

remedial design is underway. In the 1990s, the IEL TIC met many times to review design documents, implementing the 1989 ROD. In the past two or three years, there have been no new design documents, and therefore no need to hold TIC meetings. There was, however, a TIC meeting convened in the latter part of 2000 after the March 2000 ROD Amendment was issued.

TAG Issues

96. Comment: EPA deliberately set out to deny a Technical Assistance Grant to CCLT so that CCLT would not have technical experts to challenge EPA's proposed ROD amendment. [163]

EPA Response: In February, 2001, Region 5 received two applications for Technical Assistance Grants in connection with IEL - one from CCLT and one from the Lake Township Residents Technical Assistance Group. Region 5 denied them both because neither applicant satisfied the criteria set forth in the regulations governing such grants. CCLT has appealed the denial of its TAG application. The Agency is handling that appeal in accordance with its standard procedures. EPA denies that it is purposely attempting to time its response so as to deny CCLT technical advice prior to a new ROD decision.

Benzene

97. Comment: Is it safe to drink the water given that benzene has been found in two wells? [75]

EPA Response: There is no reason to think benzene and other organic compounds associated with the landfill poses a health hazard to those residents living near the site and who continue to to use drinking water wells. Although benzene has been found in elevated levels at two or three monitoring wells located inside the landfill, it was not detected at any offsite monitoring well or the nearby residential wells tested in 1998. The absence of benzene and other organics at offsite monitoring wells continues to be observed in the more recent 2000-2001 groundwater surveys. EPA has also noted the continuing improvement in groundwater quality first observed in 1998.

98. Comment: Should residents be concerned about benzene and other contaminants found in the landfill? [20, 75]

EPA Response: Yes and no. Benzene is a hazardous substance, and its presence in the landfill needs to be monitored and evaluated. But, EPA has seen nothing to indicate that the benzene detected in the landfill is likely to reach local residents. The 2002 ROD remedy will include followup studies on benzene and landfill gases to determine what, if any, real or potential risks these constituents pose to residents in the area. EPA will require appropriate response action(s) if the results indicate a problem exists.

99. Comment: It is only a matter of time before benzene contamination will be leaching to off-site locations. Within 2-3 years, benzene will be somewhere south and east of the site boundary, if left untreated and unabated. [61]

EPA Response: EPA disagrees. Groundwater data, as recent as September 2001, does not reveal this to be the case. Benzene appears to be localized in a few monitoring wells located in the center of the landfill and does not appear to be moving.

100. Comment: Benzene is sufficiently stable as a chemical compound to resist degradation by natural means. [86]

EPA Response: EPA disagrees. Benzene belongs to a group of compounds (commonly referred to as BTEX - short for benzene, toluene, ethylbenzene, and xylene) known to be amenable to breakdown by natural attenuation processes. Guidance documents have been prepared by the Agency discussing how these compounds can naturally attenuate in the environment. To date, EPA has seen no need to take special measures to deal with benzene at IEL. But if the situation changes, EPA could address benzene through the use of readily available technology such as air sparging, chemical oxidation, etc.

101. Comment: Preferred solution would be to excavate the site to remove the benzene contamination. [130]

EPA Response: EPA disagrees. Elevated benzene readings have been reported in only two monitoring wells - MW-14 and MW-13. EPA has been unsure whether these readings accurately reflect groundwater quality or whether they result from the loss of mechanical integrity that sometimes occurs in older monitoring wells through kinking or bending, allowing landfill leachate to migrate into compromised well casings. New monitoring wells installed in the spring of 2002 will help resolve this issue. If it turns out that there is indeed a benzene hotspot, there are many ways that it might be addressed. Excavation is not necessarily the best option.

102. Comment: The hot spot experts for CCLT identified earlier just happens to be the same area benzene levels are increasing, over 5,000 times the level of safe drinking water. For 13 years, EPA allowed that spot to fester and work its way into the water table. The Agency acts like they just discovered it. [163]

EPA Response: EPA disagrees. No benzene hot spot has ever been determined by EPA during its investigations in 1991-192.

103. Comment: Investigate and, if necessary, remediate benzene at IEL. [38]

EPA Response: Duly noted.

Radiation Concerns

104. Comment: It must be determined by drilling or other proven means if any radiation or plutonium elements are stored in the landfill. This includes, but is not restricted, to drilling test shafts in the areas in which these items are alleged to be stored. If they are found, they should be removed entirely and discarded in a place designed for their storage. [8]

EPA Response: This is not needed. EPA has extensively studied the radiation issue at IEL and the results of its investigation are encapsulated in the 1994 Science Advisory Board (SAB) Report. As described in the Report, radiation levels at the site are

indicative of background conditions and no further work on radiation is necessary. The Responding Companies, in response to a request from Lake Township Trustees, did conduct four additional rounds of radiation sampling from August 2000 to May 2001. The results from these surveys are similar to what the Agency found earlier.

105. Comment: After 30 years, former IEL owner-operator Charles Kittinger recently disclosed that he allowed the U.S. Army to dispose of three "egg-shaped" containers of plutonium at the site. We (the American Friends Service Committee or AFSC) have spoken several times to Mr. Kittinger and find him and his account of what he saw to be very credible. For this reason, a revision by Region 5 to the ROD would be grossly inadequate. [56]

EPA Response: EPA disagrees. EPA concurs with Judge John M. Manos, who in a Memorandum of Opinion, issued on November 28, 2001, concluded that it is doubtful whether Mr. Kittinger's testimony describes an actual disposal event, and that it is almost certainly untrue that Mr. Kittinger's testimony describes an actual disposal of plutonium.

106. Comment: Please consider just removing the containers that were buried with radioactive material, according to the former owner. If there is any question whatsoever, dig them up to know for sure. [177]

EPA Response: See EPA response to Comment No. 105 above.

107. Comment: Past experts for CCLT have pleaded with U.S. EPA to do systematic testing for radiation because the Agency has been getting hints of radiation all along. But, they routinely dismiss these results by calling them land contaminants. From data generated by U.S. EPA, levels of almost 2,000 higher than in the Hanford plutonium processing plant were found. [163]

EPA Response: See EPA response to Comments 9 and 105 above. Out of the approximately one thousand data points generated by U.S. EPA for radiation at IEL, there were only a handful that were detected barely above detection levels for plutonium. The Agency routinely retested these samples and the retests did not indicate the presence of the radionuclide.

108. Comment: Sampling and testing for radiation at IEL has been inconsistent and inconclusive at best. Problems included wells that are too few in number and too close to the landfill to be unaffected by the site, the decision to limit testing to groundwater instead of a more rigorous method of coring. [170]

EPA Response: EPA disagrees with this assessment. The 1994 SAB Report concluded that the Agency's methodology for investigating radiation at IEL was adequate and appropriate.

109. Comment: The remedy is intended to address surface contamination and will not do anything for radiation at all. [61]

EPA Response: The chosen remedy addresses the current problems at the site, namely the presence of a few volatile organic compounds (e.g., vinyl chloride, benzene) inside the landfill. Radiation levels at IEL are indicative of background conditions. This

is an opinion shared by EPA, ATSDR, OEPA, and the Ohio Department of Health. Consequently, no remedy for radiation is necessary.

110. Comment: One commenter claims that radioactive wastes from Defense Department work at Goodyear's Wingfoot Lake facility likely went to IEL, and that the Department of Defense is the only governmental agency with the authority to test for radiation at IEL and to clean it up. [171]

EPA Response: EPA has found no evidence that radioactive wastes from Goodyear's Wingfoot Lake facility went to IEL. Nor has EPA found evidence of any unusual radioactivity at IEL that would indicate the presence of radioactive waste at the site. Nevertheless, if there were radioactive material from a military source at IEL, EPA would have full authority under CERCLA to respond to any threat it posed to human health or the environment.

111. Comment: One commenter stated that he and his brother saw tanker trucks bearing radioactive placards come into IEL. [176]

EPA Response: The commenter does not report that he or his brother actually saw radioactive material disposed of at IEL, only that tanker trucks with radioactive placards went into the landfill. Nevertheless, the implication is that these trucks dumped radioactive material in the landfill. EPA has found no evidence to corroborate this. Radiation testing has not indicated there is any radioactive material at the site. See also EPA's response to POGO, pp. 19-20 above relating to eyewitness accounts of possible radiation disposal at IEL.

Kittinger Issues

112. Comment: A number of commenters urged EPA to allow Charles Kittinger, the former owner/operator of the landfill, to go in and dig up the objects that he alleges the military disposed of. [7, 96, 184]

EPA Response: EPA concluded that this would not be appropriate for a number of reasons. First, excavating landfills can increase site risks by releasing gases, puncturing buried containers, disturbing perched liquids, etc. Second, Mr. Kittinger was not entirely clear about where he thought the objects were buried. Hence, any effort to locate the objects might require not just one, but numerous excavations. Third, the only good reason to excavate the objects Mr. Kittinger described would be if they posed unacceptable risks remaining where they are. EPA believes this is not the case. Absent Mr. Kittinger's claim that the objects contained plutonium-238, they would be of no particular significance. If indeed they exist, they would simply be three large pieces of stainless steel, resting in a landfill containing a lot of other metallic objects, posing no threat to human health or the environment. Even if the objects contained plutonium 238, as Mr. Kittinger claimed, EPA does not believe they would pose any significant risk. Plutonium-238 is an alpha-emitter, and as such the radiation it emits is easily contained. It is extremely unlikely that it could escape from the container Mr. Kittinger described - an "egg" made of stainless steel, 8 inches thick, with a stainless steel cylinder inside. And even if, somehow, it did escape from the egg, radiation would be stopped by the first inch or so of soil it encountered. Nor is plutonium-238 likely to be carried away by landfill leachate - plutonium-238 is relatively insoluble.

Buried Drums

113. Comment: There are thousands of drums buried in the landfill which will eventually corrode and release their contents. What then? [5, 6, 91, 149, 160]

EPA Response: The concerns expressed in the comments seem to assume that there are a lot of drums in the landfill, still full of wastes that have neither leaked out nor come into contact with the fill material around them. EPA believes this to be very unlikely. EPA interviewed a number of former IEL employees as well as IEL's owners concerning how the landfill operated. They reported that, while many drums were brought to IEL, few drums were actually buried. Rather, typically, drums were dumped out onto the fill or into a lagoon for liquid wastes. The drums were then steam-cleaned and re-cycled by the landfill, or returned to their owners for re-use. When drums were buried, it was because they contained solid material that adhered to the sides. It is very unlikely that such drums would have remained intact because heavy bulldozers were used on a daily basis to run over and compact the fill. A former landfill operator testified that this would have crushed any buried drums, thereby releasing any liquids and bringing any solid contents into contact with the fill. The upshot of this is that, at IEL, the release of wastes from drums is something that, by and large, has already occurred rather than something yet to happen.

Contingency Plan

114. Comment: A number of commenters urged EPA to include as part of the remedy a contingency plan to address any unexpected deterioration in environmental conditions. Some of these commenters suggested that funds be set aside in advance to finance any additional remedial response that might be called for under the contingency plan. [4, 15, 60, 97, 101, 124, 173, 180]

EPA Response: EPA believes that the important thing here is to have some assurance that work in addition to the proposed remedy would occur if site conditions warranted it, i.e., if a threat to human health or the environment developed that was not being adequately addressed by the proposed remedy. At IEL, this assurance comes from EPA's authority to require response actions to address any imminent and substantial endangerment or to take such actions itself. There are three ways that the remedy at IEL could be implemented, and in each of them, EPA has the authority to bring about additional work. First - the way that EPA prefers - is implementation by PRPs, working under a consent decree negotiated with EPA. EPA's model consent decree includes a standard provision under which the Agency can require the settling parties to perform additional work if the Agency concludes such work is necessary. Second is implementation by PRPs, working under a unilateral order issued by EPA under CERCLA. EPA retains the ability to modify any such order or issue a new order if site conditions indicate that additional work is necessary. Finally, EPA could implement the remedy itself and seek reimbursement from the PRPs. Obviously, in that situation, EPA has the authority to modify its own workplan to meet changes in site conditions.

EPA does not view the remedy it is proposing for IEL to be so experimental that we need a funded, fall-back plan with details determined in advance. In cases where EPA employs a new remedy that entails a significant risk of failure, such a plan might be necessary. But at IEL, we are choosing a remedy that employs a process - natural attenuation - that has been operating at the site for the past 22 years. Over much of this period, EPA has kept track of changes in contamination onsite and offsite. Based on this experience, EPA is confident that its authority to bring about additional work is sufficient to deal with any unexpected contingencies.

Ombudsman

115. Comment: Several commenters said that EPA should make no new remedial decisions until the EPA Ombudsman's final report is issued. [167, 170, 178]

EPA Response: The EPA Ombudsman issued his preliminary recommendations in October 2000. That same month, Region 5 sent the Ombudsman a list of a factual errors in the preliminary report. Region 5 followed up with a formal response to the Ombudsman's preliminary recommendations in December 2000. To date, there has been no response to the Region's comments and no indication of when a final Ombudsman report might come out. When he began his investigation, Ombudsman Martin made it clear that he did not expect the Region to stop what it was doing. Rather, he expected things to progress on different tracks: the Ombudsman would carry out his investigation; the Region would continue with its work at the site, including evaluating and revising the original remedy decision. That is what the Region has done and will continue to do. As evidenced at IEL by two ROD amendments, RODs are not unchangeable decisions. If at some point the Ombudsman issues a final set of recommendations that convince the Agency to make changes, the ROD could be amended again at that time.

Natural Attenuation

116. Comment: Surface soil samples show high concentrations of heavy metals (over MCL) at least on the site itself. Commenter knows of no natural processes which will remediate lead, cadmium, etc. from this site. If microbes eat it, they can carry and concentrate the metals. They do not reduce the concentration. [61]

EPA Response: EPA disagrees with this description of the surface soil in the landfill. The results of the 1991-1992 design studies detected some metals that were more than 2 times the background concentrations, such as arsenic and nickel, but not at levels that would cause concern and require remediation. The possible pathways for exposure are dermal contact and ingestion, both of which have been mitigated by the following: 1) A fence has been erected to prohibit unauthorized entry into the site and 2) A soil cover 2-3 feet thick was placed in 1980 when the site closed.

117. Comment: Natural attenuation is not working at the site. [166, 167, 175]

EPA Response: EPA disagrees. Groundwater data collected since 1997 suggests there are processes at work which have significantly reduced contamination on- and offsite. The FFS uses the criteria set forth in Agency guidance on natural attenuation

(OSWER Directive 9200.4-17P - "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites, 4/21/99) to evaluate conditions at IEL. In the case of IEL, the Agency believes the factors to consider in determining whether MNA is an appropriate remedy have been met.

118. Comment: EPA's proposal is to allow the continued washing or flushing of the hundreds of thousands of tons of toxins at IEL. Shouldn't this plan be called dilution is the solution of the pollution? [167]

EPA Response: Dilution is one of the in-situ processes included in the Agency's MNA guidance. It also includes biodegradation, dispersion, sorption, volatilization, and chemical/biological stabilization, transformation, or destruction of contaminants.

119. Comment: MNA is largely unproven and works on known spills, but not on a Superfund site such as IEL. [175]

EPA Response: EPA disagrees with the statement that MNA is unproven. As of 1999, there were 256 Superfund sites on the NPL that use MNA solely or as part of the remedy, representing roughly 18% of the total number of sites on the NPL.

Canton Well Fields

120. Comment: IEL poses a threat to drinking water wells in the surrounding community. [14, 32, 163, 166, 167, 169, 175]

EPA Response: EPA disagrees. There are currently no exceedances of MCLs in offsite monitoring wells. Tests of drinking water wells near the landfill in 1998 did not detect the presence of organic contaminants, while the metals concentrations were significantly below their respective MCLs. The monitoring program that EPA will require will ensure that the Agency and OEPA detect any change in conditions that might pose a threat to drinking water wells in the future.

121. Comment: One local expert many years ago documented his concern that he believed the bedrock aquifer went south from IEL due to the immense draw-down effect of the North Canton well field. [87]

EPA Response: EPA has not seen any documentation of this theory and does not believe the landfill and the Canton well field are hydrogeologically connected. Based on extensive data collected since the 1980's, the groundwater quality of the bedrock aquifer underneath IEL has been generally free of contaminants. In addition, the perchloroethylene (PCE) contamination found in the Canton well field last year was at a level higher than what was historically found at IEL, definitively ruling out the landfill as the potential source.

122. Comment: The Canton Repository reported on Tuesday, April 16th, that Canton water was at a high risk of contamination. [175]

EPA Response: See response to Comment No. 121 above. There is no connection between IEL and the Canton well field.

Super Critical Wet Oxidation

123. Comment: There is technology to do a thorough cleanup. It is called Super Critical Wet Oxidation (SCWO). It is an innovative cleanup process that eliminates waste. It has several merits: 1) it destroys a broad spectrum of waste, including various types of radiation in a "closed system"; 2) it can destroy up to 99% of total waste onsite; and 3) it produces no air emissions or exposure to the operator. [41-52, 68, 76, 141, 167]

EPA Response: See response to Comment No. 63 above.

Freedom of Information Act

124. Comment: Several commenters referred to a law suit filed by the American Friends Service Committee, alleging that EPA, the Army, and the Department of Energy have improperly withheld information requested under the Freedom of Information Act. One commenter suggested that no remedy decision should be made until the requested information is released. [56, 178, 184]

EPA Response: EPA does not comment on pending law suits. However, the Agency will say that it believes all significant information regarding radiation at the IEL site is already in the public record. EPA sees no reason to delay making a remedy decision.

EPA Laboratory Issue

125. Comment: One commenter characterized an investigation of Region 5's Central Regional Laboratory as a raid by the Justice Department "over possible criminal manipulation of data in favor of polluters at Superfund Sites." [178]

EPA Response: An investigation of alleged misconduct in Region 5's Central Regional Laboratory took place, but EPA knows of no allegation that data was manipulated in favor of polluters at Superfund Sites. Rather, there were allegations that a small number of analysts produced improper calibrations for the analysis of PCB and pesticide data. While undermining the validity of the data, this would not result in a bias one way or another, i.e., toward either finding or not finding PCBs or pesticides.

Pace of Cleanup

126. Comment: A number of commenters expressed frustration that EPA has not made cleanup decisions and moved forward more quickly. [34, 105, 157]

EPA Response: EPA has provided a high degree of public involvement at the IEL site, and this has often meant that decisions took more time. In addition, EPA's efforts to address radiation questions have required lengthy periods of sampling and analysis. EPA hopes to move forward more rapidly, now that radiation concerns seem overall to have receded.

Role of Cost in Selecting the Remedy

127. Comment: Several commenters suggested that cost has been the main factor in EPA's decision to amend the remedy and that EPA has let the PRPs off cheap. [10, 13, 106, 113]

EPA Response: Under the National Contingency Plan, i.e., the set of regulations that govern Superfund cleanups, cost is a necessary factor to consider in making remedy decisions. The most important criteria in evaluating remedial alternatives are ability to protect of human health and the environment, and ability to meet state and federal environmental standards. These are referred to as threshold criteria. But once these fundamental criteria are satisfied, cost becomes an important consideration that EPA weighs in conjunction with other factors such as long term effectiveness and permanence. EPA believes that both a conventional landfill cap (the 2000 remedy) and natural attenuation/vegetative cover (the proposed remedy) meet the threshold criteria. The fact that the proposed remedy is significantly cheaper then becomes a distinct advantage. (EPA also found that the proposed remedy could clean up the landfill site itself and permit more flexible land use, while the conventional cap would not clean up the site and most uses of the site would have to be prohibited.)
In general, EPA sees nothing wrong with PRPs' trying to find less expensive ways to achieve the necessary level of protectiveness. EPA's goal is not to saddle PRPs with the most expensive remedy possible, but rather to have them implement a remedy that achieves the best balance among the NCP criteria, including cost.

Future Land Use at the Site

128. Comment: A number of commenters referred to future land use at IEL. Some commenters argued that recreational use of the site would be unsafe. Other commenters urged the Agency to require testing to evaluate the suitability of the site for recreational use. [9, 16, 18, 23, 84, 92, 119, 154]

EPA Response: Use of the landfilled area at IEL - i.e., some 30 acres within the existing fence line, depends upon the risks posed by the site. The proposed remedy calls for the site to be used as a nature area with restricted access. Vegetation at the site would be enhanced to provide diverse natural habitats. The site would continue to be fenced in order to control access. However, the proposed remedy also calls for design studies that include an evaluation of the risks the site would pose to recreational users. If the risk assessment shows that recreational use would not entail unacceptable risks, access to the landfill area for recreational purposes could be permitted. The necessity of a perimeter fence could then also be re-evaluated. As for the parts of the site other than the landfilled area, future land use would be unrestricted.

Site Delisting

129. Comment: Industrial Excess Landfill, Inc., Hybud Equipment Corporation, and Hyman Budoff submitted a comment contending that there has been no release or

threat of a release of hazardous substances from the landfill and that the site should be de-listed from the National Priorities List. [55]

EPA Response: The results of EPA's remedial investigation at the IEL site, as well as other studies the Agency has conducted, show that there are numerous hazardous substances at the IEL site, including volatile organic compounds, and that they have been released or that there is a threat of their release from the site. In general, levels of contamination both onsite and offsite have dropped over the years. But there are still hazardous substances in excess of regulatory standards in ground water onsite. EPA believes that the site must be monitored for many years before we can be sure it no longer poses a threat to human health or the environment. Until that time, EPA believes the site should remain on the NPL.

Alternative Technology

130. Comment: Several commenters urged EPA to use some sort of technology to clean up the site, rather than relying on natural processes. [41-52, 68, 141, 167]

EPA Response: EPA generally does not "clean up" landfill sites. The size and volume of landfills like IEL makes cleanup, i.e., reduction of contamination to health-based levels, difficult to implement and prohibitively expensive. As a result, the Agency's presumptive remedy for landfills is containment, not cleanup. EPA knows of no current technology that would alter this state of affairs. However, because EPA has a wealth of data for IEL, collected over many years, the Agency was able to observe the progress of natural attenuation at the site, and to reach the conclusion that natural processes were capable of cleaning up the landfill. Unlike active technological remedies, natural attenuation does not entail implementation or cost problems. Consequently, EPA was able to select a "cleanup" rather than a containment remedy for the landfill, albeit one brought about by natural rather than technological means.

Flexibility Under the Proposed Remedy

131. Comment: One commenter noted that the proposed remedy does not preclude the adoption of other measures if scientific monitoring of the landfill suggests more is needed. [87]

EPA Response: EPA agrees. The adoption of a specific remedy does not mean that EPA cannot make changes if conditions warrant. The two ROD amendments to date at IEL are examples.

Paying for the Remedy

132. Comment: One commenter suggested that the residents of Uniontown should not have to pay for cleaning up or maintaining the landfill. [123]

EPA Response: EPA is seeking to have PRPs implement the remedy, including operation and maintenance.

Deed Restrictions

133. Comment: One commenter asked under what circumstances deed restrictions would be placed on the IEL site and what they would consist of. [124]

EPA Response: EPA will require that legal restrictions be placed on the landfilled area, i.e., some 30 acres within the existing IEL fence line. This property is currently owned by I.E.L., Inc. The legal mechanism for bringing about restrictions remains to be worked out. It might be an easement, restrictive covenant, or some other mechanism. The substance of the restrictions will depend upon the outcome of a risk assessment undertaken as part of the remedial design. It seems likely that at a minimum, the site would be restricted from residential development and installation of wells, other than those necessary for monitoring purposes.