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**AGENDA AND HANDOUTS FROM THE FERNALD TASK FORCE MEETING OF
MAY 14, 1994**

05/14/94

TASK FORCE PUBLIC
57
HANDOUTS

FERNALD CITIZENS TASK FORCE ⁵⁵⁹⁰

A U.S. DEPARTMENT OF ENERGY SITE-SPECIFIC ADVISORY BOARD

Chair:

John S. Applegate

Members:

James Bierer
Marvin Clawson
Lisa Crawford
Pam Dunn
Dr. Constance Fox
Guy Guckenberger
Darryl Huff
Jerry Monahan
Tom B. Rentschler
Robert Tabor
Warren E. Strunk
Thomas Wagner
Dr. Gene Willeke

Alternates:

Russ Beckner
Jackie Embry

Ex Officio:

J. Phillip Hamric
Graham Mitchell
Jim Saric

AGENDA

May 14, 1994

1. *Time and Place*

The next regularly scheduled meeting of the Task Force will be on Saturday, May 14, 1994, from 8:30 a.m. to noon, at the AmeriSuites in Forest Park, Ohio. We will begin the meeting promptly at 8:30.

2. *Subjects*

8:00	Continental breakfast (optional)
8:30	Call to order
	Approval of minutes
	Chair's remarks
	Status of action items and initiatives
8:50	New information in the toolbox (Doug Sarno)
9:45	Break
10:00	Discussion of reasonable future use options: future-use exercise (Doug Sarno)
11:40	Opportunity for public participation
11:50	New business
	Wrap-up
	Subjects for next meeting
12:00	Adjourn
	Lunch (optional)

3. *Documents*

The documents and other materials relevant to the meeting's subjects are being developed by the Task Force staff. They will be distributed at the meeting.

4. *Chair's Announcements*

5. *Other Meetings of Interest (calendars enclosed)*



FERNALD

CITIZENS

TASK

FORCE

BRIEFING BOOK

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***How long will the cleanup of Fernald
take and how much will it cost?***

There have been many estimates of the length and cost of the Fernald cleanup, but the most commonly used is 15-20 years and \$10 billion.

The actual cost and time will depend on Records of Decision issued by U.S. EPA for each of the five Operable Units. Records of Decision will determine exactly what cleanup actions are needed based on such fundamental decisions as what the future use of the site will be, to what extent contamination must be removed, and what will be done with all of the waste at the site.

Once these decisions have been made, more realistic estimates of the time and funding needed for the cleanup will be possible.

What are the health hazards to the public from Fernald?

Uranium is the principle contaminant of concern at Fernald. More than 40 years of production work left most of the buildings and a significant portion of the soil contaminated with uranium. There is also some uranium contamination in the aquifer which underlies Fernald. Because this contamination has spread off site to the south, water wells in that area must be carefully monitored to assure that they are safe sources of drinking water.

Airborne uranium emissions have dwindled to less than one pound per year in recent years since there is no longer any production activity at Fernald. Uranium emissions to the Great Miami River also have decreased steadily since production ended.

Fernald conducts an extensive

environmental monitoring program to measure the effects of past and present Fernald activities on the environment. In the most recent Site Environmental Report (for 1992), the radiation dose calculated for a hypothetical individual who lived closest to the site was 1.0 millirem. The International Commission on Radiological Protection limit is 100 millirem.

Those doses and limits do not include radon. In 1992, the calculated dose to the public as a result of radon attributable to Fernald was 51 millirem. The dose received annually from naturally-occurring radon in the environment is 200 millirem.

What will be done with the wastes at Fernald?

While Fernald is currently shipping significant amounts of waste to the Nevada Test Site for burial and has shipped some mixed (hazardous and radioactive) waste to Envirocare in Utah, ultimate disposition of all of the waste is dependent on the Records of Decision issued by U.S. EPA for each of the five Operable Units.

In addition, a citizens task force comprising representatives of numerous groups and organizations who have an interest in Fernald will make recommendations to the Department of Energy and U.S. EPA about what waste should remain at Fernald and what waste should be sent elsewhere.

Fernald also is testing various types of treatment technologies to either stabilize the wastes to prevent contamination from

migrating or remove the contamination using physical or chemical processes. These technologies will be thoroughly tested for their applicability under the various waste disposition scenarios being considered at Fernald.

What will the Fernald site be used for after it is cleaned up?

The Fernald Citizens Task Force, comprising representatives of numerous groups and organizations who have an interest in Fernald, will make recommendations to the Department of Energy and U.S. EPA on the future use of the site. The task force has established the future use question as its first priority and hopes to have a recommendation by late 1994.

Is any cleanup being done?

While much of the work at Fernald today centers on environmental investigations which will help determine final cleanup alternatives, there is a great deal of activity under way to remove waste and prevent any further damage to the environment.

Several Removal Actions to reduce immediate risks to Fernald neighbors and the environment have been completed.

These include projects to control contaminated stormwater runoff, reduce radon emissions from the K-65 silos, prevent airborne contamination from moving off site, and removing equipment or facilities that are no longer needed.

Other removal actions are under way to prevent further migration of uranium in groundwater to the south of the site and to dismantle former production buildings and structures.

***How much waste is stored at Fernald?
What kind of waste?***

- Residues from past operations are stored in drums and other containers on storage pads and in former production buildings. (Approximately 880,000 cubic feet)
- Six waste pits were used to bury residues, construction rubble, and other waste during production years. (Approximately 471,000 metric tons)
- Three concrete silos contain residues from past operations. Two of the silos contain 8,800 metric tons of radium-bearing materials which produce radon gas. A third silo holds about 3,500 metric tons of production residues.
- Ongoing cleanup activities (construction and demolition) generate

about 22,000 cubic feet of additional low-level radioactive waste per year.

- Mixed (radioactive and hazardous) waste is stored in special-equipped warehouses. There are approximately 12,000 containers of mixed waste on site.

Why can't you just close Fernald down?

Simply abandoning the Fernald site would not only be politically unacceptable, it would not prevent the future spread of contamination into the surrounding environment. Whether or not the site can ever be used for other purposes has yet to be determined, but it is clear that future beneficial use would not be possible without some cleanup.

*How fast can trains go at the crossings in
Morgan Township?*

Maximum of 25 miles per hour

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***How many trains are projected for
Fernald shipping?***

Unknown. Will depend on how much waste is actually shipped from the site.

***Are the tracks and crossings in Morgan
Township going to be upgraded?***

There are no current plans to upgrade this spur.

***What are the Department of
Transportation regulations for shipping?***

All DOT regulations are contained in 49 CFR, Parts 200-268; also Parts 171, 172, 173, 174, 177, and 178. These regulations comprise about three volumes and address such things as types of containers, notifications and marking, routes and speeds, length of trains, and duties and responsibilities.

What is the history of the Fernald site?

The Fernald Environmental Management Project, formerly called the Feed Materials Production Center (FMPC), was a large-scale, integrated facility for producing highly-purified uranium metal products used as feed materials in U. S. defense programs. Historically, the plant produced uranium products including derbies, ingots, billets, fuel cores, and targets for DOE sites in Rocky Flats, Colorado; Savannah River, South Carolina; Oak Ridge, Tennessee; and Hanford, Washington. Much of the FMPC product provided "feed material" used in DOE production reactors to make plutonium and tritium.

As of October 1, 1990, DOE management responsibility for Fernald was shifted from the Defense Programs organization to the Office of Environmental Restoration and Waste Management. Production at the facility was suspended in July 1989. In

February 1991 DOE submitted a closure plan to the U. S. Congress announcing its intention to permanently end the facility's production mission. That closure became effective in June, and the facility was renamed the Fernald Environmental Management Project in August 1991 to reflect its new mission of environmental restoration.

Production peaked at Fernald in the early 1960s at about 10,000 metric tons of uranium (the plant's designed production rate), and then declined to a low of about 1,230 metric tons in 1975. After a period in the 1970s where closure of the FMPC was under consideration, planning for renovation was initiated in 1981 in anticipation of requirements approaching the originally-designed capacity of the facility. However, the site's production requirement decreased dramatically following the placement of the N Reactor at Hanford in cold standby in 1988,

followed by the shutdown of production reactors at Savannah River for repairs and upgrading. Production declined from 10,000 metric tons in 1987 to 7,500 in 1988, to 1,200 metric tons in 1989. All production was suspended in July 1989 to allow concentration of resources on cleanup and environmental restoration activities.

Construction of the facility began in 1951, with full production started in 1953. Initial construction cost was \$117 million, followed by a \$60 million expansion in the mid-1950s.

From 1951 to 1985 the FMPC was operated by NLO, Inc., under a contract with the DOE and its predecessor agencies. Westinghouse Materials Company of Ohio (WMCO), a subsidiary of Westinghouse Electric Corporation, took over operation of the facility in 1986. WMCO became the Westinghouse

Environmental Management Company of Ohio (WEMCO) in July 1991.

In December 1991, DOE issued a Request for Proposals for its first Environmental Restoration Management Contractor (ERMC) to take responsibility for the cleanup and final remediation of Fernald. The Fernald Environmental Restoration Management Corporation, a subsidiary of Fluor Daniel Inc., was awarded the ERMC contract in August 1992. Following a three-month transition period, FERMCO assumed responsibility for the Fernald cleanup on December 1, 1992.

Chronology of Key Events/Activities for the Fernald site

1953: Feed Materials Production Center (FMPC) began operations under National Lead of Ohio (NLO) and

produced finished uranium
metal products

- 1956: Staffing level reached 2,891 employees; DOE Site Office was 12-15 employees
- 1960-62: Production reached peak of 10,000 metric tons
- 1962: DOE extrusion press transferred to Reactive Metals, Inc., in Ashtabula, Ohio
- 1964: Production began to decline
- 1972: DOE Site Office closed
- 1975: Production low of 1,230 metric tons
- 1979: Employment low of 538 employees

- 1982: Planning for FMPC renovation to support Savannah River and continued operation of Hanford N Reactor
- 1984: New product requirement for depleted uranium added to FMPC mission
- 12/7/84: Uranium release -- Plant 9
- 12/14/84: Uranium release -- Plant 5
- 2/85: DOE Site Manager appointed and re-opened Site Office
- 9/85: Westinghouse Materials Company of Ohio (WMCO) selected as new FMPC operating contractor
- 10/85: WMCO awarded a transition

contract

- 1/1/86: WMCO became operating contractor of FMPC
- 1988: Production requirements began to decline due to closure of Hanford N Reactor
- 7/89: Production suspended to focus efforts on ending production mission
- 11/89: FMPC placed on National Priorities List
- 4/90: DOE signed CERCLA Consent Agreement with EPA
- 10/90: FMPC transferred from Defense Programs to Office of Environmental

**Restoration and Waste
Management (EM)**

- 2/91: Closure and retraining plans submitted to Congress (120-day notice)**
- 6/91: Closure became official**
- 8/91: Facility renamed Fernald Environmental Management Project (FEMP); WMCO renamed Westinghouse Environmental Management Company of Ohio (WEMCO)**
- 9/91: DOE and U. S. EPA signed Amended Consent Agreement establishing revised schedule for Fernald cleanup**
- 12/91: DOE issued Request for**

**Proposal for Environmental
Restoration Management
Contractor (ERMC) to
manage cleanup of Fernald
Site**

**8/92: Fernald Environmental
Restoration Management
Corporation (FERMCO)
selected as Fernald ERMC
contractor**

**12/92: FERMCO assumed
responsibility for Fernald
cleanup**

What is the Consent Agreement?

A key activity in the long-term environmental restoration at Fernald is the remedial effort under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to define the environmental problems associated with the site and develop recommended remedial actions to address those concerns.

Under a Consent Agreement between DOE and U.S. EPA, the site has been divided into five Operable Units addressing various problem areas. An individual Remedial Investigation/Feasibility Study (RI/FS) is being be conducted for each of these Operable Units. Under this system design and implementation work can begin on specific environmental concerns as soon as the alternatives are developed. The Operable Units were defined based on their location or the potential for similar response actions and include:

- Waste Pit Area
- Other Waste Units (solid waste landfill, south field disposal areas, flyash piles, lime sludge ponds)
- Production Area
- Silos 1-4
- Environmental media (groundwater, soil, sediments, surface water, air, vegetation, wildlife)

The RI/FS work includes extensive sampling and analysis of soil, water, and other media to detect and quantify levels of contamination present in the various Operable Unit areas. Once the nature and extent of the contamination has been defined, a structured analysis of alternative methods of removing or containing the contamination is undertaken.

A Record of Decision will be prepared to specify the remedial alternative for each Operable Unit. DOE and U. S. EPA signed an Amended Consent Agreement in

September 1991 which included new schedules for completion of the RI/FS work and acceleration of near-term remediation activities or Removal Actions. Under the amended agreement, the first Record of Decision (Operable Unit 4) is scheduled for June 1994, followed by Operable Unit 1 in November 1994, Operable Unit 2 in January 1995, Operable Unit 5 in July 1995, and Operable Unit 3 in April 1997.

Removal Actions are initiated when there is a need to accelerate remediation of releases of hazardous substances posing a significant potential threat to the environment or to the human population. Removal Actions are coordinated with both Ohio and U. S. EPA to ensure that they are consistent with the long-term corrective actions expected as a result of Records of Decision generated through the RI/FS process.

What is the Fernald area residents' class action suit?

The Fernald Area Residents' Class Action Suit was filed January 23, 1985, on behalf of persons who lived or worked within five miles of the Fernald Site for at least two years prior to December 1984.

The class action was a consolidation of several individual suits filed against National Lead of Ohio, the managing and operating contractor for the Fernald site from 1951-1985. The suit claimed \$300 million in damages for lost property values and emotional trauma resulting from operation of the Feed Materials Production Center.

A non-binding summary jury trial was held in June 1989, and resulted in a jury recommendation of \$1 million in compensatory damages, \$55 million in punitive damages, and \$80 million for

medical monitoring. DOE and representatives of the class action plaintiffs reached a settlement agreement that providedg \$78 million for medical monitoring and payments to individuals who can prove emotional distress or loss of property values.

Claims for emotional distress and diminished property value, as well as requests for medical monitoring, are being handled by a court-appointed panel of trustees.

The deadline for filing property value claims was June 30, 1991, while the deadline for emotional distress claims was December 31, 1991. Applications for medical monitoring are still being accepted.

Eligible claimants must have owned property or a mobile home within five miles of the Fernald site for at least two

years between 1952 and 1984. Other individuals who lived or worked in the area during those years were also eligible for lump sum payments as determined by the trustees.

The Fernald Settlement Fund Trustees are charged with administering payments from the settlement fund to individuals who lived or worked within five miles of the U. S. Department of Energy's (DOE) Feed Materials Production Center (now called the Fernald Environmental Management Project) for at least two consecutive years between January 1, 1952, and December 18, 1984.

DOE provided \$78 million for the fund, including \$5 million set aside exclusively for diminution of values of commercial or industrial property within the five-mile radius of the Fernald Site's boundaries.

The settlement fund is composed of five

separate programs (described below) through which qualifying individuals can receive medical monitoring or compensation. Questions about these programs should be directed to:

Fernald Settlement Fund Trustees
525 Vine St.
Suite 1300
Cincinnati, Ohio 45202
Telephone: (513) 421-4410

Specific information regarding who has received payments and at what amounts is available at the Hamilton County Courthouse. This information cannot be provided by telephone.

The Fernald Settlement Fund Trustees are:

Dr. Raymond Suskind
J. Kermit Smith
William T. Hayden

Paul DeMarco of Waite, Schneider,
Bayless and Chesley Law Firm, represents
claimants in the Fernald Settlement and
can be reached at (513) 621-0267.

The Medical Monitoring Program

The program provides a complete physical
examination at Mercy Hospital to all
qualifying individuals (those who lived or
worked within five miles of Fernald for
two consecutive years between January 1,
1952 and December 18, 1984). The value
of this service is estimated at about \$800.

One year after the initial physical
examination, the qualifying individual is
sent a questionnaire on which to report any
changes in physical condition, etc. In the
third year, each individual will be provided
with another physical examination. It is
anticipated that all participants will
continue to receive questionnaires to

update their physical condition annually thereafter.

The settlement fund provides no compensation for physical illness claimed to result from living or working near the Fernald Site.

Individuals who wish to participate in the medical monitoring program should contact the Fernald Settlement Fund Trustees.

The Emotional Distress Program

Eligibility for this program is the same as for the other programs.

Claimants sent a claim form to the trustees to establish eligibility for the program. Those who were eligible received a lengthy questionnaire from a team of psychologists at Washington University, St. Louis, Missouri. Different

questionnaires were used for adults and for children.

The returned questionnaires were scored by the Washington University psychologists, who also determined whether follow-up telephone or personal interviews were necessary to clarify responses to the questions.

The psychologists assigned a value or rank to each claim based on the results of the questionnaires and interviews. Four levels of severity were established for children: minimal, mild, moderate, and severe. The same four levels were established for adults, with each of those levels further subdivided into levels of low, medium, and high.

Payments to individuals ranged from \$550 to \$11,000 for adults and from \$1,000 to \$4,000 for children. These payments were reduced, however, by whatever amount

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was paid to the individual under the Phase I and Phase II Compensation Programs described below.

The deadline for applying for compensation under the Emotional Distress Program has passed and no further claims will be considered.

The Real Property Value Diminution Program

Claims under this program were limited to individuals who owned property (including mobile homes) near the Fernald Site on December 18, 1984.

Persons who owned residential or commercial/industrial real property within two miles of the Fernald boundary received a percentage of the assessed value of their property as determined in 1984 tax records of Hamilton and Butler Counties.

Persons who owned mobile homes within one mile of the Fernald Site received \$2,000; those who owned mobile homes within two miles received \$1,000.

While it was not established that property outside the two-mile boundary had diminished in value, the trustees awarded payments of \$800 to owners of property from two to three miles from the site and \$400 to owners of property from three to five miles from the site.

The deadline for applying for compensation under the Real Property Value Diminution Program has passed and no further claims will be considered.

The Phase One Compensation Program

Any qualifying individual who lived or worked within two miles of the Fernald Site received a one-time payment of \$500.

The Phase Two Compensation Program

Any qualifying individual who lived or worked within two to three miles of the site received a one-time payment of \$300.

Any qualifying individual who lived or worked within three to four miles of the site received a one-time payment of \$200.

The deadlines for applying for compensation under the Phase One and Phase Two Compensation Programs have passed and no further claims will be considered.

USE LIFE-CYCLE for CONTAMINATED PROPERTY

	CURRENT USE	TRANSITIONAL USE	FUTURE USE	ULTIMATE USE
Timeframe	Two to five more years	20 to 30 years	After 20 or 30 years	50 years or more into the future
Property Status	Contaminated property	Construction project	Remediated property	Clean Property
Cleanup Stage	Sampling and Analysis Decision making	Remediation	Post Remediation	Revisiting remediation based on technology innovations
Access	Restricted	Restricted	To Be Determined	Mostly unrestricted
On-site activities	Sampling Removal activities Treatability studies	Construction Waste treatment Interim waste storage	Long-term waste disposal Misc. residential and commercial uses	Misc. residential and commercial uses

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OBJECTIVE

This exercise illustrates the volumes of contaminated soil that must be handled in achieving alternative uses of the Fernald property. The objective is to determine a desired future use of the entire facility and account for all of the contaminated material in either off-site disposal or on-site disposal.

HOW TO PLAY

The Board

The Fernald facility has been organized into a grid of 1000 foot squares. Each square represents approximately 23 acres of land. For each square, the volume of material that must be removed to achieve alternative future uses has been calculated. A chart representing these volumes is included for reference throughout the exercise.

Removing Chips from the Board

Colored chips are stacked on each square representing relative volumes of material requiring disposal. To "achieve" a future land use on a given square, you must remove all of the color chips which represent the volume of soil containing contamination at concentrations above that required for the selected use. For example, to achieve residential use, all chips above white must be removed. Each chip of the same color represents the same volume of material, however volumes vary among colors due to greater volumes required to achieve more stringent land uses. Future uses and chip values are presented below:

FUTURE USE	CLEANUP LEVEL AT 10 ⁻⁵	REMOVE CHIPS	CHIP VALUE
Restricted	1,739 ppm	Down to Red	Black - 1,000 yd ³
Green Space	1,259 ppm	Down to Yellow	Red = 1,000 yd ³
Developed Park	390 ppm	Down to Green	Yellow = 10,000 yd ³
Commercial/ Industrial	138 ppm	Down to Blue	Green = 10,000 yd ³
Residential/ Agricultural	21 ppm	Down to White	Blue = 25,000 yd ³
Background	3.6 ppm	Down to board	White = 50,000 yd ³

Disposition of Chips

As chips are removed from the board, they must be placed in one of three bins representing disposal of the waste, as follows:

Off-Site Disposal

Material placed in this bin is assumed to go to a long-term disposal facility such as the Nevada Test site. Source material from the silos and waste pits have already been placed in this bin. There is a total limit of 1 million cubic yards of material that can be sent to off site disposal.

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On-Site Treatment

Treatment such as soil washing is available to reduce the concentration of contamination in soil to achieve commercial/industrial levels. Thus, only soils above commercial/industrial levels are available for treatment. Following treatment, 30% of the original volume will contain concentrated levels of contamination and must be sent to either on-or off-site disposal. The remaining 70% is returned to the site in a controlled fashion.

On-Site Disposal

Contaminated material left on site will be disposed of in an engineered facility. It is assumed that one acre of land will be needed for each 13,000 cubic yards of contaminated material. This total includes all ancillary operations and buffer space. Space on site must be reserved for placement of disposal facilities at the completion of the exercise. Operation of a disposal facility would be considered a commercial/industrial type use.

Finishing the Exercise

After the board is organized to represent the desired future use of your team, total volumes and costs can be calculated by performing the calculations indicated on the tally sheets provided. Count the number of chips in each of the bins and place the number in the appropriate space on the tally sheet to perform the calculations.

KEY ASSUMPTIONS

Volume and Cost Data

Soil volumes and cost data were developed using the best currently available data, but are only estimates of actual values.

Risk

EPA guidance provides for a range of acceptable risk of excess cancer of between one in ten thousand (10^{-4}) and one in one million (10^{-6}). Currently DOE is using this full range in evaluating Fernald Risks and cleanup options for Fernald, but a target level of risks has yet to be determined. For the purposes of this exercise, the midpoint of this range was selected to calculate volumes of material. This risk of one in one hundred thousand (10^{-5}) is not meant to constitute a risk decision for the Task Force, but has merely been used to facilitate an understanding of future use and disposal issues. Should a risk of 10^{-6} be selected for Fernald, the volumes of material requiring disposal will be much greater. Conversely, should a risk of 10^{-4} be selected for Fernald, the volumes of material requiring disposal will be much less. A table showing cleanup levels for uranium under each of the three risk targets has been developed to help illustrate this point.

Source Material

A number of decisions regarding disposition of source material from various operable units have already been drafted and have been incorporated into the exercise according to the potential impact on future use. Source materials from the silos and the waste pits area assumed to be completely removed and disposed of off-site. This activity will not affect the use of the site. Volumes of this material are built into the off-site disposal totals on the tally sheets. On the other hand, the in-place capping option recently released in the proposed plan for the flyash piles does restrict the future use of the site in these areas. For that reason, the flyash pile volumes have been included in the total volumes of soil for the exercise.

Off-Site Disposal Limitations

An arbitrary limit of one million cubic yards has been placed on off-site disposal to reflect realistic logistical and political considerations. At present there are only two known facilities (Nevada Test Site and Envirocare of Utah) able to accept the large volumes of DOE low level radioactive waste from Fernald. Both face significant political pressures on accepting large amounts of out-of-state waste and Envirocare has a limited capacity for new waste. The ability to dispose of greater than one million cubic yards is unlikely.

Soil Volumes⁽¹⁾ vs. Future Land Use Scenarios

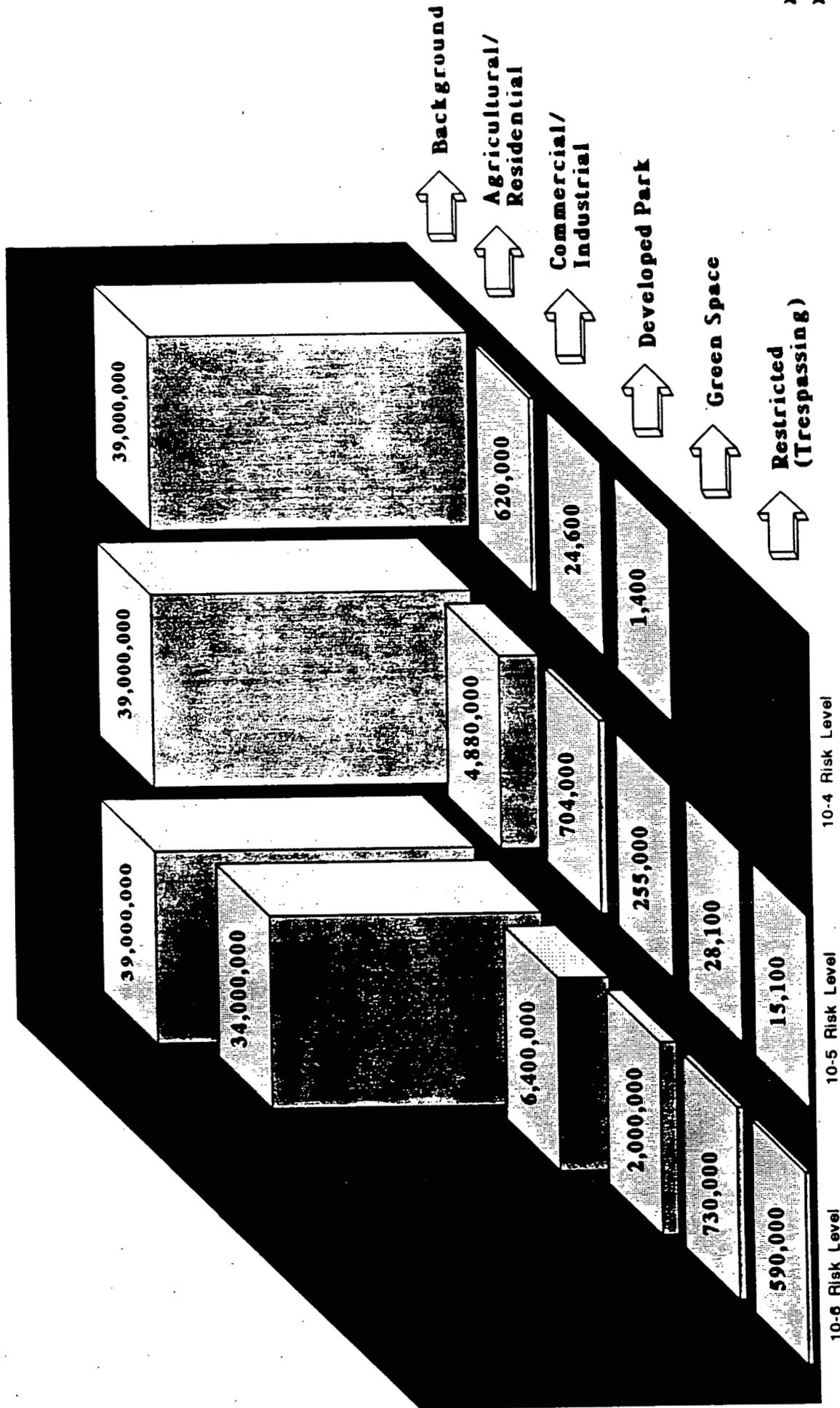
LAND USE SCENARIO	10 ⁶ RISK LEVEL			10 ⁵ RISK LEVEL			10 ⁴ RISK LEVEL		
	PRG ⁽²⁾			PRG			PRG		
	(3) pC1/g	(4) ppm(ug/g)	TOTAL yd ³	pC1/g	ppm(ug/g)	TOTAL yd ³	pC1/g	ppm(ug/g)	TOTAL yd ³
BACKGROUND LEVEL	1.2	3.6	39,000,000	1.2	3.6	39,000,000	1.2	3.6	39,000,000
AGRICULTURAL									
Full Agricultural	2.0	6.0	34,000,000	7.0	21	4,880,000	56	168	620,000
Grazing Use Only	9.0	27.0	3,400,000	82.0	246	440,000	810	2400	6,600
RESIDENTIAL	3.0	9.0	27,000,000	17.0	51	1,700,000	160	480	188,000
COMMERCIAL & INDUSTRIAL	6.0	18.0	6,400,000	46.0	138	704,000	450	1,300	24,600
RECREATIONAL									
Developed Park	14.0	42	2,000,000	130.0	390	255,000	1,300	3,900	1,400
Undeveloped Park	28.0	84	1,000,000	270.0	810	71,000	2,700	8,100	0
Green Space	44.0	131	730,000	420.0	1259	28,100	4,200	13,000	0
RESTRICTED (trespassing)	60.0	180	590,000	580.0	1739	15,100	5,800	17,000	0

NOTES: (1) - VOLUMES - soil only, does not include waste from pits, silos, or building demolition.
 (2) - PRG (Preliminary Remediation Goals)
 (3) - U 238 data
 (4) - U Total data

Supersedes all previous issues
 May 13, 1994 (9:42am)

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Soil Volumes vs. Future Land Use Scenarios



31
51
90



A B C D E F G

1
2
3
4
5
6
7
8
9

BUTLER COUNTY
HAMILTON COUNTY

BUTLER COUNTY
HAMILTON COUNTY

FEMP NORTH

STATE OF OHIO NORTH
(NAD 27)

1.5678"

LEGEND:

- - - COUNTY LINE
- . - FEMP PROPERTY LINE

TOTAL Cost = _____

On Site Cost = _____

Off Site Cost = _____

SOIL VOLUME (CUBIC YARDS) TO ACHIEVE CLEANUP LEVELS FOR 10-5 RISK

GRID	PPM White, >3.6	PPM Blue, >21	PPM Green >138	PPM Yellow >390	PPM Red >1259	PPM Black >1739
1-A	85,800					
1-B	103,000					
1-C	8,130					
1-D	0					
1-E	0					
1-F	880					
1-G	30,300					
2-A	5,000					
2-B	786,000					
2-C	694,000					
2-D	487,000					
2-E	187,000					
2-F	139,000					
2-G	137,000					
3-A	729,000	17,500				
3-B	1,130,000	174,000	25,000	3,880		
3-C	1,100,000	136,000				
3-D	928,000	287,000	20,900			
3-E	747,000	106,000				
3-F	235,000	16,100				
3-G	45,200	39				
4-A	913,000	170,000	21,200			
4-B	1,510,000	958,000	533,000	215,000	9,700	2,800
4-C	1,750,000	474,000	83,000	36,100	18,400	12,300
4-D	1,280,000	136,000	1,460			
4-E	1,310,000	250,000				
4-F	742,000	151,000	1,300			
4-G	466,000	2,000				
5-A	428,000					
5-B	1,430,000	81,800				
5-C	1,190,000	228,000				
5-D	1,520,000	299,000				
5-E	1,450,000	178,000				
5-F	1,040,000	205,000				
5-G	622,000	163,000				
6-A	419,000	44,800				
6-B	594,000	22,400				
6-C	893,000	104,000				
6-D	1,070,000	134,000	4,600			
6-E	1,020,000	148,000	4,560			
6-F	810,000	42,100				
6-G	625,000	31,800				
7-A	213,000	44				
7-B	405,000	14,400	220			
7-C	854,000	46,000				
7-D	766,000					
7-E	430,000					
7-F	480,000					
7-G	234,000					
8-A	76,000					
8-B	543,000	65,700	8,100	430		
8-C	1,490,000	200,000				
8-D	855,000					
8-E	74,900					
8-F	581,000					
8-G	306,000					
9-A	303,000					
9-B	44,200					
9-C	603,000	23,000				
9-D	873,000					
9-E	223,000					
9-F	253,000					
9-G	168,000					
TOTAL	39,000,000	4,880,000	704,000	255,000	28,100	15,100
ACRES	3000	375	54	20	2	1.2
TRUCKS	1,560,000	195,200	28,160	10,200	1,124	604

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TREATMENT BIN

#Black:	_____	x	1,000	=	_____
#Red:	_____	x	1,000	=	_____
#Yellow:	_____	x	10,000	=	_____
#Green:	_____	x	10,000	=	_____
#Blue:	_____	x	25,000	=	_____
#White:	_____	x	50,000	=	_____
TOTAL VOLUME =					_____
COST = Total Volume x \$300					_____
DISPOSAL VOLUME = Total Volume x 30%					_____

ON-SITE DISPOSAL BIN

#Black:	_____	x	1,000	=	_____
#Red:	_____	x	1,000	=	_____
#Yellow:	_____	x	10,000	=	_____
#Green:	_____	x	10,000	=	_____
#Blue:	_____	x	25,000	=	_____
#White:	_____	x	50,000	=	_____
Volume from Treatment Bin					= _____
TOTAL VOLUME =					_____
COST = Total Volume x \$400					_____
ACRES = Total Volume ÷ 13,000					_____

OFF-SITE DISPOSAL BIN

#Black:	_____	x	1,000	=	_____
#Red:	_____	x	1,000	=	_____
#Yellow:	_____	x	10,000	=	_____
#Green:	_____	x	10,000	=	_____
#Blue:	_____	x	25,000	=	_____
#White:	_____	x	50,000	=	_____
Volume from Treatment Bin					= _____
Volume from OU1 Sources					= <u>630,200</u>
Volume from OU4 Sources					= <u>13,990</u>
TOTAL VOLUME =					<u>644,190</u>
COST = Total Volume x \$1,000					_____
TRUCKLOADS - Total Volume ÷ 25					_____

Board Set-up

GM	A	B	C	D	E	F	G
1	BK R Y G B 2 White	BK R Y G B 2 White	BK R Y G B W	BK R Y G B W	BK R Y G B W	BK R Y G B W	BK R Y G B 1 White
2	BK R Y G B 7 White	BK R Y G B 16 White	BK R Y G B 14 White	BK R Y G B 10 White	BK R Y G B 4 White	BK R Y G B 3 White	BK R Y G B 3 White
3	BK R Y G 1 Blue 15 White	BK R 1 Yellow 3 Green 7 Blue 23 White	BK R Y G 5 Blue 22 White	BK R Y 2 Green 11 Blue 19 White	BK R Y G 4 Blue 15 White	BK R Y G 1 Blue 5 White	BK R Y G B 1 White
4	BK R Y 2 Green 7 Blue 18 White	3 Black 10 Red 21 Yellow 52 Green 38 Blue 30 White	12 Black 18 Red 4 Yellow 8 Green 19 Blue 35 White	BK R Y G 5 Blue 26 White	BK R Y G 10 Blue 26 White	BK R Y G 6 Blue 15 White	BK R Y G B 10 White
5	BK R Y G B 9 White	BK R Y G 3 Blue 29 White	BK R Y G 9 Blue 24 White	BK R Y G 12 Blue 30 White	BK R Y G 7 Blue 29 White	BK R Y G 8 Blue 21 White	BK R Y G 6 Blue 12 White
6	BK R Y G 2 Blue 8 White	BK R Y G 1 Blue 12 White	BK R Y G 4 Blue 18 White	BK R Y 1 Green 5 Blue 21 White	BK R Y 1 Green 6 Blue 20 White	BK R Y G 2 Blue 16 White	BK R Y G 1 Blue 12 White
7	BK R Y G B 4 White	BK R Y G 1 Blue 8 White	BK R Y G 2 Blue 17 White	BK R Y G B 15 White	BK R Y G B 9 White	BK R Y G B 9 White	BK R Y G B 5 White
8	BK R Y G B 2 White	BK R Y 1 Green 3 Blue 11 White	BK R Y G 8 Blue 30 White	BK R Y G B 17 White	BK R Y G B 1 White	BK R Y G B 12 White	BK R Y G B 6 White
9	BK R Y G B 6 White	BK R Y G B 1 White	BK R Y G 1 Blue 12 White	BK R Y G B 17 White	BK R Y G B 4 White	BK R Y G B 5 White	BK R Y G B 3 White

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STAKEHOLDER MEETING SCHEDULE

DATE	STAKEHOLDER MEETING	CONFIRMED (*)
June 1:	CDC Meeting	NA
June 2:	Community Roundtable on OU3 RD/RA process	Yes
June 9	Task Force Public Meeting	
June 11:	Fernald Citizens Task Force Meeting	NA
June 14:	RI/FS Community Meeting	Yes
June 28:	OU2 FS Workshop	Yes
July 19-21:	DOE-HQ Future Use Task Force	NA

**Yes* indicates final DOE approval to proceed with meeting. NA identifies meetings by external DOE agencies, groups or organizations.