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AGENDA AND HANDOUTS FROM THE FERNALD CITIZENS TASK FORCE MEETING OF JUNE 11, 1994

06/11/94

TASK FORCE PUBLIC
5
HANDOUTS

FERNALD CITIZENS TASK FORCE

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

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AGENDA

June 11, 1994

1. *Time and Place*

The next regularly scheduled meeting of the Task Force will be on Saturday, June 11, 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	Report on MPN meetings in Washington, D.C. (Lisa Crawford, Pam Dunn)
9:00	*FutureSite* exercise (Doug Sarno)
10:30	Evaluation of future use options (Sarno)
11:30	New information for the toolbox (Sarno)
11:45	Opportunity for public participation
11:55	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)*

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FEMP CHEMICAL INVENTORY AND REPORTING REQUIREMENTS

SARA 312 Report

Title III of the Superfund Amendments and Reauthorization Act (SARA) requires owners or operators of a facility to supply State and local officials and the public with information on hazardous chemical present at the facility during the past year. As such, the report is an indication of the types of chemical hazards at the facility rather than a current inventory. The report must contain those hazardous chemicals for which the facility must have or develop Material Safety Data Sheets (MSDS) in accordance with the Occupational Safety and Health Act (OSHA) Hazard Communication Standard.

RCRA Annual Report

Hazardous wastes as defined by the Solid Waste Disposal Act are exempt from the reporting requirements of SARA. Information on the inventory of hazardous wastes is contained in the Resource Conservation and Recovery Act Annual Report.

Combining the inventory of hazardous materials from the SARA 312 report with the inventory of hazardous wastes from the RCRA Annual Report should give a good representation of chemical hazards at the FEMP.

Chemical Name	Maximum Quantity	Physical State	Description of Hazard[1]
Anhydrous Ammonia	250 lbs.	gas	Acute exposure causes severe burns to any tissue contacted
Chlorine Gas	1200 lbs.	gas	Acute exposure causes irritation of eyes, nose and throat; pulmonary edema; headache; dizziness; etc.
Diesel Fuel	21200 lbs.	liquid	Acute exposure causes irritation of eyes, nose and throat; inhalation causes central nervous system depression, chemical pneumonia
Freon	1085 lbs.	liquid or gas	Generally considered non-toxic. May be dissolved in an organic solvent - effects of acute exposure mimic the symptoms of the solvent (i.e.,if the solvent is alcohol, symptoms include central nervous system depression)
Hydrochloric Acid	1100 lbs.	liquid	Acute exposure causes irritation/chemical burns to eyes, nose and throat; pulmonary edema

[1] The Description of Hazard comes from the Health Hazard section of Material Safety Data Sheets used at the FEMP

Chemical Name	Maximum Quantity	Physical State	Description of Hazard
Hydrofluoric Acid (10 %)	5900 lbs.	liquid	Acute exposure causes irritation of the eyes, nose, and throat, respiratory system burns; pulmonary edema; lung inflammation
Magnesium Oxide	106,475 lbs.	solid	Acute exposure causes slight irritation of the eyes and nose
Methanol	395,120 lbs.	liquid	Vapors may cause irritation of the mucous membranes, bronchitis, etc.; ingestion (including skin absorption) causes inebriation, headache, dizziness, cerebral and pulmonary edema are possible.
Nitric Acid	20,040 lbs.	liquid	Acute exposure to vapor causes irritation of the eyes, nose, throat and respiratory system-high exposures can cause pulmonary edema, cyanosis, and death; contact with liquid causes tissue destruction.
Phosphoric Acid	33,960 lbs.	liquid	Acute exposure causes irritation of the eyes, nose, and throat, respiratory system burns; pulmonary edema; lung inflammation
Propane	9721 lbs.	liquid or gas	Simple asphyxiant, contact with liquid causes frostbite
Sodium Hydroxide	254,655 lbs.	liquid or solid	Acute exposure to dust or vapor causes irritation to eyes, nose, throat, and respiratory system; intense exposures may result in pulmonary edema and pneumonitis.
Sulfuric Acid	88,720 lbs.	liquid	Acute exposure to vapor causes eye, skin, and respiratory system irritation. Excessive inhalation causes nausea, headache, and even asphyxiation. Chronic exposure has caused kidney and liver cancer in rats.
Unleaded Gasoline	7944 lbs.	liquid	Acute exposure causes irritation of eyes, skin, and respiratory tract; inhalation may cause dizziness, nausea, headache, possible unconsciousness; increased liver and kidney cancer in laboratory animals.
Urea	21,859 lbs.	solid	Acute exposure may cause irritation of skin, eyes, throat, and respiratory tract.; Inhalation may cause shortness of breath, headaches and confusion; ingestion causes pain, nausea, vomiting, and irritation.

[1] The Description of Hazard comes from the Health Hazard section of Material Safety Data Sheets used at the FEMP

CHARACTERISTICS OF KEY FEMP CONTAMINANTS: RADIONUCLIDES

Revision 1

Key Contaminants	Characterization of Threat	Half-life or Persistence	Background Levels[a]	Legal Standards: Drinking Water	Legal Standards Soil/Other
Uranium	cancer of the lung and lymphoma; kidney toxicity	^{238}U = 4.5 billion years, decays to lead	^{238}U(+ 2 progeny) = 1.22 pCi per gram of soil	(Proposed)[b]: 20 μg U_{total} per liter (parts per billion) of water (30 pCi per liter)[f]	
Thorium	Cancer of the bone and liver	^{228}Th = 1.91 years ^{232}Th = 14.1 billion years	^{228}Th = 1.43 pCi/g	(Current)[c]: 15 pCi gross alpha activity per liter of water (excluding Rn and U)	
Radium	cancer of skin and bones	^{226}Ra = 1602 years ^{228}Ra = 6.7 years	^{226}Ra (+5 progeny) = 1.45 pCi/g ^{228}Ra (+1 progeny) = 1.19 pCi/g	(Current) 5 pCi per liter total Radium. (Proposed) 20 pCi per liter each (^{226}Ra and ^{228}Ra)	Soil: 5 pCi total radium per gram (surface) and 15 pCi radium per gram (subsurface)[d]
Radon	cancer of the lungs	^{222}Rn Effective Half-Life=30 minutes		(Proposed): 300 pCi radon per liter of water	Air: 20 pCi/-m^2-s emission rate per source[e](e.g., K-65 silos)

CHARACTERISTICS OF KEY FEMP CONTAMINANTS: ASBESTOS

Key Contaminants	Characterization of Threat	Half-life or Persistence	Background Levels	Legal Standards: Drinking Water	Legal Standards: Airborne Concentrations
Asbestos	cancer, asbestosis	stable		(Current) 7 million fibers per liter	NESHAP-No visible emissions; OSHA PEL-0.2 fibers per cc[g]

[a] Background levels in soil, 95th percentile: Proposed Plan for Remedial Actions at Operable Unit 4 (DOE/EIS-0195D) February 1994

[b] Proposed Maximum Contaminant Level - 56 FR (Federal Register) 33050, July 18, 1991

[c] Current Maximum Contaminant Level - 41 FR 28404, July 9, 1976

[d] 5 pCi/g averaged over the first 15 cm below the surface, 15 pCi/g averaged over any 15 cm depth greater than 15 cm below the surface, both limits apply to concentrations above background and are averaged over an area of 100 m^2

[e] 40 CFR 61.190, Subpart Q - National Emission Standards for Radon Emissions from Department of Energy Facilities

[f] The conversion factor (μg to pCi) for uranium as it occurs in drinking water was calculated using the geometric mean of the ratio of ^{234}U to ^{238}U, Nationwide occurrence of Radon and Other Natural Radioactivity in Public Water Supplies, EPA 520/5-85-008, (October 1985)

[g] 40 CFR 61.140, Subpart M - National Emission Standards for Asbestos; Occupational - 29 CFR 1926.58(b), Permissible Exposure Limit for Asbestos

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CHARACTERISTICS OF KEY FEMP CONTAMINANTS: INORGANICS

Key Contaminants	Characterization of Threat	Half-life or Persistence	Background Levels[a]	Legal Standards: Drinking Water	Legal Standards: Soil/Other
Arsenic	skin cancer (ingestion) lung cancer (inhalation)[h]	stable	8.45 mg/kg	(Current[c] - under review) 0.05 mg per liter (50 ppb)	
Beryllium	dermatitis, acute pneumonitis, probable human carcinogen	stable	0.6 mg/kg	(Current)[c] 0.004 mg/l (4 ppb)	
Cadmium	kidney/liver toxicity	stable	0.82 mg/kg	(Current)[c] 0.005 mg/l (5 ppb)	
Cobalt	allergen, pneumoconiosis	stable			

CHARACTERISTICS OF KEY FEMP CONTAMINANTS: ORGANICS

Key Contaminants	Characterization of Threat	Half-life or Persistence	Background Levels	Legal Standards: Drinking Water	Legal Standards: Soil/Other
Organics (e.g., PCB's, PAH's)	cancer of the skin and stomach	very persistent	0.00 mg/kg[f]	Chemical specific	

a Background levels in soil, 95th percentile: Proposed Plan for Remedial Actions at Operable Unit 4 (DOE/EIS-0195D) February 1994
b Proposed Maximum Contaminant Level - 56 FR (Federal Register) 33050, July 18, 1991
c Current Maximum Contaminant Level - 41 FR 28404, July 9, 1976
d 5 pCi/g averaged over the first 15 cm below the surface, 15 pCi/g averaged over any 15 cm depth greater than 15 cm below the surface, both limits apply to concentrations above background and are averaged over an area of 100 m^2.
e 40 CFR 61.190, Subpart Q - National Emission Standards for Radon Emissions from Department of Energy Facilities
f Polychlorinated biphenyl (PCB) background - Operable Unit 2 Feasibility Study, March 25, 1994 Draft
g 40 CFR 61.140, Subpart M - National Emission Standards for Asbestos; Occupational - 29 CFR 1926.58(b), Permissible Exposure Limit for Asbestos
h Increased risk of skin cancer associated with oral exposure to high levels in well water, lung cancer associated with inhalation exposure by persons employed as smelter workers and as arsenical pesticide applicators

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General Characteristics of Radiation

Chemical toxins must be taken into the body before any adverse health effects can occur. However, unlike chemical toxins, exposure to radiation may also occur even when the radioactive materials are outside the body. Radionuclides may also present risk from chemical toxicity, however the risk as carcinogens usually dominates risk assessments.

Alpha Particles (radiation) outside the body cannot penetrate through the outer, dead, layer of skin so material that emits alpha radiation is only hazardous if taken into the body. However, once inside the body, alpha radiation poses a much higher risk than beta or gamma radiation.

Beta Particles (radiation) cannot penetrate from outside the body to the internal organs and is, therefore, only a threat to shallow tissues such as the skin and outer eyes (cornea) unless ingested. The most energetic beta particles in the uranium decay series cannot travel more than 30 feet in air (twelve feet per MeV of energy).

Gamma Rays (radiation) have the characteristic of traveling long distances and penetrating deeply into matter. Gamma radiation can penetrate deep into body tissues and cause injury to internal organs. Radiation from the ^{238}uranium decay series is predominantly particulate (alpha and beta) with a relatively small percent abundance of gamma emitters.

General Characteristics of Chemical Toxins

Chemical toxins must be taken into the body before any adverse health effects can occur. Chemicals may enter the body through inhalation, ingestion, injection, and by absorption through the skin. Types of interactions (additive, synergistic or antagonistic)between different chemicals have generally not been quantified, risk characterization does not consider antagonistic or synergistic effects and an assumption of additivity is made.

General Characteristics of Asbestos Containing Material (ACM)

Asbestos is a strong, incombustible fiber widely used in the past for fireproofing and insulation. The small, buoyant fibers are easily inhaled or swallowed, causing a number of serious diseases including: asbestosis, a chronic disease of the lungs that makes breathing more and more difficult; and two forms of cancer (1) mesothelioma, a cancer (specific to asbestos exposure) of the membranes that line the chest and abdomen[2], and (2) bronchogenic carcinoma, a malignancy of the interior of the lung. Asbestos may be divided into two mineral groups: (a)Pyroxines, which include chrysotile, the type most widely used in U.S. industry; and (b) amphiboles. Chrysotile (white asbestos) is the fibrous form of the mineral serpentine.[3]

Asbestos-containing materials (ACM) utilized at the FEMP includes transite wall and roof panels, some floor tiles, pipe insulation, and loose insulation. Transite is a trade name for an asbestos-cement composite material composed of primarily portland cement and chrysotile (asbestos) fibers. Transite has been widely used on-site as the interior and exterior structural skin of buildings. Transite is formed by hydraulically pressing together uncured, thin asbestos-cement sheets to form hard, durable material. The final product has an approximate density of 112 pounds per cubic foot, and is usually 3/8 inch thick, 42 or 48 inches wide, and either 48 or 96 inches long. [1]

1 Operable Unit 3 Treatability Study Work Plan, Final, Section 1.2.1.6, Asbestos-Containing Materials.
2 FERMCO Glossary of Definitions and Terms, August 1, 1993 (GDT-300)
3 Fundamentals of Industrial Hygiene, Copyright 1979 National Safety Council

General Characteristics of Asbestos Containing Material (continued)

Inhalation is the primary route of exposure for asbestos. The term "friable" is often used to identify materials which present a high potential to generate airborne concentrations of asbestos. Friable means capable of being crumbled, pulverized, or reduced to powder by hand pressures. Examples of friable asbestos containing materials includes loose insulation and any material which has deteriorated due to physical and chemical degradation (e.g., transite in buildings which conducted operations using acid processes such as Plant 2/3 and 6).

The process of physically removing any of the asbestos containing material used at the FEMP may result in unacceptable airborne concentrations. Airborne concentrations of ACM are generally minimized using engineering controls (e.g., wetting or glove bags) during removal. Personnal protective equipment, such as protective clothing and respiratory protection devices, are often used in addition to engineering controls to minimize the potential for occupational exposure. Extensive training of site personnel is required for individuals who conduct operations in areas containing airborne asbestos.

FUTURESITE OVERVIEW AND INSTRUCTIONS

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 25 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. Each chip represents soil containing the range of contaminant concentrations between uses. To "achieve" a future land use on a given square, you must remove all of the color chips which representing 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. In addition, the differences in cleanup levels for 10^{-5} and 10^{-6} result in the colors representing different ranges for the two scenarios. Future uses and chip values are presented below:

FUTURE USE CATEGORY	CHIP VOLUMES	CLEANUP LEVELS & RANGES AT 10^{-5}	CLEANUP LEVELS & RANGES AT 10^{-6}
Restricted Access (Down to Red)	Black = 500 yd^3	1,739 ppm (black>1,739)	180 ppm (black>180)
Undeveloped Greenspace (Down to Yellow)	Red = 500 yd^3	1,259 ppm (1,259<red<1,739)	132 ppm (132<red<180)
Developed Park (Down to Green)	Yellow = 1,000 yd^3	390 ppm (390<yellow<1,259)	42 ppm (42<yellow<132)
Commercial/Industrial (Down to Blue)	Green = 1,000 yd^3	138 ppm (138<green<390)	18 ppm (18<green<42)
Residential/Agricultural (Down to White)	Blue = 2,500 yd^3	21 ppm (21<blue<138)	6 ppm (6<blue<18)
Background (Down to board)	White = 2,500 yd^3	3.6 ppm (3.6<white<21)	3.6 ppm (3.6<white<6)

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.

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. Total volumes of each color are also included in your information.

KEY ASSUMPTIONS

Uncertainty in Volume and Cost Data

Soil volumes and cost data were developed using the best currently available data, but are only estimates of actual values. Confidence in the soil volumes is higher at the higher concentrations but decreases significantly as soil concentrations approach background. As a result a striped chip has been placed at the bottom of each chip column to represent the uncertainty of having achieved background with the soil volumes provided. In order to achieve background, the uncertainty chip must also be removed and recognition given to the fact that volumes of soil could be several times that currently generated by the computer model which was used to calculate these volumes.

Risk and Cleanup Levels

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 risk has yet to be determined. For the purposes of this exercise, volumes for both one in on hundred thousand (10^{-5}) and one in one million (10^{-6}) have been developed to illustrate potential cleanup requirements. Cleanup levels were calculated based direct exposure risks tohumand health and do not include ecological risk or risks to groundwater. A table showing cleanup levels for uranium under each risk target is included.

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 are assumed to be completely removed and disposed of off-site and therefore will not affect the use of the site; these volumes appear in the off-site bin. You are also free to move these volumes into on-site storage if you wish. The in-place capping option currently proposed for the flyash piles does restrict the future use of the site in these areas. For that reason, the flyash sludges are clearly designated as black chips denoting material requiring disposal. Debris from site buildings has also been clearly designated by black chips in the production area.

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 currently considered unlikely.

Soil Volumes[1] vs Future Land Use Scenarios

LAND USE SCENARIO		PRG[2] at 10^{-6} Level			PRG at 10^{-5} Level			PRG at 10^{-4} Level		
		(3) pCi/g	(4) ppm(ug/g)	Total yd^3	pCi/g	ppm(ug/g)	Total yd^3	pCi/g	ppm(ug/g)	Total yd^3
Background		1.2	3.6	3,180,000	1.2	3.6	3,180,000	1.2	3.6	3,180,000
AGRICULTURAL										(5)
	Full Agricultural	2.0	6.0	* 2,987,000	7.0	21	* 1,034,600	56	168	90,000
	Grazing Use Only	9.0	27.0	764,000	82.0	246	59,000	810	2400	0
RESIDENTIAL		3.0	9.0	2,498,000	17.0	51	303,000	160	480	25,000
COMMERCIAL & INDUSTRIAL		6.0	18.0	* 1,396,000	46.0	138	* 82,800	450	1,300	4,000
RECREATIONAL										
	Developed Park	14.0	42	* 434,300	130.0	390	* 37,700	1,300	3,900	0
	Undeveloped Park	28.0	84	172,000	270.0	810	10,000	2,700	8,100	0
	Green Space	44.0	131	* 132,200	420.0	1259	* 1,500	4,200	13,000	0
RESTRICTED (trespassing)		60.0	180	* 95,500	580.0	1739	* 3,300	5,800	17,000	0

Notes (1) - Volumes = soil only, e.g., does not include waste from pits, silos, etc.
(2) - PRG = Preliminary Remediation Goals
(3) - U 238 data
(4) - U Total data
(5) - Data estimated, new kriged values not available.
* = includes OU2 soil

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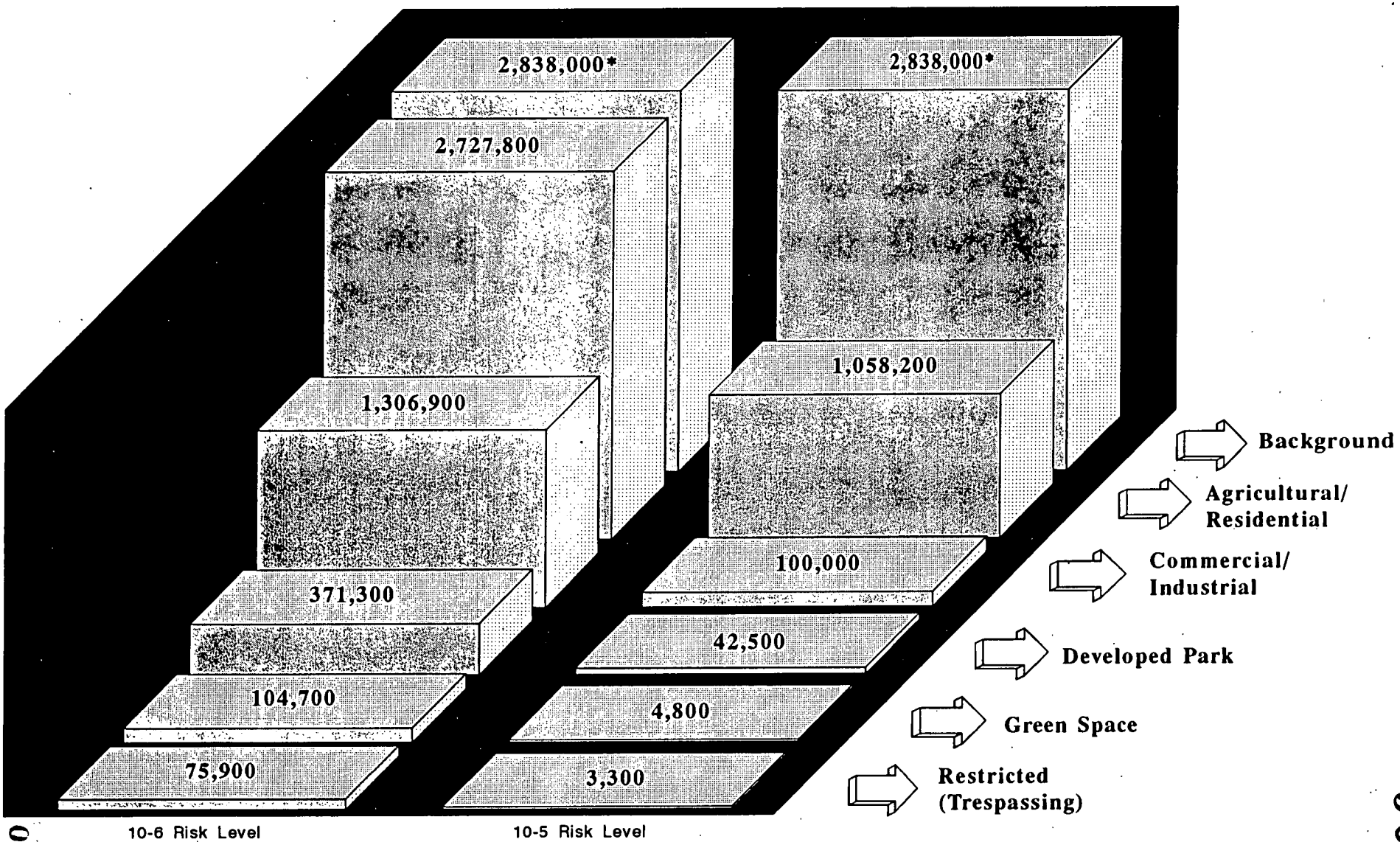
Soil Volumes vs. Future Land Use Scenarios



* Final volume of contaminated media to be addressed during remediation is under revision and should be available by September 1994.

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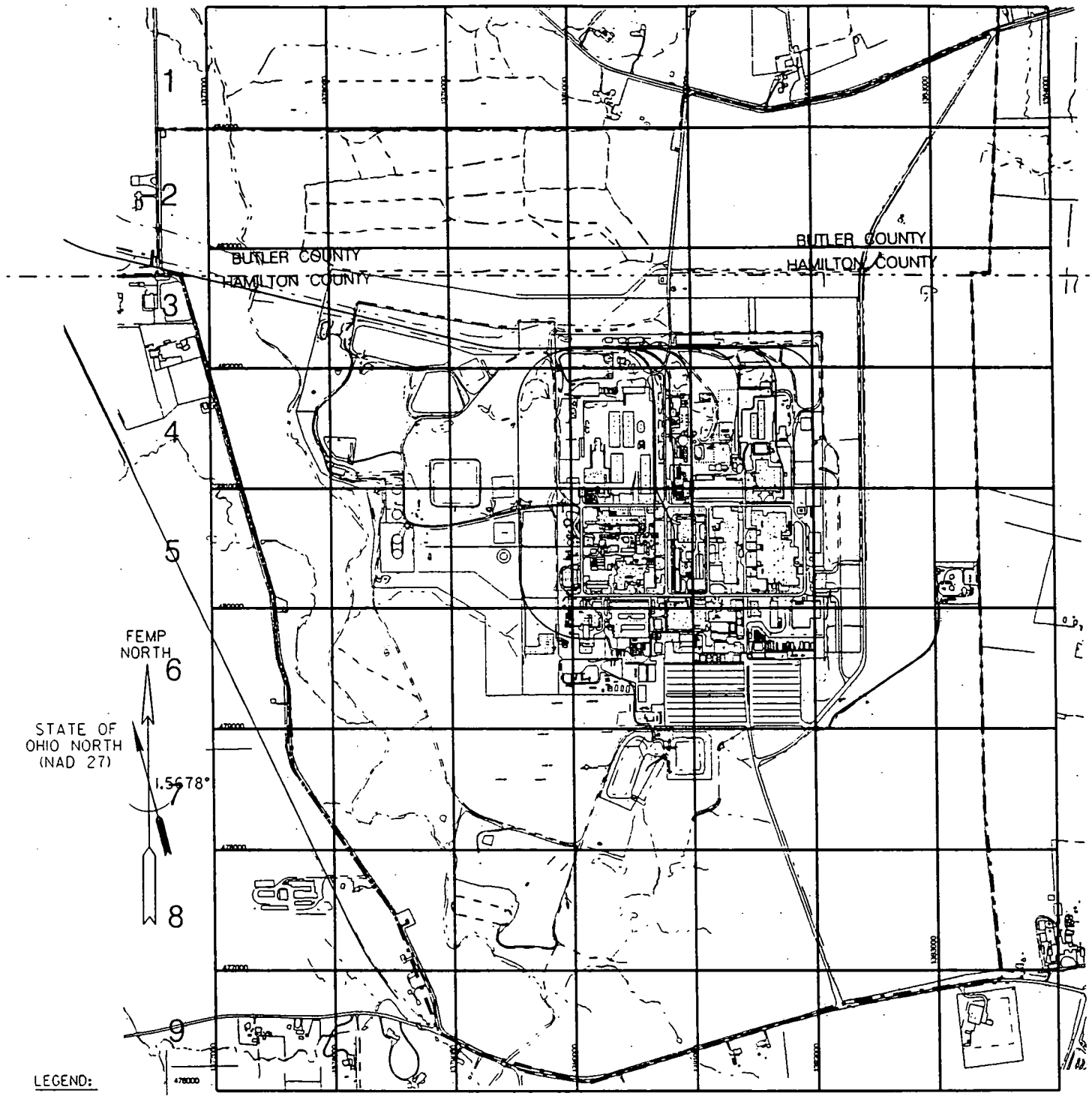

LEGEND:

- - - — COUNTY LINE

— · — FEMP PROPERTY LINE

COST:

TOTAL = _____

ON SITE= _____

OFF SITE= _____

Volumes:

ON SITE = _____ (____ACRES)

OFF SITE= _____

supersedes ALL previous issues
June 10. 1994

Shipments:

TRUCK LOADS = _____

TRAIN LOADS = _____

INCREMENTAL GAME NUMBERS (Yd^3) -- FOR 10-6 RISK

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GRID	>3.6ppm White	>6ppm Blue	>18ppm Green	>42ppm Yellow	>132ppm Red	>180ppm Black
1-A	0	8.100	13.300			
1-B	0	7.500	13.000			
1-C	0	0	16.200			
1-D	0	600	16.500			
1-E	0	3.200	15.300			
1-F	0	6.900	11.600			
1-G	0	13.300	5.200			
2-A	1.200	16.800	7.200			
2-B	0	31.800	0			
2-C	0	28.400	0			
2-D	0	26.600	300			
2-E	0	10.400	9.300			
2-F	0	9.800	8.700			
2-G	0	0	18.500			
3-A	0	18.200	14.200	0		
3-B	300	23.400	5.800	900	1.200	300
3-C **	13.000	52.100	21.700	9.900	800	1.900
3-D	0	13.900	15.600	17.700	300	4.300
3-E	0	10.100	14.200	9.300	600	300
3-F	0	0	19.100	600		
3-G	0	0	18.500			
4-A	300	24.600	6.400	300		
4-B	4.600	20.300	5.500	8.700	4.300	35.900
4-C	2.000	21.400	26.900	15.600	2.300	8.100
4-D	4.300	28.600	21.400	11.300	300	1.700
4-E	3.200	27.500	15.600	17.100	3.500	4.100
4-F	300	8.100	17.100	14.500	900	2.000
4-G	0	0	17.100	1.400		
5-A	0	21.700	4.300			
5-B	5.800	33.300	13.900	300	300	
5-C **	14.500	47.700	35.300	5.600	300	
5-D	16.200	82.200	66.600	35.000	5.800	3.800
5-E	17.900	178.800	27.200	20.500	900	2.600
5-F	1.400	41.100	34.100	17.700	300	600
5-G	1.400	14.800	25.500	19.400	600	300
6-A	0	5.800	16.800	1.200		
6-B	0	10.100	17.400			
6-C	5.800	29.500	57.600	6.700		
6-D	4.300	40.800	18.200	17.100	2.000	3.800
6-E	9.500	167.000	89.100	19.400	4.600	7.200
6-F	3.800	40.200	9.500	600		
6-G	0	47.700	14.800	2.900		
7-A	0	0	15.000			
7-B	0	11.600	13.900	900	300	
7-C **	4.900	25.300	17.500	19.200	4.000	15.000
7-D	1.200	29.200	1.700			
7-E	0	11.300	13.900			
7-F	0	23.700	600			
7-G	0	22.000	6.400			
8-A	0	1.200	3.500			
8-B	4.600	15.600	4.600			
8-C **	34.300	134.100	15.300	25.200	3.000	4.000
8-D **	10.400	25.100	1.200			
8-E	0	12.400	10.700			
8-F	0	26.000	900			
8-G	0	19.700	5.800			
9-A	0	2.300	0			
9-B	0	2.000	13.000			
9-C	2.300	16.800	3.200	2.900		
9-D	4.900	24.000	5.500			
9-E	0	4.100	16.500			
9-F	0	6.100	13.600			
9-G	0	6.400	14.500			
TOT	172.400	1.591.200	961.800	302.100	36.300	95.900
Grand	3.159.700					
ACRES	13.26	122.40	73.98	23.24	2.79	7.38
TRUCKS	6.896	63.648	38.472	12.084	1.452	3.836

OU2 waste. non-soil = 138.000 cubic yards OU3 waste = 292.472 cubic yards

** OU2 soil included

Supersedes ALL previous issues: June 10. 1994 (8:24am)

INCREMENTAL GAME NUMBERS (Yd^3) -- FOR 10-5 RISK

GRID	>3.6 ppm White	>21 ppm Blue	>138 ppm Green	>390 ppm Yellow	>1259 ppm Red	>1739 ppm Black
1-A	10.400	11.000				
1-B	9.500	11.000				
1-C	2.600	13.600				
1-D	2.900	14.200				
1-E	5.800	12.700				
1-F	10.400	8.100				
1-G	16.800	1.700				
2-A	21.700	3.500				
2-B	31.800					
2-C	28.400					
2-D	26.900					
2-E	14.500	5.200				
2-F	12.700	5.800				
2-G	2.300	16.200				
3-A	24.600	7.800				
3-B	25.200	5.200	900	300		
3-C **	70.700	26.400	2.200		300	
3-D	19.100	28.100	2.900	1.700		
3-E	10.400	23.100	900			
3-F	0	19.700				
3-G	0	18.500				
4-A	26.900	4.600				
4-B	24.900	15.000	11.900	26.900	600	
4-C	26.300	39.600	6.700	2.600		1.200
4-D	40.200	25.500	1.400			600
4-E	34.700	28.900	5.500	1.200	300	300
4-F	11.900	28.100	1.700	1.200		
4-G	0	18.500				
5-A	24.300	1.700				
5-B	43.400	10.100				
5-C **	74.400	28.900	300			
5-D	115.500	86.800	4.900	2.300		
5-E	210.900	34.100	2.600	300		
5-F	64.500	29.800	900			
5-G	21.100	39.900	900			
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6-E	206.900	78.100	11.300	300		300
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8-C **	177.100	55.800	7.000			
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9-A	2.300					
9-B	3.200	11.900				
9-C	20.000	5.200				
9-D	32.400	2.000				
9-E	6.100	14.500				
9-F	7.500	12.200				
9-G	8.400	12.400				
SUBTOT	2.023.900	1.034.600	82.800	37.700	1.500	3.300
GRAND	3.183.800					
ACRES	156	80	6	3	0	0
TRUCKS	80.956	41.384	3.312	1.508	60	132

OU2 waste, non-soil = 138.000 cubic yards OU3 waste = 292.472 cubic yards.

** OU2 Soil is included.

Supersedes ALL previous issues. June 10, 1994 (8:17am)

FERNALD CITIZENS TASK FORCE

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