

2339

**OPERABLE UNIT 4 INITIAL SCREENING OF  
ALTERNATIVES COMMENT - RESPONSE  
DOCUMENT**

**8-3-90**

**DOE/EPA  
12  
ENCLOSURE**

2339

---

# OPERABLE UNIT 4

INITIAL SCREENING OF ALTERNATIVES

COMMENT-RESPONSE DOCUMENT

## OHIO EPA COMMENTS-RESPONSE

### GENERAL COMMENTS

**COMMENT:** 1. The Operable Unit 4 waste volume represents only a small percentage (i.e., less than 4%) of the total waste volume presently known to be located at the FMMPC (sic). The total waste disposal costs are expected to be significant, hence will increase pressures for on-site disposal.

**RESPONSE:** Noted - The question of on/off-site disposal cannot be settled at this stage of the Feasibility Study.

**COMMENT:** 2. Waste Management Alternative for Operable Unit 4 - The ten (10) waste management alternatives documented in the subject Task 12 Report are listed below in brief form:

- Alternative 0 - No action
- Alternative 1 - Nonremoval, silo isolation - Silos, 1, 2 and 3
- Alternative 2 - Nonremoval, in situ stabilization and cap - Silos 1, 2 and 3
- Alternative 3 - Removal and on-site disposal - Silo 3
- Alternative 4 - Removal of metal oxides and off-site disposal - Silo 3
- Alternative 5 - Removal and replacement in rehabilitated silo - Silo 3
- Alternative 6 - Removal, treatment, and on-site disposal - K-65 Silos
- Alternative 7 - Removal, treatment, and off-site disposal - K-65 Silos
- Alternative 8 - Removal, contamination separation, and on-site disposal - K-65 Silos
- Alternative 9 - Removal, contamination separation, and off - site disposal - K-65 Silos

**RESPONSE:** Agree

**COMMENT:** 3. Waste Management Categories - Three (3) general waste management categories are applicable to the site. They are: On-site Temporary Storage, On-Site Permanent Disposal, and Off-site Permanent Disposal. The alternatives presented in the Task 12 report have been placed in each category as shown below:

<u>ON-SITE TEMPORARY</u> <u>Storage</u>	<u>ON-SITE PERMANENT</u> <u>Disposal</u>	<u>ON-SITE PERMANENT</u> <u>Disposal</u>
Alternative 0	Alternative 3	Alternative 4
Alternative 1	Alternative 6	Alternative 7
Alternative 2	Alternative 8	Alternative 9
Alternative 5 (deleted from further consideration)		

- **ON-SITE TEMPORARY STORAGE** - Alternatives in this category are not recommended because the on-site storage of these wastes are the source of present problems. Any temporary on-site storage will eventually require a revisitation of the problem and most certainly require extensive, hence expensive, environmental monitoring to ensure the protection of the health and safety of the public.
- **ON-SITE PERMANENT DISPOSAL** - Disposal of wastes in this category infers that all or a portion of the FMPC would become a low-level radioactive waste disposal site. Environmental problems of locating a permanent waste disposal site at FMPC include:
  - A. The FMPC lies next to Paddy's Run a tributary of the Great Miami River.
  - B. Perched water likely lies beneath the FMPC.
  - C. The FMPC lies within the new Madrid Seismic Zone and falls within Zone 2 of the seismic risk area of the U.S. The facility may experience moderate damage from earthquakes.
  - D. A major aquifer underlies the FMPC.
  - E. Major population areas are located near the FMPC.

**OFF-SITE PERMANENT DISPOSAL** - This disposal category appears to serve the best interest of the State of Ohio and the

Federal government. The alternatives listed in this category also ranked highest in the alternative evaluation matrix (table 6-1) of the report). Transportation risks are inherent with this category; however, the transportation of low-level radioactive waste is currently adequately regulated by the Department of Transportation (DOT) and is being conducted in a safe manner.

**RESPONSE:** The possibility of breaking the alternatives into sub-alternatives is being investigated, however, CERCLA process is not designed to encompass temporary storage and we are not proposing any temporary storage alternatives. The problems associated with all both on and off-site alternatives are being investigated in Task 13.

**COMMENT:** 4. **SUGGESTED DISPOSAL OPTIONS** - Ohio EPA's contractor suggests two (2) disposal options for consideration in addition to the permanent disposal at the Nevada Test Site (NTS) or other approved DOE disposal site. The suggested options are:

1. Disposal in an inactive uranium mill tailings pond.
2. Processing the K-65 silo residues at an active uranium mill site with eventual disposal on the mill tailings.

The suggested disposal option #1 is viable if the K-65 wastes are classified as tailings. The silo's waste volume would add only a few percent to the volume of a typical uranium mill tailings pile. The suggested disposal option #2 may also be economically viable depending on the uranium content of the waste. Based upon reported uranium content estimates, it appears that the uranium values approach 0.2 percent of the K-65 material volume which is considered to contain sufficient values as to be milling grade.

**RESPONSE:** The residues in silos have a Ra-226 concentration which greatly exceeds these concentrations of Ra-226 that could be encountered in a uranium mill tailings pile in the U.S. Thus the radiological consequences and precautions associated with the silo residues should require disposal at designed repository as opposed to disposal in a pile or pond.

5. **ALTERNATIVE RANKING USING WASTE MANAGEMENT CATEGORIES** - The screened alternatives are evaluated in Table 6-1 of the report using an "Alternative Evaluation Matrix" with numerical values. These qualitative matrix values were used

to assess the alternative by category. The numerical values for costs were obtained by dividing the cost range in Table 6-2 of the report by 5 to be consistent with the matrix range (i.e., 5 increments of 23 million dollars). That is, low costs received a high rating value, whereas high costs received a low rating value. The average cost value was used wherever dual costs were presented for an alternative. Table A presents another ranking of the proposed alternatives based on ultimate waste management category versus effectiveness, implementability and cost.

Based upon this semi-qualitative rating system off-site permanent disposal is preferred, followed by on-site permanent disposal, and on-site temporary storage received the lowest ranking.

**TABLE A**

**ON-SITE TEMPORARY STORAGE**

	Alternative 0	Alternative 1	Alternative 2
Effectiveness	0	15	17
Implementability	17	19	12
Cost	5	5	5
<b>Totals</b>	<b>22</b>	<b>39</b>	<b>34</b>

**ON-SITE PERMANENT DISPOSAL**

	Alternative 3 and 6	Alternatives 3 and 8
Effectiveness	30	32
Implementability	32	31
Costs	1	1
<b>Totals</b>	<b>63</b>	<b>64</b>

**OFF-SITE PERMANENT DISPOSAL**

	Alternatives 4 and 7	Alternatives 4 and 9
Effectiveness	32	36
Implementability	36	35
Costs	3	4
<b>Totals</b>	<b>71</b>	<b>75</b>

**RESPONSE:** Noted - The results of the initial screening of alternatives and the tables presented in this comment

are essentially the same (off-site tanks better than on-site tanks better than in-situ). There are many ways to present the screenings. Temporary storage, however, is not a part of any alternative. Alternatives 1 and 2 are permanent, in-situ options for disposal of the wastes (See response to General Comment 3).

#### SPECIFIC COMMENTS

**COMMENT:** 1. ES. There is no reason to have based this report solely on an oral presentation given to DOE on June 13, 1989 (over a year ago!) and attendant project and regulatory information (such as new NCP) has become available.

**RESPONSE:** Agree - Updated information has been incorporated into the document as it became available. The statement was left over from the original revision and should have been deleted. The text will be revised.

**COMMENT:** 2. ES-2. Should the installation of additional monitoring equipment be covered under the no action alternative or should this be a separate alternative? Monitoring indicates some form of action is being taken.

**RESPONSE:** Noted - Page 8711 of the Federal Register/Vol. 55, No 46/ Thursday, March 8, 1990 New NCP discusses institutional controls. Maintenance of the existing monitoring systems is not interpreted to be part of institutional controls. The footnote to section 4.1.3.1 of the CERCLA Guidance Document, OSWER Directive 9335.3-1-01 states " Although a no-action alternative may include some type of environmental monitoring, actions taken to reduce the potential for exposure (e.g., site fencing, deed restrictions) should not be included as a component of the no-action alternative." Monitoring is a part of the no-action alternative.

**COMMENT:** 3. Page ES-4, last paragraph: Capital costs are defined on page 6-11 in OSWER Directive 9355.3-01, not on page 6-23 as is stated in the report.

**RESPONSE:** Noted - It actually is on page 4-24 for the initial

screening of alternatives. Chapter 6 is for the detailed analysis.

**COMMENT:** 4. Page ES-5, first paragraph: The report refers to a Table ES-1 which allegedly presents he (sic) numerical scoring matrix for alternative evaluation. This table was not included in the report.

**RESPONSE:** Agree - The table was left out of some of the reports. A copy is attached and will be included in the current revision.

**COMMENT:** 5. Page ES-5, last paragraph: A correction should be made in the statement that "the comprehensive listing [of ARARs] was completed as part of the RI/FS work plan." ARARs were identified as part of the FS work plan. The original sitewide RI/FS work plan contained no list of ARARs. It is also noted that Ohio EPA has yet to receive a final copy of the FS work plan which was to be revised based upon comments that the agency submitted to DOE on the initial draft over a year ago.

**RESPONSE:** Agree - The sentence is misleading. The intent of the sentence was to state that the ARARs were developed during the implementation of the work plan, not included as part of the work plan document. The sentence will be revised to state that the ARARs are developed during the implementation of Task 12 and were submitted as a separate document.

**COMMENT:** 6. Page 2-2, Section 2.1.2, second paragraph: In addition to those disposal options cited in this section, another offsite disposal option is to a facility (not necessary (sic) a RCRA-permitted one) that is permitted to take radioactive materials such as the Nevada Test Site.

**RESPONSE:** Noted - Although this material is not "mixed waste" as defined by the Atomic Energy Act, it does exhibit a hazardous characteristic and therefore RCRA becomes relevant and appropriate. NTS is one of the sites being considered (see section 3.5.1) and is pursuing a RCRA Part B permit.

**COMMENT:** 7. 2-5 Table 2-1: The "No-action" alternative should not include maintenance of the site. Please delete the "X" in this table.

**RESPONSE:** See response 2. Maintenance is a logical and necessary part of the monitoring.

**COMMENT:** 8. Page 3-1, second paragraph: The acronym "ARAR" stands for "applicable or Relevant and Appropriate Requirements."

**RESPONSE:** Agree - Words transposed, text revised.

**COMMENT:** 9. Page 4-14, Section 4.7, second paragraph: USEPA's Minimum Technology Guidance for Final Covers on Hazardous Waste Landfills and Surface Impoundments recommends a flexible membrane liner (FML) over the clay component layer of the cap. Any capping alternative being considered by DOE should include this FML component (Also see Figure 4-7).

**RESPONSE:** Yes, however, we intentionally excluded the FML from the design for the following reasons:

As shown on Figure 4-7, the proposed cap has the following layers:

- Four feet of low permeability clay ( $1 \times 10^{-7}$  cm/sec)
- Two feet of drainage layer on top of the clay layer
- Two feet of topsoil layer on top of the drainage layer.

USEPA's Minimum Technology Guidance for Final Covers on Hazardous Waste Landfills and Surface Impoundments recommends a flexible membrane liner over a typical 2 feet of compacted clay layer. However, "Remedial Action Technology for Waste Disposal Sites (2nd edition) by K. Wagner" has stated that synthetic liners have known to function up to 20 years, after which insufficient documentation exists to substantiate its ability to provide protection from liquid penetration. Therefore, we did not include the synthetic liner, instead, we have provided an additional foot of compacted clay liner to give a total thickness of four feet of compacted clay.

**COMMENT:** 10. Section 5.0. It would be less confusing to present the general rating criteria at the beginning of

this section instead of at the beginning of Section 6. It was very confusing trying to determine during my review of the report the relative order of the rating criteria (i.e., that a "good" rating was better than an "above average" rating and that a "below average" rating was better than a "poor" rating).

**RESPONSE:** Agree - A short discussion of the rating criteria order will be included at the beginning of Section 5.

**COMMENT:** 11. 5-1,3. The "No-Action" alternative should not include any maintenance which is a form of limited action. Consequently, Section 5.1.1.1 system requirements which lists groundwater and air monitoring, should be deleted. Similarly, Section 5.1.3.3, maintenance/operation, should be deleted (See page 8711 of the Federal Register/Vol. 55, No. 46/Thursday March 8, 1990 New NCP).

**RESPONSE:** See response 2.

**COMMENT:** 12. 5 - Entire Section Reference is made throughout this section to meeting only the substantive requirements of the existing NPDES Permit. The state of Ohio considers the discharge to the Great Miami River to be "off-site" (since it flows offsite) and should also require compliance with administrative aspects of the current NPDES permit.

**RESPONSE:** Disagree - Under the NCP 300.5 as distinction is made between substantive and administrative requirements. This section of the NCP defines administrative requirements to include "the approval of or consultation with administrative bodies, issuance of permits documentation, and reporting and record keeping." The NCP further indicates that "Response actions under CERCLA are required to comply with ARAR's, which are defined not to include administrative requirements."

This is based upon the portion that CERCLA actions must be allowed to proceed expeditiously and that compliance with administrative and procedural provisions would slow down CERCLA actions. Also, the NCP sets out a detailed set of procedures of its own that CERCLA actions must follow; these render unnecessary the procedures of other environmental programs.

CERCLA 121 (e) (1) expressly relieves lead agencies from having to meet permitting requirement for on-site CERCLA actions.

CERCLA 121 (d) (2) requires CERCLA actions to attain the "standards" and "levels of control" set by other environmental laws.

Thus, surface water discharges from a CERCLA site must meet substantive water quality standards established for the receiving waters. This may include the attainment of effluent limits that would normally need to be met under an NPDES permit. This would not include meeting the notice and procedural requirements of an NPDES permit nor would it include a requirement for the Submission of Discharge Monitoring Reports (DMR's).

There is no distinction made between "on-site" or "off-site" where surface water discharges are concerned.

The "on-site" requirement applies to the general CERCLA action not to the discharge.

**COMMENT:** 13. Page 5-43, Section 5.10.1.5: It is not understood why for Alternative 9, DOE will not consider using LSA containers to ship off-site wastes because of the need for "waste blending" yet, Alternative 7, which also suggests waste blending, appears to support the use of LSA containers.

**RESPONSE:** Noted - The intent of Alternative 9 is to separate and concentrate the wastes thereby reducing the volume to be shipped and disposed of. Blending less contaminated waste with the separated, concentrated waste to meet LSA requirements, would nullify the cost savings realized by the separation and concentration. Alternative 7 does not separate and concentrate the waste prior to shipment so the blending of waste would not nullify any cost savings.

**COMMENT:** 14. Page 5-44, Section 5.10.2.1: DOE should explain why it rates Alternative 9 as "good" for providing long-term protectiveness to human health "due to the off-site storage of the wastes", while at the same time, rates Alternative 7 as only being "above average" even though under Alternative 7, wastes will also be disposed of off-site.

**RESPONSE:** Agree - The Alternatives should rank the same for

those criteria. Text and Table revised.

**COMMENT:** 15. Page A-5, second bullet: The citation for Ohio's solid and hazardous waste law is incorrect. The correct citation is ORC Chapter 3734.

**RESPONSE:** Agree - Text Changed

**COMMENT:** 16. Page A-5, third bullet: DOE's statement that "~~specific criteria for chemical concentrations have so far~~ only been established for Lake Erie and the Ohio River" is not accurate. OEPA has surface water quality criteria for both acute and chronic effects on aquatic organisms as part of the OAC 3745-1-07. Also, in this section on Ohio ARARs, the state's air pollution law should be cited (ORC 3704).

**RESPONSE:** Agree - Text corrected and revised to include ORC3704.

**COMMENT:** 17. page A-5, Section A.3: For accuracy, the first sentence should read as follows: "Because ARARs may not exist or may not be sufficient to protect human health and the environment at a CERCLA site, it is necessary to evaluate nonlegally binding or non-promulgated criteria, . . ."

**RESPONSE:** Agree - Text revised to include non-promulgated criteria.

**COMMENT:** 18. Page A-6, Federal TBCs, first bullet: Under USEPA's Human Health Evaluation Manual, the term Cancer Potency Factor is no longer used. Cancer Potency factors are now referred to as Slope Factors.

**RESPONSE:** Agree - Text changed to show Slope factors instead of Cancer Potency Factors.

**COMMENT:** 19. Page A-10, Table A-1: The citation for Ohio hazardous waste treatment, storage, or disposal facility location standards is incorrect. The correct citation is: OAC 3745-54-18.

**RESPONSE:** Agree - Text corrected to show correct citation.

**COMMENT:** 20. Page A-11, Table A-1: An action-specific Ohio ARAR which should be listed in this table is ORC 3767 (nuisance prevention). Another action-specific state ARAR which must be included in Table A-1 is ORC 6111 (prohibits pollution of "waters of the State").

**RESPONSE:** Agree - Text revised to include ORC 3767 (nuisance prevention). ORC6111 was not cited in the "Ohio requirements: Laws and Regulations" which was transmitted to USDOE for ARARs determination. Inclusion of this requirement will be discussed during presentation of specific ARARs as a separate deliverable for Operable unit 4 to EPA.

**COMMENT:** 21. Page A-5. Under of Ohio ARARs the Consent Decree in State of Ohio vs. Westinghouse (civil action C-1-87-0285) sections 3.4 and 3.5 (December 1, 1988) should also be considered as an ARAR.

**RESPONSE:** The referenced Consent Decree is not a promulgated federal standard or regulation and thus is not ARAR or TCB. DOE recognizes that compliance with the Consent Decree is necessary it will be considered in any action taken under Operable Unit 4.

**TABLE ES-1  
ALTERNATIVE EVALUATION MATRIX**

Alternative	1 = Poor      3 = Average      5 = Good									
	0	1	2	3	4	5	6	7	8	9
Short-Term Public Health	0	5	3	4	3	3	2	2	3	2
Short-Term Environmental Protection	0	5	3	4	3	3	2	2	3	2
Long-Term Public Health	0	1	3	3	4	2	2	5	2	5
Long-Term Environmental Protection	0	1	4	3	4	2	3	5	2	5
Reduction In Mobility, Toxicity, and Volume	0	3	4	3	3	3	4	4	5	5
Constructability	5	5	3	3	3	2	3	3	3	3
Reliability	2	4	3	5	4	2	5	4	5	4
Maintenance	5	3	3	3	5	3	3	5	3	5
Agency Approvals	0	2	2	2	3	1	2	3	2	3
Special Engineering & Equipment	5	5	1	3	3	3	3	3	2	2
<b>Summation</b>	<b>17</b>	<b>34</b>	<b>29</b>	<b>33</b>	<b>35</b>	<b>24</b>	<b>29</b>	<b>36</b>	<b>30</b>	<b>36</b>