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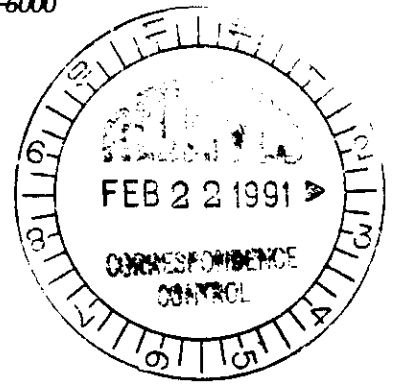
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STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

February 11, 1990



Mr. David Einan  
USEPA Hanford Project Office  
712 Swift Boulevard Suite 5  
Richland, Washington 98352

Re: **Comments on Phase I and II Feasibility Study  
Report for the Hanford Site 1100-EM-1 Operable  
Unit**

Dear Mr. Einan:

Ecology has completed it's review of the Phase I and II Feasibility Study report for the 1100-EM-1 operable unit. We are providing comments on this Feasibility Study as the supporting agency to USEPA as defined in the Tri-Party Agreement.

Ecology has learned that the United States Department of Energy (USDOE) dropped six of nine subunits from further consideration based upon a risk assessment. Ecology agrees with your assessment stated in the January 23, 1991, letter to Mr. R. Stewart of USDOE that, "The toxicity screening technique used in the Remedial Investigation report has not been proven to be valid or protective of human health and the environment". Our examination of the data reveals that contamination levels found in these subunits are up to three orders of magnitude greater than Ecology's health based cleanup levels as stipulated in Chapter 173-340 WAC. Comment 2-0 in the enclosed comments addresses this issue further. This regulation establishes specific soil and ground water cleanup standards that are applicable in the 1100-EM-1 operable unit.

Ecology is concerned that USDOE has not done an adequate job in characterizing this site. If decisions are made on information that is not complete or is inadequate, additional remediation may be required in the future. The Tri-Party Agreement at paragraph 18, specifically states that "The Parties intend that such actions will address all aspects of contamination at units covered by the Action Plan so that no further action will be required under federal and state law". Any remediation must fulfill applicable state and Federal ARAR's, in order to prevent duplication of work.

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Ecology feels that this Feasibility Study is inadequate and should be re-submitted for further evaluation. If you have any questions contact Richard Hibbard of my staff. Mr. Hibbard can be reached at (206) 493-9367.

Sincerely,



Larry Goldstein  
CERCLA Unit Supervisor  
Nuclear and Mixed Waste  
Management Program

Enclosure

cc: Richard Hibbard, Ecology  
Tim Nord, Ecology  
Dave Nylander, Ecology  
T.B. Veneziano, WHC  
Steve Wisness, USDOE



REVIEW OF THE PHASE I AND II FEASIBILITY STUDY

REPORT FOR THE HANFORD SITE

1100-EM-1 OPERABLE UNIT

0-0 Comment: Section: Frequently Used Acronyms and Abbreviations, Page GL-1

The term BEHP is not a commonly used acronym for bis(2-ethylhexyl)phthalate. When producing documents for public review all possible efforts should be made to reduce the possibility of misunderstanding acronyms.

0-1 Comment: Section Executive Summary, Page i

In the second paragraph the text states that "No contamination of air or surface water occurs at the 1100-EM-1 Operable Unit and . . .". This statement does not address the on-site ponding of surface water runoff that may occur in areas similar to the Ephemeral Pool. If the intent of this statement is to address large bodies of water and streams it should be clarified.

Chapter 1

1-0 Deficiency: Figure 1-1 Development and Screening of Alternatives, Page 2

This office has received copies of the Phase 1 and Phase 2 Remedial Investigations and the Phase 1 Feasibility Study, but has not received the document titled "Treatability Investigation". Is this study still scheduled to be produced?

Recommendation:

Provide the regulatory agencies with a schedule for delivery of the Treatability Investigation report.

1-1 Comment: Section 1.2.1 Description--1100 Area, 7

The maps provided, specifically Figure 1-3 and 1-4 do not provide enough detail to locate the units described within this Feasibility Study. A map similar to Figure 3-1, provided in the Phase 1 Remedial Investigations report, would help locate the sub-units located within the 1100 area.

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1-2 Deficiency: Section 1.2.2 Previous 1100 Area Investigations,  
Page 10

The second bullet addresses previous soil samples that have been collected within the 1100-EM-1 operable unit. Specifically, the text states that "Samples from the Paint and Solvent Pit and Antifreeze and Degreaser Pit contained no evidence of contamination".

Page P2-1 to P2-5 of the Phase 1 RI identifies sampling that has taken place in the Paint and Solvent Pit. Results of that sampling indicate a significant elevation of organics and inorganics.

Page P3-1 to P3-4 of the Phase 1 RI states that samples taken from the Antifreeze and Degreaser Pit, indicate a significant elevation of inorganic contamination.

Recommendation:

Revise the text to indicate that the two areas mentioned above contained significant contamination and reference the appropriate section in the RI report.

1-3 Deficiency: Section 1.2.3 Nature and Extent of  
Contamination, Page 11

In the second paragraph the text states "Based upon the data available in the Draft RI Phase 1 report, no contamination of the air or surface water is occurring at 1100-EM-1". This statement contradicts the statement made in section 1.2.1.10 which states that "The pool (reference to Ephemeral Pool) is formed due to runoff from the impermeable surface of the 1100 Area parking lot during high intensity precipitation events".

Parking lot runoff often contains metals and organics above regulatory cleanup levels. Also, the air sampling program did not gather enough information to determine the presence of harmful airborne contamination.

Recommendation:

Remove or qualify the determination that, there is no contamination of surface water within the 1100-EM-1 site. The text should be revised to indicate that further investigations of air contamination are necessary before this conclusion can be drawn.

1-4 Comment: Section 1.2.3 Nature and Extent of Contamination,  
Page 11

The last paragraph states, "The sources of contamination may be up-gradient from the Horn Rapids Landfill". There is no data given to support this conclusion. If this statement is true, expand the text to indicate why this is believed to be true. If no data exist to support this statement remove this statement from the text.

1-5 Comment: Table 1-1 Potential Contaminants of concern  
Development, Page 12

The text identifies arsenic as the only potential contaminant of concern in the Battery Acid Pit area. Experience tells me that other metals such as lead, nickel, and cadmium are usually present in a battery dump area. Is this an oversight on the sampling program, or were these contaminants analyzed for but not detected?

1-6 Comment: Section 1.2.5.1 Environmental Evaluation, Page 14

The text states that "The contaminant of potential aquatic . . . has the potential to flow down-gradient into the Columbia River". Is it true that the gradient in this area actually reverses itself at certain times during the year? If so, the text should be revised to include a discussion of how and when this might occur.

1-7 Deficiency: Section 1.2.5.2 Human Health Evaluation, Page 15

The text states that ". . . the Draft Phase 1 RI report indicates that PCB's and BEHP would remain as the only contaminants of concern." Ecology does not agree with the assumptions made in the Draft Phase 1 RI report. The toxicity screening technique followed is not protective of human health and the environment. The assumptions and exposure rates used to set cleanup levels in Chapter 173-340 WAC should be followed when performing a health risk assessment. Land use issues have not been resolved for the Hanford Site. The 1100 area lies within close proximity to residential areas, agricultural areas, and municipal well fields; future uses of the 1100 area may include residential and/or agricultural uses.

Recommendation:

The health risk assessment should be revised to reflect the residential exposure scenario.

1-8 Deficiency: Section 1.2.5.2 Human Health Evaluation, Page 15

The text states that "Risk calculations from dermal . . . were calculated to be within the target risk range of 1E-04 to 1E-06, as set by the EPA". In many cases state ARAR's are more stringent than federal ARAR's. The State of Washington's Model Toxics Control Act Cleanup Regulations Chapter 173-340 WAC is an applicable requirement for this site. MTCA sets the health risk for residential areas at 1X10-6 and industrial areas at 1X10-5.

Recommendation:

Revise the text to include a discussion of the applicability of state ARAR's with respect to acceptable health risks including a comparison between standards at this site.

Chapter 2

2-0 Deficiency: Section 2.2.1.1 Soils, Page 18

The text states that "Results of the Draft Phase I RI report indicate that the following operable subunits and miscellaneous locations do not contain soil contamination at levels that could be reasonably expected to pose a threat to human health or the environment". The following summarizes discrepancies between these determinations and state law:

- 1100-1 Battery Acid Pit, 1100-4 Antifreeze Tank Site, UN-1100-2 Paint and Solvent Pit;  
Ecology compared the sampling results contained in the Draft Phase 1 RI to the cleanup standards in WAC 173-340-740(a)(ii)(A), and found a difference of three orders of magnitude. A difference of three orders of magnitude is unacceptable because significant levels of contamination remain on site. Ecology, therefore, cannot approve the rationale for dropping this site from further consideration.
- 1100-3 Antifreeze and Degreaser Pit, Pit 1;  
Ecology compared the sampling results contained in the Draft Phase 1 RI to the cleanup standards in WAC 173-340-740(a)(ii)(A), and found a difference of two orders of magnitude. A difference of two orders of magnitude is unacceptable because significant levels of contamination remain on site. Ecology, therefore, cannot approve the rationale for dropping this site from further consideration.

Recommendation:

Additional data must be gathered to provide the regulators with sufficient data that these subunits are truly uncontaminated and do not require further investigations and/or remediation. If this information cannot be obtained, then the Feasibility Study must be revised to include these 5 subunits for remedial action.

2-1 Comment: Section 2.2.3.2 Ground Water, Page 22

This section should provide a schedule defining when ground water sampling is expected to be completed and a schedule for delivery of the ground water Feasibility Study.

Chapter 3

3-0 Comment: Section 3.2.3 Contaminant Properties, Page 37

The text states in the fourth paragraph that "Without additional subsurface investigations, the present conclusion is that few highly contaminated areas exist in the 1100-EM-1". This statement infers that the sampling program is inadequate and additional sampling is necessary to fully characterize this site. The text should be revised to clarify the intent of this statement. Also, define the terms "few" and "highly contaminated".

3-1 Comment: Section 3.3.1.2.1 Description, Page 41

The sampling program outlined in the last paragraph appears to be adequate for detection of new contamination plumes. However, a process should be developed that includes more intensive monitoring, if contamination is detected in these wells.

3-2 Comment: Section 3.3.1.2.1 Effectiveness, Page 43

The second paragraph states that "The Richland Well Field is protected from the contaminated ground water by mounding effects". This assumption must be expanded. How does the mounding occur? Who is responsible for it? What data is available to backup this assumption? Is the mounding temporal? What will happen when the mounds dissipate? These questions should be answered in the text.

3-3 Comment: Section 3.3.1.2.3 Implementability, Page 43

Land use issues have not yet been decided. Any cleanup should meet the requirements of all reasonable potential future

land uses. There is no current information to support the conclusion that the property will be under institutional controls, or that such controls would be effective in protecting public health and the environment should they be implemented. At a minimum, adjacent land uses dictate conservative cleanup standards be included.

3-4 Comment: Section 3.3.1.3.2 Effectiveness, Page 44

See Comment 3-3 above.

3-5 Comment: Section 3.3.1.2 Effectiveness, Page 47

The second paragraph discussed acceptable risks. See Deficiency 1-9 above.

3-6 Comment: Section 3.3.2.2.3 Implementability, Page 49

See Comment 3-3 above.

3-7 Comment: Section 3.3.2.3.1 Description Page 50

See Comment 3-3 above.

3-8 Comment: Section 3.3.2.3.2 Effectiveness, Page 50

See Deficiency 1-8 above.

3-9 Comment: Section 3.3.3.1 Effectiveness, Page 58

See Comment 3-3 above.

#### Appendix A

Below is a list of additional state chemical specific, site specific, and location specific ARAR's. For your convenience they are segregated up into soil, surface and ground water, air and miscellaneous categories.

##### A. Soil

###### 1. Chemical Specific

###### WAC 173-303 Dangerous Waste Regulations **APPLICABLE**

Chapter 173-303 WAC establishes procedures for characterizing hazardous waste as Dangerous Waste (DW) or Extremely Hazardous Waste (EHW). Additional distinction is based on persistence, carcinogenicity,

mutagenicity, tetratogenicity, concentration of certain compounds, and toxicity as defined by WAC 173-303-070 to 110. Bis(2-ethylhexyl)phthalate is a dangerous waste as defined by WAC 173-303-101 (2)(b) in concentrations above 10 mg/kg. Wastes excavated on sites which designate as DW or EHW must be handled under this regulation. Other sections not identified here should be considered relevant and appropriate.

WAC 173-340 MTCA Cleanup Regulations APPLICABLE

Chapter 173-340 was adopted by the State of Washington January 28, 1991. Specific cleanup goals are identified in this regulation. The following cleanup levels were derived using Method B cleanup procedures (WAC 173-340-740) and are listed below:

PCB's - 0.1 mg/kg  
bis(2-ethylhexyl)phthalate - 71 mg/kg

WAC 173-340 MTCA Cleanup Regulations TO BE CONSIDERED

The following cleanup level was derived using Method B cleanup procedures (WAC 173-340-740) using a proposed change to the National Primary Drinking Water Regulations 40 CFR 141 and 142, found in the 7/25/90 Federal Register (Page 55 FR 30370) and is listed below:

bis(2-ethylhexyl)phthalate - 0.4 mg/kg

2. Action Specific

RCW 70.105 Hazardous Waste Management APPLICABLE

The purpose of RCW 70.105 is to establish a comprehensive state-wide framework for planning, regulation, control, and management of hazardous wastes which will prevent land, air, and water pollution and conserve the natural, economic, and energy resources of the state.

RCW 70.105D Hazardous Waste Cleanup, Model Toxics Control Act (MTCA) APPLICABLE

Chapter 70.105D RCW provides Ecology with the authority to investigate and conduct remedial actions upon releases of hazardous substances.

3. Location Specific

WAC 173-304 Minimum Functional Standards for Solid Waste Handling **APPLICABLE**

Chapter 173-304 regulations pertain to solid waste handling facilities (e.g., municipal landfills). They contain provisions for facility design, maintenance, and closure.

WAC 296-62 Washington Industrial Safety and Health Act Occupational Health Standards--Safety Standards for Carcinogens **RELEVANT AND APPROPRIATE**

State health and safety regulations are generally similar to those espoused by the federal regulations (i.e., OSHA), and are applicable to all remedial actions involving potential human exposure to hazardous materials.

WAC 446-50 Transport of Hazardous Materials **APPLICABLE**

Chapter 446-50 WAC regulations are generally analogous to the corresponding federal regulations 49 CFR. Transport regulations are applicable to any off-site transportation of hazardous materials.

**B. Surface and Groundwater**

**1. Chemical Specific**

WAC 173-340 MTCA Cleanup Regulations **APPLICABLE**

Chapter 173-340 was adopted by the State of Washington January 28, 1991. Specific cleanup goals are identified in this regulation. The following cleanup levels were derived using Method B cleanup procedures for Ground Water (WAC 173-340-720) and are listed below:

PCB's - 0.01 ug/l  
bis(2-ethylhexyl)phthalate - 6 ug/l



WAC 173-216 State Waste Discharge Permit Program  
**APPLICABLE**

Chapter 173-216 WAC establishes a permit system for discharges of waste water to groundwater and surface water via municipal sewage systems.

WAC 173-218 Underground Injection Control Program  
**APPLICABLE**

Chapter 173-218 pertains to the injection of effluent into the subsurface environment.

3. Location Specific

RCW 90.03 & RCW 90.14 State Water Code and Water Rights **RELEVANT AND APPROPRIATE**

Water code and water rights laws specify conditions for extracting surface water or ground water for non-domestic uses. In essence, the laws provide that water extraction must be consistent with beneficial uses of the resource and must not be wasteful.

WAC 173-154 Protection of Upper Aquifer Zones  
**RELEVANT AND APPROPRIATE**

Chapter 173-154 provides for protection of the upper aquifers and upper aquifer zones to avoid depletions, excessive water level declines, or reductions in water quality. State regulations for upper aquifer zones are applicable to remedial alternatives that involve treating ground water or presenting risks of ground water contamination.

WAC 173-201 Water Quality Standards for the State of Washington **APPLICABLE**

Ecology classifies surface waters according to their water quality and uses of the water body. The surface waters of the Columbia River are classified as Class A.

WAC 173-220 National Pollutant Discharge Elimination System Permit Program **RELEVANT AND APPROPRIATE**

The purpose of this chapter is to establish a state permit program, applicable to the discharge of pollutants and other wastes and materials to surface waters of the state.

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WAC 173-240 Submissions of Plans and Reports for Construction of Waste Water Facilities RELEVANT AND APPROPRIATE

Chapter 173-240 regulations require that Ecology review and approve plans for waste water treatment facilities that discharge to ground water.

C. AIR

1. Chemical Specific

WAC 173-400 General Regulations for Air Pollution Sources APPLICABLE

Chapter 173-400 WAC establishes standards that are technically feasible and reasonably attainable for air pollution sources.

2. Action Specific

RCW 70.94 Washington Clean Air Act APPLICABLE

Chapter 70.94 directs the state to secure and maintain levels of air quality that will protect human health and prevent injury to plant and animal life.

WAC 173-303-670 Incinerators RELEVANT AND APPROPRIATE

If incinerators are used as a remedial technology this regulation would be applicable.

WAC 173-403 Implementation of Regulations for Air Contaminant Sources RELEVANT AND APPROPRIATE

Chapter 173-403 WAC establishes procedures for the implementation of regulations and rules generally applicable to control and/or prevention of the emission of air contaminants.

D. Miscellaneous

RCW 70.95 Solid Waste Management RELEVANT AND APPROPRIATE

Chapter 70.95 RCW establishes a state-wide program for solid waste handling, and solid waste recovery and/or recycling which will prevent land, air, and water

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pollution, and will conserve the natural, economic and energy resource of this state.

**Appendix C**

C-0 Comment: Section Calculations Summary Sheet, Pages C-2

There appears to be an inconsistency with respect to converting between English and SI units. If the areas and volumes are rounded to the next higher number for English units this same principal should be applied to SI units.

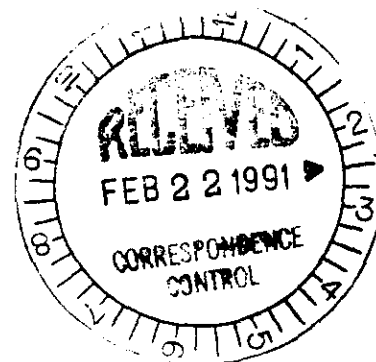
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<b>Author</b> L. Goldstein/Dept. of Ecology	<b>Addressee</b> D. Einan/U.S. EPA	<b>Incoming Correspondence No.</b> 9100766
<b>Subject</b> Comments on Phase I and II Feasibility Study Report for the Hanford Site 1100-EM-1 Operable Unit		

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