

BASALT WASTE ISOLATION PROJECT  
ENVIRONMENTAL REVIEW

BER87-007

Borehole DC-24

July 1987

Prepared for  
the U.S. Department of Energy  
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BWIP ENVIRONMENTAL REVIEW

Borehole DC-24  
T12N, R25E, Sec. 23

INTRODUCTION:

This report details the results, conclusions, and recommendations of a Basalt Waste Isolation Project (BWIP) Environmental Review (BER) on a site scheduled for site characterization activity.

PURPOSE:

The purpose of this action is to drill a borehole.

NEED:

There is a need to monitor the response of underground water levels to pumping from the planned large-scale hydraulic test.

ACTION:

A drill pad was previously cleared of vegetation, gravel placed on the cleared pad, a drilling rig installed, and a borehole will now be drilled.

PRESENT USE:

Presently, the site is a gravel pad constructed approximately 16 months ago with an erected drill rig. The only activity remaining unfinished is drilling of the borehole.

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SUMMARY OF RECOMMENDATIONS

RECOMMENDATIONS:

1. Do not travel off established road and pads onto undisturbed areas.
2. DOE must test the solid waste in the mud pit to determine whether it is dangerous waste. If it is not, the waste must be disposed of in accordance with the SWMA. If it is dangerous waste, it is recommended that DOE maintain generator status. The dangerous wastes would have to be stored properly onsite and transported offsite for permanent disposal in accordance with the HWMA. Whether dangerous or nondangerous, the solid waste should be stored in a manner that facilitates its retrieval.
3. We recommend that the activity proposed for this site proceed as planned.

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BER ECOLOGICAL EVALUATION FORM  
FIELD CHECKLIST

This checklist must accompany each BER Team during each site visit. The Task Leader or the Lead Scientist must ensure that the checklist is completely filled out. The information in the checklist will assist in writing the site visit report. Please indicate in the yes column if activities are the result of construction (C) and/or operation (O).

1. SITE IDENTIFICATION:

- a. Range, township, section (e.g., R25E, T12N, S10):  
T12N, R25E, Sec. 23
- b. When did BER Site visit occur?  
 Date: June 11, 1987
- c. Specific vegetative type (e.g., sagebrush, cheatgrass):  
None
- d. Terrain and soil (e.g., flat, sandy/silt):  
flat, gravel
- e. Location of nearest human activity:  
Highway 240 adjacent to site
- f. When will site preparation begin?  
This site was completed approximately 16 months ago.
- g. When will site operation end?  
1987

2. STATUS OF PROJECT:

- |  | <u>YES</u> | <u>NO</u>   |
|--|------------|-------------|
| a. Study Plan/Project Description available?   | <u>X</u>   | <u>    </u> |
| b. Map available with scale and dimensions?  | <u>X</u>   | <u>    </u> |
| c. Photographs available?  | <u>X</u>   | <u>    </u> |
| d. Site activity partially completed?<br>Specify percentage of site activity completed:<br><u>Site has been built. Drilling has not begun.</u> | <u>X</u>   | <u>    </u> |
| f. Has site been staked?   | <u>X</u>   | <u>    </u> |

3. AFFECTED ENVIRONMENT:

- a. Evidence of past disturbance?  
 (If yes, describe:) \_\_\_\_\_      X
- b. Size of area disturbed:  
219 x 158 m (718 x 520 ft)



	YES	NO
e. result in a potential for erosion?	___	X
f. necessitate excavation? <u>Mud pit previously excavated.</u>	___	X
g. possibly impact land? Mitigation? (If yes, specify mitigation:)	___	X
h. require new utilities or modification to existing utilities?	___	X
<b>7. NOISE:</b>		
Will the proposed activity:		
a. increase noise levels? <u>Drilling rig operation</u>	X	___
b. cause any noise impacts? (If yes, specify mitigation:) <u>Some animals may avoid the site. Impacts will be localized and of short duration. No significant impacts are anticipated.</u>	X	___
<b>8. CHEMICAL RADIOLOGICAL:</b>		
Will the proposed activity:		
a. require use of carcinogens, pesticides, or toxic substances?	___	X
b. increase offsite radiation dose?	___	X
<b>9. CULTURAL RESOURCES:</b>		
a. Has the site been surveyed for cultural resources? <u>See attached "Cultural Resources Review Form."</u>	X	___
b. Is there evidence of cultural, archaeological, paleontological, or religious sites?	___	X
c. Does the site require further investigation?	___	X
d. Was the site cleared (approved) for previous activities? (If so, when?) <u>June 11, 1987.</u>	X	___
e. Was a determination made that this site cannot be disturbed? (If so, when?)	___	X
<b>10. BIOLOGICAL RESOURCES:</b>		
a. Does the site contain the type habitat for threatened (T) & endangered (E) plants?	___	X
b. Are T and E plant species present? (If yes, which species?)	___	X

- |   | YES  | NO   |
|---|------|------|
| c. Does the site contain habitat that could support T, E, animals or candidate (C) species?<br>(If yes, which species?) _____.                      | ___  | ___X |
| d. Is an onsite survey of T & E species necessary?  | ___  | ___X |
| e. Are T, E or candidate (C) species present?<br>(If yes which species?) _____.   | ___  | ___X |
| f. Will impacts occur to any of these species or their habitats?  | ___  | ___X |
| g. Can impacts be mitigated?<br><u>Impacts could be mitigated by reclaiming this site or by reclaiming comparable, disturbed acreage elsewhere.</u> | ___X | ___  |
| <b>11. REGULATORY REVIEW:</b>   |      |      |
| a. Has a regulatory review been completed on this site?<br><u>See attached "Regulatory Review Form."</u>  | ___X | ___  |

(Signed): Robert V. Newell (Title): Task Leader (Date): 7/14/87

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BER REGULATORY AND POLICY REVIEW FORM

Subject: Drillhole DC-24

Date of Report: July 14, 1987

Site Visit or Documentation Review?: Site Visit

Description: This regulatory report covers the drilling of Borehole DC-24. The site has already been cleared and a drilling pad prepared.

Regulatory Compliance Checklist: See the checklist, page 11.

Considerations and Concerns: One of the major regulatory considerations of borehole drilling is the storage and disposal of drilling muds/fluids and any underground materials brought to the surface. The waste fits the definition of a solid waste under the federal Resource Conservation and Recovery Act (RCRA), the Washington Hazardous Waste Management Act (HWMA) (RCW 70.105), and the Solid Waste Management Act (SWMA) (RCW 70.95). These three statutes and their implementing regulations govern the regulation of solid waste. Because the federal government has authorized the State to implement RCRA in Washington, the HWMA and the SWDA have been used to determine compliance requirements. [NOTE: This analysis has been conducted using revised regulations WAC 173-303, which were published as final in the Washington State Register and will become effective July 26.]

The following steps need to be taken to ensure regulatory compliance during drilling operations:

1. Determine the appropriate means of storing the solid waste generated during drilling. The means of storing the solid waste must be decided before it is determined through testing during drilling operations whether the solid waste is "dangerous waste," as defined by HWMA. Two options exist for storage: 1) storing the wastes as they are being generated in containers (WAC 173-303-200 and 173-303-630) or tanks (WAC 173-303-200 and 173-303-640), both of which meet HWMA requirements for temporary site storage for dangerous waste generators; or 2) storing the wastes in a mud pit designed in an environmentally safe manner to minimize the migration of dangerous constituents, should they be present (i.e., if testing shows that the wastes are dangerous, the design should allow for immediate and easy retrieval).
2. Test the solid waste to determine whether it is dangerous. As a generator of solid waste, the Basalt Waste Isolation Project (BWIP) is required to test this waste to determine if it is dangerous waste under the procedures set forth at WAC 173-303-070. The HWMA applies (beyond the testing requirement) only to dangerous waste. If tests show this material is a nondangerous solid waste, the SWMA applies.

Analyses to determine the composition of the drilling muds, including an extraction procedure (EP) toxicity test, are presently being conducted by the Hanford Environmental Health Foundation (HEHF). Precautions have been taken onsite to ensure that the bentonite clay and its additives are not dangerous. It is uncertain whether the groundwater or sediments incidentally brought to the surface during drilling could in some instances be considered dangerous waste. It may also be possible that

constituents in the groundwater might interact with the drilling muds to produce dangerous waste. It must be emphasized here that the probabilities of any of these scenarios producing dangerous constituents are low, but are not now fully known. A conclusive determination of whether the solid waste is dangerous cannot be made without testing the wastes during operations.

A waste is dangerous if it is listed as such at WAC 173-303-070 through 173-303-103 or if it meets one of four characteristics as defined in WAC 173-303-090 [ignitability, corrosivity, reactivity, or extraction procedure (EP) toxicity]. Approved testing procedures detailed in these regulations must be used.

3. If the solid wastes ARE NOT dangerous, the following steps apply. The SWMA and its implementing regulations (WAC 173-304) provide requirements for regulation of solid waste. The solid (and nondangerous) waste can probably be classified as inert waste under WAC 173-304-100(40), which requires disposal in an inert waste landfill (WAC 173-304-461). Inert waste is nonhazardous solid waste that is expected to retain its physical and chemical structure under expected conditions of disposal. This landfill must have a permit; operations, closure and postclosure plans; an annual report; vadose zone monitoring in lieu of liners in an arid location; and groundwater monitoring wells. The Hanford Site solid waste landfill in the 600 Area accepts inert and demolition waste, and it is expected that it could be used for final disposal of the drilling mud. However, this landfill does not yet have a State-issued permit.
4. If the solid wastes ARE dangerous, the following steps apply.
  - A. WAC 173-303-170 through 173-303-230 provides requirements for generators of dangerous waste when that waste or wastes exceeds the quantity exclusion limits defined in WAC 173-303-070 (see item D below). If the Project is a generator of dangerous waste, it must notify the Washington Department of Ecology (WDOE) by completing and submitting a Washington state notification of dangerous waste activities (Form 2) and obtain an EPA/State identification number. DOE would also have to prepare a manifest in accordance with WAC 173-303-180 before transporting dangerous waste or offering dangerous waste for transport off the site of generation. The information required on the manifest pertains to the treatment, storage, or disposal (TSD) facility designated to accept the waste for permanent disposal. Dangerous waste must be prepared for transport by following the procedures set forth at WAC 173-303-190.
  - B. If the wastes are subject to WAC 173-303, they must be stored onsite in a tank or container (see 173-303-200), or moved offsite immediately to a TSD facility.
  - C. If dangerous waste or hazardous substances are intentionally or accidentally spilled or discharged into the environment (unless otherwise permitted) such that public health or the environment are threatened, regardless of quantity, authorities must be notified and immediate action taken to mitigate and control the spill or discharge (WAC-173-303-145). In addition,

WDOE may require cleanup, testing to determine the amount or extent of contaminated materials, etc.

- D. The requirements for "small quantity generators" are outlined here. Note that the definition of small quantity generator in WAC 173-303 is different than that in the RCRA regulations. [Small quantity generation under WAC 173-303 is a category roughly equivalent to the conditionally exempt category of the RCRA regulations (40 CFR 261).] Under WAC 173-303-070, a small quantity generator is a person that generates, accumulates, or stores a quantity (or aggregated quantity) of waste that meets or falls below what are termed "quantity exclusion limits" (QELs). QELs are defined in WAC 173-303-070 and listed in WAC 173-303-080 through 173-303-103. A small quantity generator is not subject to the requirements of the Washington dangerous waste regulations except for the provisions relating to designation of dangerous wastes and disposal at an onsite or offsite permitted facility. Recent amendments to WAC 173-303 have added an annual reporting requirement as well.

Special accumulation standards (WAC 173-303-201) apply to persons who exceed the QELs but generate less than 1000 kg (2200 lb) per month and do not accumulate onsite more than 1000 kg (2200 lb) of dangerous waste. These standards are roughly similar to those set in RCRA for what it terms "small quantity generators." Under these special accumulation standards, dangerous waste can be stored onsite for up to 180 days without a permit; if the quantities set in the special accumulation standards are exceeded, dangerous waste can be stored onsite for only 90 days without a permit.

The 180 (or 90) day timeframe commences on the date the dangerous waste is generated; or on the date that the quantity (or aggregated quantity) of dangerous waste being accumulated by a small quantity generator first exceeds the quantity exclusion limit (QEL) for such waste (or wastes); or on the date the quantity of dangerous waste being accumulated in a satellite area exceeds 55 gal of dangerous waste or 1 qt of acutely hazardous waste [WAC 173-303-200(2)]. A satellite area is defined in this section of the regulations as a location at or near any point of generation where wastes initially accumulate.

Thus the total weight of the waste and the individual weights of the hazardous constituents must be determined to establish whether the Project is a small quantity generator or falls under the special accumulation standards.

- E. If the wastes are dangerous, they must be transported offsite before the appropriate time limits expire by a licensed transporter to a permitted TSD facility.
- F. If dangerous waste is not transported offsite within 90 days (180 days if wastes fall under special accumulation standards), the Project becomes the operator of a storage facility and must meet the stringent requirements of TSD facilities, including the application for a TSD facility permit. The requirements

for owners and operators of TSD facilities are set forth at WAC 173-303-280 through 173-303-395. It may be possible that under these circumstances, the current Hanford Site Interim Status Part B permit could cover BWIP site characterization activities, or be amended to do so. It must be emphasized, however, that maintaining a generator status is preferable to becoming the operator of a TSD facility.

- G. The regulations cite that the discovery of any extremely hazardous waste (a subset of dangerous waste as defined in WAC 173-303-101) would require the transport of this waste to the Washington State Extremely Hazardous Waste Management Facility to be located on the Hanford Site (WAC 173-303-700). There is as yet no such facility; Washington State is currently shipping such waste to facilities in Oregon, Idaho, or California.

#### Policy Considerations

State Water Rights: A letter from Secretary of Energy John S. Herrington to Washington Governor Booth Gardner on October 4, 1985, stated that while the project had a reserved water right sufficient to conduct site characterization, DOE-RL in the spirit of cooperation and as a matter of comity, would submit the permit application for the use of water for site characterization activities if the Hanford Site were approved for site characterization. It is therefore recommended that DOE apply for a permit to use Columbia River water before drilling Borehole DC-24.

Conclusions: DOE must test the solid waste in the mud pit to determine whether it is dangerous waste. If it is not, the waste must be disposed of in accordance with the SWMA. If it is dangerous waste, it is recommended that DOE maintain generator status. The dangerous wastes would have to be stored properly onsite and transported offsite for permanent disposal in accordance with the HWMA. Whether dangerous or nondangerous, the solid waste should be stored in a manner that facilitates its retrieval.

Signed:

Jus E King, scientist  
Name and title

7/14/87  
Date

REGULATORY COMPLIANCE CHECKLIST. BER87-007

The following is a list of federal and state statutes and executive orders identified as being applicable or potentially applicable to any or all site characterization activities. The middle and right hand columns indicate the degree of applicability of each statute/executive order to the site characterization activity that is the subject of this BER.

SUBJECT: Bore Hole 27

<u>ACTS/EOs</u>	<u>MAY APPLY(a)</u>	<u>TRIGGERED(b)</u>
Clean Air		
Noise Control		
National Historic Preservation		
American Indian Religious Freedom		
Archaeological Resources Protection		
Endangered Species		
Bald and Golden Eagle Protection		
Migratory Bird Treaty		
Federal Water Pollution Control		
Safe Drinking Water		
Floodplain/Wetland		
RCRA		X
CERCLA		
Toxic Substances Control		
Washington Clean Air		
General Regulation 80-7 (County Air)		
Washington Noise Control		
Washington Clean Water		
Washington Safe Drinking Water		
Washington Hazardous Waste		X
Washington Solid Waste		X
Other Water Rights		X

- (a) The applicability of the statute/executive order to this site characterization activity was examined in detail, and it was determined that no action was required for compliance.
- (b) Requirements of the statute/executive order are triggered by this site characterization activity and are discussed in the text preceding this checklist.

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BER CULTURAL RESOURCES REVIEW FORM

Subject: DC-24 Drilling pad and Mud storage pits

Date of Report: 6/16/87

Location: T21N, R25E, S23 - adjacent to Highway 240 and Hanford Area  
Perimeter Gate 117A

Date of Cultural Resources Review: 6/10/87

List of Literature Reviewed: The National Register of Historic Places;  
Rice 1984a,b; Relander 1956; Schuster  
1975.

Date of Site Visit: 6/11/87

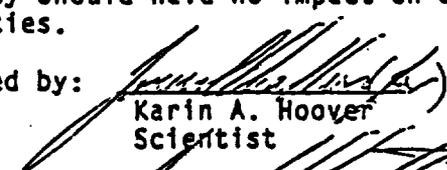
Survey Techniques Employed: A general archaeological reconnaissance was conducted around the perimeter immediately adjacent to the pad and at a distance of 20 m (66 ft) out from the pad on the west, north, and east as per BWIP procedures for Cultural Resource Reviews of Planned Site Characterization Activities. The south side of the pad, adjacent to the highway, had been plowed.

Cultural Resources observed: None.

Cultural Resource Potentials: The archaeological survey revealed no trace of prehistoric cultural resources, and the area did not appear to be important as a food-gathering area or religious site. There was no subsurface indication of artifacts in either of the mud pits.

Conclusions and Recommendation: Because the area has already been developed, and no further excavations are planned, the possibility of disturbing any cultural resources is low. Utilization of the drilling facility should have no impact on any known or suspected cultural properties.

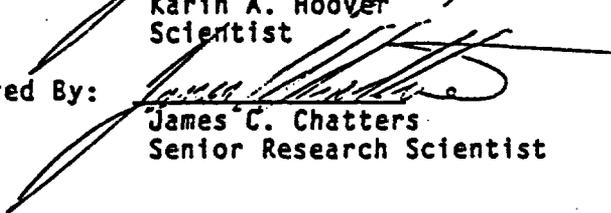
Prepared by:

  
Karin A. Hoover  
Scientist

Date:

7-14-87

Approved By:

  
James C. Chatters  
Senior Research Scientist

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- Rice, D. G. 1984a. "Archaeological Inventory of the Basalt Waste Isolation Project, Hanford Reservation, Washington." Letter Report to Rockwell Hanford Operations, SD-BWI-TA-006, Richland, Washington.
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