

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 628771

Proj.
ECN

2. ECN Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input checked="" type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>	3. Originator's Name, Organization, MSIN, and Telephone No. A. L. Shord/8K220/H5-49/376- 1990	3a. USQ Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4. Date 1/18/95
	5. Project Title/No./Work Order No. TWRS/D6275 (LLW)/D5245 (HLW)	6. Bldg./Sys./Fac. No. NA	7. Approval Designator ESQ
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-WM-SE-023, Rev. 0	9. Related ECN No(s). NA	10. Related PO No. NA
11a. Modification Work <input type="checkbox"/> Yes (fill out Blk. 11b) <input checked="" type="checkbox"/> No (NA Blks. 11b, 11c, 11d)	11b. Work Package No. NA	11c. Modification Work Complete NA _____ Cog. Engineer Signature & Date	11d. Restored to Original Condition (Temp. or Standby ECN only) NA _____ Cog. Engineer Signature & Date

12. Description of Change

- Compensatory mitigation language was changed to indicate that the need for such mitigation was possible but not necessarily certain. Original statements in regard to compensatory mitigation implied that such mitigation absolutely would be required.
- Language was added to define compensatory mitigation. This was necessary to avoid confusion that such mitigation referred to compensation for past resource injuries when in fact it referred to injuries arising from only the construction and operation of the TWRS Phase I facilities.
- Specific references to Natural Resource Damage Assessment were eliminated to avoid confusion that a specific regulation was being identified as applicable. Instead, wording was retained that indicated the site evaluation was based on the intent to avoid natural resource impacts, without reference to any particular natural resource law or regulation.
- Language was added to define natural resource service values to aid reader comprehension of the concept and its utility.

13a. Justification (mark one)

Criteria Change <input type="checkbox"/>	Design Improvement <input type="checkbox"/>	Environmental <input checked="" type="checkbox"/>	Facility Deactivation <input type="checkbox"/>
As-Found <input type="checkbox"/>	Facilitate Const <input type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>

13b. Justification Details

Because of space limitations of this form, Description of Changes and Justification Details are listed in Block 12.

14. Distribution (include name, MSIN, and no. of copies)
See Distribution Sheet

RELEASE STAMP	
JAN 26 1996	
DATE:	HAMPFORD
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	ID: 20

ENGINEERING CHANGE NOTICE

15. Design Verification Required [] Yes [X] No	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION		Improvement	[NA]
	Additional [NA] \$	Savings [NA] \$	Additional [NA] \$	Savings [NA] \$	Delay	[NA]

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[NA]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision
NA		

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog. Eng. A. L. Shord	<i>A. L. Shord</i> 1/23/96	PE	_____
Cog. Mgr. P. Felise	<i>P. Felise</i> 1/23/96	QA	_____
QA J. Weber	<i>J. Weber</i> 1/23/96	Safety	_____
Safety E. J. Krejci	<i>E. J. Krejci</i> 1-23-96	Design	_____
Environ. W. E. Toebe	<i>W. E. Toebe</i> 1/23/96	Environ.	_____
Other	_____	Other	_____
Contractor Support Team			
W. G. Richmond	<i>W. G. Richmond</i> 1-23-96		
WMC TWRS Disposal Programs			
K. A. Gasper	<i>K. A. Gasper</i> 1/23/96	DEPARTMENT OF ENERGY	_____
R. W. Powell	<i>R. W. Powell</i> 1/24/96	Signature or a Control Number that tracks the Approval Signature	_____
	_____	ADDITIONAL	_____
	_____	S. W. Seiler, Chairman	<i>S. W. Seiler</i> 1/26/96
	_____	Hanford Site Selection Team	_____

Tank Waste Remediation System Privatization Phase I Site Evaluation Report

A. L. Shord

Westinghouse Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: 628771 UC: UC-2030
Org Code: 8K220 Charge Code: D5245 and D6275
B&R Code: EW3130010 Total Pages: 123

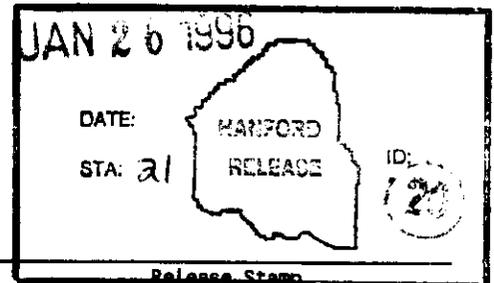
Key Words: TWRS siting, site evaluation - TWRS, privatization Phase I siting

Abstract: The U.S. Department of Energy has chosen to accomplish the Tank Waste Remediation System disposal mission via privatization. The disposal mission has been divided into two phases. Phase I, a 'proof of concept' phase, will establish and demonstrate the technical, commercial, and procurement capabilities necessary for privatization to proceed. Once established on this relatively small scale, privatization will be expanded, through a second competition, in the form of a second phase (Phase II) to dispose of the remainder of the tank waste. This report recommends a location for the Phase I demonstration facilities in an area, adjoining the 200 East Area, previously developed and characterized for the Grout Disposal Site. The site is of sufficient size for two competing vendors to carry out pretreatment, immobilization, and vitrification operations and possesses the required characteristics (e.g., close to feed tanks) to best facilitate the Phase I operations.

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Janis Bishop 1-26-96
Release Approval Date



Approved for Public Release

Table 4-1. Tank Waste Remediation System Privatization Phase I Qualitative Site Selection Criteria/Evaluation Team. (6 sheets)

Qualitative site selection criteria	Evaluation Team
<p>1. Protect the environment</p> <p>a. Cultural, archeological, and historical sites: The site shall not have any areas of cultural, archeological, or historical significance that cannot be reasonably mitigated.</p>	<p>Natalie A. Cadoret, PNNL Hanford Cultural Resources</p>
<p>b. Ecological: The site shall not have any areas of ecological impact that cannot be reasonably mitigated.</p>	<p>Charles A. Brandt, PNNL Ecological Resources</p>
<p>c. Natural resource impacts: The site shall minimize/avoid any impacts to natural resources.</p>	<p>John A. Hall, PNNL Ecological Resources</p>
<p>d. Protect the Columbia River and deal realistically and forcefully with groundwater contamination: Ability of the site to meet federal, state, and local requirements for the protection of groundwater. Factors are (1) impact of previous Hanford Site practices (liquid effluent discharges, single-shell tank leaks, disposal actions) on groundwater under site, (2) hydrology of site, and (3) impact of site on proposed future Hanford Site disposal operations (e.g., LLW disposal).</p>	<p>Stuart P. Luttrell (lead) and Darrell R. Newcomer, PNNL Field Hydrology Chemistry</p> <p>Support: Stephen P. Reidel, WHC Geohydrologic Support and Frederik M. Mann, WHC Field Development Project Management</p>
<p>e. Do no harm during cleanup or with new development: The establishment of the privatization site shall minimize the impact to the environment.</p>	<p>Roni J. Swan, WHC Environmental Services</p>

Table 4-2. Summary of Site Evaluations. (7 sheets)

Qualitative site selection criteria	Summary of key findings for Alternative Sites 2, 3, and 4	Preferred site
<p>1. Protect the environment</p> <p>a. Cultural, archeological, and historical sites</p>	<p>All sites: No archaeological sites have been identified that are potentially eligible for the National Register of Historic Places. The potential for subsurface archaeological deposits is low.</p> <p>Pro for Site 3: Much of the area already has been disturbed by the former Grout Facility operations.</p>	<p>3</p>
<p>b. Ecological</p>	<p>All sites: No endangered species are present.</p> <p>Con for Site 2: Majority of the wildlife habitat is pristine. Baseline maps of habitat quality show this area to be among the highest quality shrub-steppe on the Hanford Site.</p> <p>NOTE: If placing Phase I in Site 4 precludes its use by the Phase II production facilities (a much larger impact than Phase I because the Phase II facilities would need to be located elsewhere), the preferred siting option for Phase I is Site 3.</p>	<p>4/3</p>
<p>c. Natural resource impacts</p>	<p>All sites: Avoids/minimizes impacts to groundwater and surface water, and contains no unique geologic features or water resources that provide significant services.</p> <p>Con for Site 2: Contains the most unfragmented amount of high quality, late-successional, sagebrush-steppe habitat that is used by species of concern. Has potentially the highest biological resource service value of any of the sites because it is outside the designated waste management areas.</p> <p>NOTE: If placing Phase I in Site 4 precludes its use by the Phase II production facilities (a much larger impact than Phase I because the Phase II facilities would need to be located elsewhere), the preferred siting option for Phase I is Site 3.</p>	<p>4/3</p>

Table 5-1. Summary of Site Evaluation Results.

Qualitative site selection criteria	Preferred site
1. Protect the environment a. Cultural, archeological, and historical sites b. Ecological c. Natural resource impacts d. Protect the Columbia River and deal realistically and forcefully with groundwater contamination e. Do no harm during cleanup or with new development	3 4/3 4/3 None 3
2. Protect public/worker health and safety a. Transport waste safely and be prepared for emergencies b. ALARA c. Accidents on the privatization site d. Accidents from the privatization site	2 or 3 3 None 2 or 3
3. Use the Central Plateau wisely for waste management	4
4. "Get on with the cleanup" to achieve substantive progress in a timely manner. Support meeting the Tri-Party Agreement* schedule.	None
5. Construction Costs	3
6. Operating Considerations	3
7. Flexibility	3
8. Risks a. Above/belowground interferences and contamination b. Seismic c. Site activities d. Vendor-to-vendor interference e. Siting, infrastructure, and support incompatibility with vendors' operating concepts f. Siting, infrastructure, and support incompatibility with DOE privatization strategy	2 or 3 None 2 or 3 None 3 2 or 3

*Ecology, EPA, and DOE, 1994, *Hanford Federal Facility Agreement and Consent Order*, as amended, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

ALARA = As low as reasonably achievable
 DOE = U.S. Department of Energy

Charles A. Brandt

Performance Measurement 3: Amount/value of wildlife habitat to be converted to other land use.

ALTERNATIVE SITE 2	
PRO'S	CON'S
None.	Majority of the wildlife habitat is pristine. Baseline maps of habitat quality show this area to be among the highest quality shrub-steppe on the Hanford Site.
ALTERNATIVE SITE 3	
PRO'S	CON'S
Approximately one-third of the area is graveled or denuded; not wildlife habitat.	Perimeter of the area is high-quality shrub-steppe habitat.
ALTERNATIVE SITE 4	
PRO'S	CON'S
Approximately three-fifths of the site is covered by alien weeds or is graveled. Area lies within the 200 Area fence and is designated for development.	Proposed Site 4 will destroy or fragment one of the remaining large patches of priority habitat (late successional shrub-steppe) within the 200 East Area fence.

Comments: None.

OVERALL EVALUATION (IN ORDER OF PREFERRED SITE)

1. **Alternative Site 4**

Site 4 ranks highest with respect to the ecological considerations. Mitigation of habitat loss may be required, but the value of the habitat is less than that for the other two alternatives.

2. **Alternative Site 3**

Proposed Site 3 ranks intermediate in impact with regard to the performance measurements. Less mitigation may be required than for Site 2, but more than for Site 4.

3. **Alternative Site 2**

Proposed Site 2 is the poorest alternative with respect to Performance Measurements 1 and 2, and could require the most extensive mitigation.

Protect the Environment

Natural Resource Impacts: The site shall avoid/minimize any impacts to natural resources.

Performance Measurement 1: To avoid/minimize impacts to biological resources, the site must not contain: (1) high-quality wildlife habitat that when impacted may trigger the need for compensatory mitigation,* or (2) federal or state listed, candidate, or sensitive species.

ALTERNATIVE SITE 2	
PRO'S	CON'S
None.	Relative to the other alternatives, this site contains the most unfragmented amount of high-quality, late-successional, sagebrush-steppe habitat that is used by species of concern.
ALTERNATIVE SITE 3	
PRO'S	CON'S
Portions of this site are degraded in regard to their wildlife usage value.	Portions of this site (i.e., the perimeter) contain high-quality, late-successional, sagebrush-steppe habitat that is used by species of concern.
ALTERNATIVE SITE 4	
PRO'S	CON'S
Much of the site is degraded in regard to its wildlife usage value.	A portion of the site contains the largest remaining patch of late-successional, sagebrush-steppe habitat remaining within the 200 East Area fence.

Comments: None.

*As defined here, for the purpose of site selection, compensatory mitigation does not refer to compensation for past impacts to biological resources. The definition and application of compensatory mitigation is adopted from 46 FR 7644, "U.S. Fish and Wildlife Service Mitigation Policy; Notice of Final Policy." Thus, compensatory mitigation refers to the final step in a series of possible mitigation actions. Compensatory mitigation may be appropriate if, after following the application of other steps in the mitigation hierarchy, residual adverse impacts remain to biological resources.

Performance Measurement 4: To avoid/minimize impacts to natural resources that have high service values,* the site must not be located near:
(1) unique geologic features, (2) water resources with high human utility value, or (3) biological resources of cultural significance.

ALTERNATIVE SITE 2	
PRO'S	CON'S
The site contains no unique geologic features or water resources that provide significant services.	The site has potentially the highest biological resource service value of any of the alternatives as it is outside the designated waste management areas.
ALTERNATIVE SITE 3	
PRO'S	CON'S
The site contains no unique geologic features or water resources that provide significant services.	The site is intermediate with respect to loss of biological resource service value between Alternatives 2 and 4.
ALTERNATIVE SITE 4	
PRO'S	CON'S
The site contains no unique geologic features or water resources that provide significant services. Because of its location within the 200 East Area fence (an area designated for waste management activities), this site has the lowest biological resource service values of any of the alternatives.	Some loss of biological resource services will occur associated with existence value.

Comments: None.

*Service values are the physical and biological functions performed by the resource including the human uses of those functions.

OVERALL EVALUATION (IN ORDER OF PREFERRED SITE)

1. **Alternative Site 4**

Potential compensatory mitigation* costs are the lowest for this alternative. This alternative would result in the smallest potential loss of natural resource services.

2. **Alternative Site 3**

This alternative is intermediate in regard to potential compensatory mitigation* costs and loss of natural resource services.

3. **Alternative Site 2**

Potential compensatory mitigation* costs are the highest for this alternative. This alternative would result in the highest potential loss of natural resource services.

The above order of preference assumes TWRS Phase I construction only. Given that it is possible to collocate Phase I and Phase II within Site 4, the order of preference remains the same. If, however, placing Phase I in Site 4 precludes its use by the Phase II production facilities (a much larger impact than Phase I because the Phase II facilities would need to be located elsewhere), the preferred siting option for Phase I is Site 3. In all scenarios, Site 2 is the least preferred siting option.

*As defined here, for the purpose of site selection, compensatory mitigation does not refer to compensation for past impacts to biological resources. The definition and application of compensatory mitigation is adopted from 46 FR 7644, "U.S. Fish and Wildlife Service Mitigation Policy; Notice of Final Policy." Thus, compensatory mitigation refers to the final step in a series of possible mitigation actions. Compensatory mitigation may be appropriate if, after following the application of other steps in the mitigation hierarchy, residual adverse impacts remain to biological resources.

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