

0033362-35



Department of Energy

Richland Field Office

P.O. Box 550

Richland, Washington 99352

93-RPS-268

JUL 07 1993

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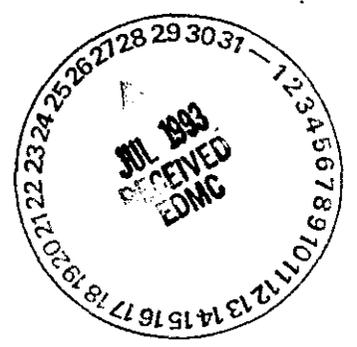
Ms. Dru Butler, Program Manager
Nuclear and Mixed Waste Program
State of Washington
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Mr. George C. Hofer
Hanford Project Manager
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

Dear Ms. Butler and Mr. Hofer:

TRANSMITTAL OF THE NOTICE OF DEFICIENCY RESPONSE TABLE FOR THE HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION, GROUT TREATMENT FACILITY, REVISION 2 (TSD: TD-2-1)

On July 27, 1992, the Hanford Facility Dangerous Waste Permit Application, Grout Treatment Facility, Revision 2 (GTF Part B), was submitted to the State of Washington Department of Ecology (Ecology) and the U.S. Environmental Protection Agency (EPA). On April 27, 1993, a Notice of Deficiency (NOD) for the GTF Part B was received by the U.S. Department of Energy, Richland Operations Office (RL). Enclosed is a NOD response table which provides the RL responses to Ecology's comments. The NOD response table is submitted to Ecology and EPA by July 23, 1993, in compliance with the 90-day response requirement specified in the Hanford Federal Facility Agreement and Consent Order.



Ms. Butler and Mr. Hofer
93-RPS-268

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JUL 07 1993

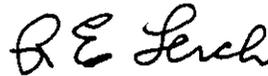
Should you have any questions, please contact Mr. C. E. Clark, RL, on (509) 376-9333 or Mr. R. C. Bowman, Westinghouse Hanford Company, on (509) 376-4876.

Sincerely,



James E. Rasmussen, Acting Program Manager
Office of Environmental Assurance,
Permits, and Policy
DOE Richland Operations Office

EAP:CEC



R. E. Lerch, Deputy Director
Restoration and Remediation
Westinghouse Hanford Company

Enclosure:
Hanford Facility Dangerous Waste Permit
Application, Grout Treatment
Facility, Revision 2, Notice of
Deficiency Response Table

cc: Administrative Records, H6-08
R. C. Bowman, WHC, w/o encl.
R. E. Cordts, Ecology, w/encl.
D. L. Duncan, EPA, w/encl.
R. E. Lerch, WHC, w/o encl.
D. C. Nylander, Ecology, w/encl.
S. M. Price, WHC, w/o encl.
D. R. Sherwood, EPA, w/encl.

2025 RELEASE UNDER E.O. 14176

Hanford Facility Dangerous Waste Permit Application

Grout Treatment Facility

Notice of Deficiency (NOD)

Response Table

July 7, 1993

HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE

July 7, 1993
Page 1 of 19

No.	Comment/Response	Ecology Concurrence
9.	<p>Page 2-9. Is the nonradioactive grout used to fill the void space and cover penetrations also a nondangerous waste grout? How long is the grout monolith allowed to cure before filling the last 4 ft of the vault with nonradioactive grout?</p> <p>DOE-RL/WHC Response No. 1: The void space grout is not a dangerous waste. The radioactive grout will be allowed to cure for a minimum of 28 days before placing the nonradioactive grout in the last 4 ft (void space) of the vault. Both the cement industry and the grout disposal program have found that the heat released from hydration (curing) reactions is essentially complete by the end of 28 days. The adiabatic calorimetry studies for the current formulation show that the hydration reactions are 90 to 99 percent complete after the first 20 days of curing. The temperature of the grout will be monitored during and after the vault filling process with an array of 64 thermocouples to determine the extent of the grout cure. Leak detection systems underneath the vault and visual observation (e.g., photographs) of the grout surface will verify that excess liquid has been removed before the void space is filled with nonradioactive grout. The text has been revised.</p> <p><u>Ecology Response No. 2:</u> Discuss in detail the criteria which will be used to determine that the grout has solidified. In other words, at what point will the vault be considered a landfill? Some criteria which have been discussed by the unit managers include; 1) nondestructive post-solidification verification results, 2) temperature changes within the vault, 3) results from grout tests with actual waste, 4) the amount of liquid entering the LDCRS, and 5) coring of the vault.</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 2 of 19

No.	Comment/Response	Ecology Concurrence
9. cont.	<p>DOE-RL/WHC Response No. 2: The mixed waste grout will be considered to have solidified when the following conditions have occurred:</p> <ul style="list-style-type: none"> • The portion of grout placed last shall have cured for a minimum of 28 days • The heat of hydration at the midpoint of a continuous placement (as measured by the thermocouple trees) will have reached a peak and demonstrate a definite plateau • Any leachate going into the leachate detection, collection, and removal system (LDCRS) has been determined not to be coming from the grouted waste based on an analysis of the leachate. <p>and one or both of the following:</p> <ul style="list-style-type: none"> • Samples prepared and tested in the laboratory from bottle-on-a-string samples meet the requirements for unconfined compressive strength of 200 psi • Tests performed on cored (core drilled or tube-in-tube sampler) material demonstrates an unconfined compressive strength which meets or exceeds 200 psi. <p>Text has been modified.</p> <p><u>Ecology Response No. 3:</u> Ecology requires that core drilling be performed on at least the first mixed waste vault in addition to the bottle-on-string sampling and non-destructive testing required for every vault. Each of these requirements must be used to verify adequate solidification.</p> <p><u>Ecology Requirement:</u> The application must state that verification of solidification includes: 1) non-destructive testing results, 2) temperature changes within the vault, 3) results from bottle-on string sampling, 4) the cessation of any liquid entering the LDCRS indicating leakage through the primary liner, and 5) coring results. Should these conditions not be met within 60 days of completing the filling of the vault, the 60-day time frame for developing the preliminary recovery plan (see comment 25) will begin. (173-303-140, -283, and -300)</p> <p>DOE-RL/WHC Response No. 3: The permit application has been modified to state that the techniques used to verify solidification will include nondestructive testing (NDT), temperature monitoring, bottle-on-string sampling, core drilling and analysis of liquid entering the LDCRS. Core drilling will be performed on at least the first mixed waste vault (Vault 102). Confidence in the NDT and bottle-on-string methods will be gained by comparing the results of these two methods with core drilling results.</p>	

HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE

No.	Comment/Response	Ecology Concurrence
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9. NDT and temperature monitoring data will be conducted during and after the grout pour. Core drilling, will not begin until after at least a 28 day cure time. In addition, core drilling is a time consuming process. Lab testing, data analysis, report generation and report clearance must be completed prior to submittal of core drilling data to Ecology. Currently these activities are estimated to require at 3-5 months to complete. Ecology will be notified if data from any or all of the above techniques indicate a lack of grout solidification. Analysis of liquid entering the LDCRS will be limited to verifying that the liquid source is not from the waste in the vault. [p 3-12, ln 10-51]

Ecology Response No. 4: Pertaining to the sentence "Based on comparisons between the various methods employed, the solidification verification requirements may be changed." (p 3-12, ln 46-47), it is appropriate that Ecology be involved with that type of decision.

Ecology Requirement: Change the sentence to read: "Based on comparisons between the various methods employed, the solidification verification requirements may be changed with Ecology's concurrence."

DOE-RL/WHC Response No. 4: The text will be revised as requested.

17. Ecology Response No. 1: Page 3-6. The analysis conducted on each candidate grout feed must be submitted to our office for approval before grouting continues. A statement to this effect must be made.

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 4 of 19

No.	Comment/Response	Ecology Concurrence
17. cont.	<p>DOE-RL/WHC Response No. 1: This permit application presents an expected waste composition, defines the variability, and establishes the performance requirements for the waste form product. Any waste processed by the GROUT Treatment Facility (GTF) will be within the compositional range defined in this permit application and will meet the established waste form performance criteria.</p> <p>The composition of wastes processed by the GTF will be presented in the annual report (Chapter 12.0) and will be available with other facility records. In addition, a checksheet will be provided to Ecology (by 'Certified Mail - Return Receipt' or equivalent) 30 days prior to processing. Grouting will proceed if Ecology does not respond within 30 days after transmission of the letter. Text has been modified.</p> <p><u>Ecology Response No. 2:</u> The checksheet provided to Ecology should contain both the physical and chemical analysis indicated in Table 3-13 along with the detailed organic analysis depicted in Table 3-2. Explain why silver and iron are reported in Appendix 3J, but not listed in Table 3-13. Provide a detailed description of how the mixing is accomplished to simulate the TGE grout mixer. (173-303-300)</p> <p>DOE-RL/WHC Response No. 2: The check sheet of Appendix 3J does not address physical properties indicated on Table 3-13 as the properties on that Table deal solely with the grouted waste. Appendix 3J will be modified to include physical properties.</p> <p>The checksheet of Appendix 3J addresses silver and iron, which are not listed on Table 3-13. Silver and iron determinations result from the same inductively coupled plasma analyses as other metals. Table 3-13 has been modified to include silver and iron.</p> <p>If organic species identified in WAC-173-303-9904 are determined present, the Appendix 3J check sheet will be modified to address these species. Organic chemical constituents not specifically identified in WAC 173-303-9904 are only of gross concern with regard to set delay of the grouted waste form. Thus, total organic carbon is measured with the methods of Table 3-13, and reported under the Appendix 3J check sheet.</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 5 of 19

No.	Comment/Response	Ecology Concurrence
17. cont.	<p><u>Ecology Response No. 3:</u> Although it is acceptable to compile a list of only the organic constituents detected in a feed or candidate tank which are also found in WAC 173-303-9903 (not WAC 173-303-9904 as indicated in the response) along with their measured concentrations, all chemical analysis data must be attached to the checksheet. Furthermore, the description of how mixing is accomplished to simulate the TGE grout mixer was not provided in your response. (173-303-300)</p> <p><u>Requirement:</u> The checksheet must identify any detectable organics listed in WAC 173-303-9903 along with their concentration. In addition, all chemical analysis data must be attached to the checksheet. The description of mixing, as requested previously, should be provided in the application.</p> <p>DOE-RL/WHC Response No. 3: The checksheet of Appendix 3J identifies detectable organic constituents listed in WAC 173-303-9904. WAC 173-303-9903, as cited, applies solely to Discarded Chemical Products (U and P wastes). Such U and P wastes are commercial chemical products, identified under WAC 173-303-081, as unused chemicals, their containers, and residue or contaminated soil from the spill of such unused chemicals. It has never been the intent of the GTF to dispose of U and P wastes. Rather, organic constituents under WAC 173-303-9904, when from a listed source, are dangerous wastes and will be so identified in the checksheet of Appendix 3J. In addition, DOE-RL/WHC will submit a complete analytical data package at the time of Appendix 3J checklist submission. This analytical package will include all organic constituents and their concentrations that were detected.</p> <p>Laboratory scale dry materials are typically blended in a V blender. Laboratory grout slurries are typically blended in a Hobart blender. Procedures have been prepared to assure that laboratory scale blending practices approximate full scale conditions as closely as possible. Likewise, laboratory scale mixing data can provide input to process control parameters for product quality control. A discussion on laboratory blending operations has been provided in the permit application. [APP 3J]</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 6 of 19

<u>No.</u>	<u>Comment/Response</u>	<u>Ecology Concurrence</u>
17.	<u>Ecology Issue 1:</u> Information which was described as being in Table 3-13 is in fact found in Table 3-14. No further response is necessary.	04/23/93
	<u>Ecology Issue 2:</u> The discussion of laboratory blending operations was found at APP 3I instead of APP 3J. No further response is necessary.	04/23/93
	<u>Ecology Issue 3:</u> At this time there is no space identified or available on the Grout Campaign Waste Composition Verification form on which to place any listed organics (from WAC 173-303-9904) discovered during the analysis of waste.	
	<u>Requirement:</u> Redesign the checksheet "Grout Campaign Waste Composition Verification" (APP 3J) to provide spaces to enable personnel to specify organic constituents from a listed source and its/their measured or known range when present in the tested waste.	
	DOE-RL/WHC Response No. 4: Issue 1 and 2 do not require a response. Issue 3: The text will be revised as requested.	
20.	<u>Page 3-10.</u> The formation of hydrogen gas and slurry growth have been reported in the double-shell tanks. A discussion of these two mechanisms should be presented as they relate to reactivity and/or ignitability.	
	DOE-RL/WHC Response No. 1: The generation of hydrogen by radiolysis of water in the grout, or grout feed material, does not present a reactivity or ignitability concern for the GTF as this accumulation is prevented by either active ventilation systems (feed tank, processing module, and vault during operation), or by not allowing pockets of hydrogen to accumulate by eliminating void spaces (vault after closure).	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 7 of 19

No.	Comment/Response	<u>Ecology Concurrence</u>
20. cont.	<p>The mechanism identified as the cause of slurry growth is the generation and trapping of gas pockets in the waste. The slurry growth phenomenon only has been observed in wastes which are highly concentrated, viscous, and have a tendency to form crusts which prevent the rapid escape of any generated gases. The grout feed material will not exhibit slurry growth as it is low in viscosity, and because the formation of a crust will be prevented by the mixing of the grout feed material. This will prevent the accumulation of gas pockets in the waste and, therefore, slurry growth will not occur. Text will remain unmodified.</p> <p><u>Ecology Response No. 2:</u> Based upon information provided to Ecology at the January 4, 1991 unit manager meeting, it is our understanding that a concern has arisen regarding the generation of hydrogen gas within the vaults. This concern has led to a design change which provides gas vents from the LDCRS, through the asphalt cocoon, to the soil for the purpose of relieving any hydrogen gas which may accumulate. All data regarding the generation of hydrogen gas, expected volumes, rates, etc. must be provided to our office as soon as possible. Engineering calculations, assumptions, and other data relevant to the design of the proposed venting system must also be provided.</p> <p>DOE-RL/WHC Response No. 2: Information presented at the January 4, 1991, Unit Managers meeting discussed design changes have been made to mitigate any problems that may arise from radiolytic hydrogen generation. These design changes were made to assure the safety of the disposal system, based on conservative assumptions for hydrogen generation and venting. The information relevant to hydrogen generation and venting was provided to Ecology at the March 22, 1991, GTF Unit Managers Meeting.</p> <p><u>Ecology Response No. 3:</u> Discussion and information transfer of the quantities and significance of gas generation is continuing. When available, evaluation of appropriate portions of the FSAR and any supporting documents will certainly be required prior to finalizing the course of action pertaining to radiolytic gas generation. Concurrence with this comment will be made pending FSAR review.</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 8 of 19

No.	Comment/Response	Ecology Concurrence
20. cont.	DOE-RL Response No. 3: The text will remain unchanged. The FSAR will be provided to Ecology for information only. It is agreed that the FSAR will provide the basics of resolution of the gas generation issue. Changes to the FSAR for gas generation will be by ECN, and supported by additional documentation, which will be provided to Ecology for information only. The ECN(s) generated for this requirement is the main documentation that will be provided to Ecology. The purpose of the FSAR is to establish that the GTF can be operated in a safe manner. It is not expected that changes to the FSAR will be made due to comments outside the scope of the document.	
30.	<p><u>Page 3-20.</u> The frictional pressure drop criterion given here, 10 lb_f/in² per 100 ft, does not correspond with that given in Table 3-9 (11.2 lb_f/in²/100ft). Please clarify.</p> <p>DOE-RL/WHC Response: The correct value for frictional pressure drop limit is 14.0 lb_f/in² per 100 ft. The values in Table 3-12 (previously Table 3-9) and the criteria statement have been corrected to this value; the calculation as presented is correct. The text has been modified to 14 lb_f/in² per 100 ft. [p 3-20, ln 47; and p T3-12]</p> <p><u>Ecology Response No. 2:</u> The line (p 3-20, ln 47) as listed from the text of the NOD Response Table is not complete; it does not include "per 100 ft" as follows:</p> $350 \text{ lbf/in}^2 \times 100 \text{ ft}/2,500 \text{ ft} = 14.0 \text{ lbf/in}^2 \text{ per } 100 \text{ ft.}$ <p><u>Requirement:</u> Correct the line (p 3-20, ln 47) to read:</p> $350 \text{ lbf/in}^2 \times 100 \text{ ft}/2,500 \text{ ft} = 14.0 \text{ lbf/in}^2 \text{ per } 100 \text{ ft. (0.97 bars) (2)}$ <p>DOE-RL/WHC Response No. 2: The text will be revised as requested.</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 9 of 19

No.	Comment/Response	Ecology Concurrence
33.	<p><u>Page 3-23.</u> The free liquid criterion was reported as less than or equal to 3.0% at a June 21, 1989, presentation by WHC and USDOE. The text indicates 5%. Which limit will be used?</p> <p>DOE-RL/WHC Response No. 1: The 5% limit will be used. The 3% criterion is used as an internal goal established to encourage minimization of waste generation from grout disposal. Text will remain unmodified.</p> <p><u>Ecology Response No. 2:</u> The free liquid criterion was not found in the text of Chapter 3. In WHC's last response, it was stated that there would be no modification in the text from their original submission.</p> <p><u>Requirement:</u> Place the text describing the free liquid criterion or define the justification for leaving it out.</p> <p>DOE-RL/WHC Response No. 2: The text will be revised to reference "Grout Formulation Standard Criteria Document" (WHC-CM-WM-CSD-003) as it pertains to free liquids.</p>	
37.	<p><u>Page 3-25.</u> Do sampling procedures change if the candidate waste must be "blended"? (173-303-300)</p> <p>DOE-RL/WHC Response No. 1: The final waste feed sampling always is conducted after the tank has been mixed using the in-tank mixer; therefore, changes are not required to account for the blending of waste. Text will remain unmodified.</p> <p><u>Ecology Response No. 2:</u> The statement was made in DOE-RL/WHC Response No. 1 that "final waste feed sampling always is conducted after the tank has been mixed using the in-tank mixer..." The permit application in two places (p 3-28, ln 51-52 and p 3-29, ln 41) states that <u>if</u> sludge is present in the feed tank the waste is mixed prior to sampling. No text is present in this area describing mixing under all circumstances prior to sampling.</p> <p><u>Requirement:</u> Insert language into the permit application similar to that which is in the NOD response describing mixing in the final waste feed tank prior to sampling.</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 10 of 19

No.	Comment/Response	Ecology Concurrence
37. cont.	DOE-RL/WHC Response No. 2: Text will be inserted on p.3-29, ln 1 so that the paragraph will read "... described in SW-846 (EPA 1986b). At least one sample is taken from a depth below the sludge level that existed before the mixing. Sufficient samples...."	
51.	<p><u>Page 4-10.</u> It should be noted that tributylphosphate is a dangerous material and that a spill or discharge of this material, or material with which this has been mixed, will be considered a dangerous waste. (173-303-101)</p> <p>DOE-RL/WHC Response No. 1: All spills of material from the Grout Processing Facility will be designated and disposed of in accordance with the applicable regulations. This is, discussed in Chapter 7.0 of the permit application (see page 7-23 of the original submittal). Tributylphosphate was deleted from the text since future use is not anticipated.</p> <p><u>Ecology Response No. 2:</u> Ecology is withdrawing it's concurrence with the response to this NOD comment until APP 7A is provided and Ecology has had an opportunity to evaluate that section.</p> <p><u>Requirement:</u> Submit APP 7A to Ecology for review.</p> <p>DOE-RL/WHC Response No. 2: The text will be revised. The building emergency plan (BEP), Appendix 7A, will be included with the next permit application documentation revision. The BEP also will be submitted with this NOD response table.</p>	
57.	<p><u>Page 4-12.</u> It should be noted that sodium hydroxide is a dangerous material and that a spill or discharge of this material, or material with which this has been mixed, will be considered a dangerous waste. (173-303-101)</p> <p>DOE-RL/WHC Response No. 1: All spills of material from the Grout Processing Facility will be designated and disposed of in accordance with the applicable regulations. This is discussed in Chapter 7.0 of the original permit application (page 7-23). Text will remain unmodified.</p> <p><u>Ecology Response No. 2:</u> Ecology is withdrawing it's concurrence with the response to this NOD comment until APP 7A is provided and Ecology has had an opportunity to evaluate that section.</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 11 of 19

<u>No.</u>	<u>Comment/Response</u>	<u>Ecology Concurrence</u>
57. cont.	<p><u>Requirement:</u> Submit APP 7A to Ecology for review.</p> <p>DOE-RL/WHC Response No. 2: See response No. 2 on Comment No. 51.</p>	
99.	<p><u>Page 7-1.</u> The contingency plan should include a list of all equipment which contains potentially dangerous materials, both wastes and products, and remedial actions to be taken in the event of their discharge to the environment.</p> <p>DOE-RL/WHC Response No. 1: Remedial actions are covered in Appendix 7A of the permit application. A listing of equipment containing dangerous substances has been added to the text. [APP 7A]</p> <p><u>Ecology Response No. 2:</u> Ecology is withdrawing it's concurrence with the response to this NOD comment until APP 7A is provided and Ecology has had an opportunity to evaluate that section.</p> <p><u>Requirement:</u> Submit APP 7A to Ecology for review.</p> <p>DOE-RL/WHC Response No. 2: See response No. 2 on Comment No. 51.</p>	
105.	<p><u>Page 7-26.</u> Should liquids be detected in the LDCRS, it is not appropriate to return this liquid to the vault because the integrity of the vault is unknown. The leachate should be delivered to and held in some other storage vessel until the vault has been assessed. [173-303-650(5)]</p> <p>DOE-RL/WHC Response No. 1: Liquid will be returned to the double-shell tank farm system if the vault integrity is questionable. Text has been modified. [APP 7A]</p> <p><u>Ecology Response No. 2:</u> Ecology is withdrawing it's concurrence with the response to this NOD comment until APP 7A is provided and Ecology has had an opportunity to evaluate that section.</p> <p><u>Requirement:</u> Submit APP 7A to Ecology for review.</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 12 of 19

<u>No.</u>	<u>Comment/Response</u>	<u>Ecology Concurrence</u>
105. cont.	DOE-RL/WHC Response No. 2: See response No. 2 on Comment No. 51.	
128.	<p>Page 11-9. What constituents will be analyzed to prove the success of decontamination? [173-303-610(3)(a)]</p> <p>DOE-RL/WHC Response No. 1: Text has been modified to list the constituents that will be used to prove decontamination is successful.</p> <p><u>Ecology Response No. 2:</u> The grout closure plan is still under review. [173-303-610(3)(a)]</p> <p>DOE-RL/WHC Response No. 2: No response required.</p> <p><u>Ecology Response No. 3:</u> Page 11-13, Section 11.1.4.4.1, Decontamination and Indicator Parameters and Analytical Methods. This section references Table 11-1 for parameters to be evaluated when determining the success of decontamination. Some of the parameters listed in the first column of this table are not further described in the remaining columns. Furthermore, it is not evident how these parameters were chosen for evaluation. The use of ten times a drinking water standard is not consistent with Ecology's dangerous waste closure regulations.</p> <p><u>Requirement:</u> Table 11-1 should be completed or the absence of information justified. Total organic carbon, sodium, aluminum, and potassium should be added as parameters for evaluation. References within the table to U.S. Testing Company should be deleted. Units for the "Sample Size" column should be included. Clean closure standards must be consistent with dangerous waste regulations which require background levels for listed and characteristic wastes and designation levels for other wastes. WAC 173-303-610(2)(b)</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 13 of 19

No.	Comment/Response	Ecology Concurrence
128. cont.	<p>DOE-RL/WHC Response No. 3: Table 11-1 has been modified to address the absence of information, including additional parameters for evaluation if required. In addition, the reference to U.S. Testing has been deleted, and sample size units have been included. Justification for selection of parameters for evaluation have been provided in the text. Closure was made consistent with dangerous waste regulations for listed and characteristic wastes per WAC 173-303-610(2)(b). [p T11-1]</p> <p><u>Ecology Response No. 4:</u> Table 11-1 still has two blanks for analysis of pH at Concrete and Equipment/structures.</p> <p><u>Requirement:</u> The blanks in Table 11-1 for analysis of pH at "Concrete" and "Equipment/structures" should be filled with an appropriate indicator such as "N/A".</p> <p>DOE-RL/WHC Response No. 4: Table 11-1 will be revised to provide the blanks with appropriate indicators.</p>	
229.	<p><u>Page 7-3, ln 14.</u> Ecology must be provided with a copy of the building emergency plan for the GTF.</p> <p>DOE-RL/WHC Response No. 1: The WAC 173-303 requirements for contingency plans are satisfied in the following documents: the <i>Hanford Facility Contingency Plan</i> [APP 7C] and the <i>Westinghouse Hanford Company Building Emergency Plan - Grout Treatment Facility</i> [APP 7A].</p> <p>The cited contingency plan documents also serve to satisfy a broad range of other requirements (e.g., Occupational Safety and Health Administration and U.S. Department of Energy orders). Therefore, revisions made to portions of the contingency plan documents that are not governed by the requirements of WAC 173-303 will not be considered as a modification subject to review of approval by Ecology.</p> <p>Changes made to the GTF building emergency plan that are governed by WAC 173-303 will be sent to Ecology for a permit modification.</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 14 of 19

<u>No.</u>	<u>Comment/Response</u>	<u>Ecology Concurrence</u>
229. cont.	<p><u>Ecology Response No. 2:</u> Ecology is withdrawing concurrence with this NOD response until Ecology has had the opportunity to review the revised Appendix 7A.</p> <p><u>Requirement:</u> Submit APP 7A to Ecology for review.</p> <p>DOE-RL/WHC Response No. 2: See response No. 2 on Comment No. 51. A revised Hanford Facility Contingency Plan is contained in the Hanford Facility Dangerous Waste Permit Application, General Information, Revision 1, DOE-RL-91-28.</p>	
240.	<p><u>Page APP 7A-5.</u> Define "other appropriate receiver tanks".</p> <p>DOE-RL/WHC Response No. 1: Other appropriate receiver tanks include feed tanks 241-AP-102, 241-AP-104, and other 200 East Area double-shell tanks. The text has been revised to state tank farm double-shell tanks. [APP 7B]</p> <p><u>Ecology Response No. 2:</u> "Appropriate receiver tanks" were identified in the first sentence of the last paragraph of APP 7B, page 1. However, APP 7B Sections 5.2 and 5.3 once again had reference only to "appropriate receiver tanks."</p> <p><u>Requirement:</u> Identify "appropriate receiver tanks" discussed in APP 7B, Sections 5.2 and 5.3 (p APP 7B-9) in terms similar to those in the last paragraph of APP 7B, page 1.</p> <p>DOE/RL Response No. 2: The text will be revised to identify the "appropriate receiver tanks."</p>	
251.	<p><u>Page APP 7A-14.</u> The recycling of liquids back to the vault is under investigation. See comment number 56.</p> <p>DOE-RL/WHC Response No. 1: Text will be modified in accordance with the resolution of comment number 56.</p>	

HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE

July 7, 1993
Page 15 of 19

No.	Comment/Response	Ecology Concurrence
251. cont.	<p><u>Ecology Response No. 2:</u> Based upon a WHC presentation on November 28, 1990, liquids from the leachate sump will only be returned directly to the vault during emergency conditions. This contradicts item 2 in Section 6.1 of the RAP which indicates that leachate from the sump in quantities less than the ALR will be returned to the vault.</p> <p><u>Requirement:</u> Replace "return liquids to the disposal vault" with "transfer liquids to the LCT". Define the "emergency conditions" during which leachate will be returned directly to the vault.</p> <p>DOE-RL/WHC Response No. 2: The RAP has been revised to show the emergency condition for recycling of leachate sump contents to the vault. [APP 7B]</p> <p><u>Ecology Response No. 3:</u> The one condition listed in the last sentence of APP 7B, page 1, (to prevent a release to the environment) is the only condition allowable to pump liquid back to the vault.</p> <p><u>Requirement:</u> In the second line of the last paragraph of APP 7B, page 1, change "can" to "will only".</p> <p>DOE-RL/WHC Response No. 3: The text will remain unchanged. The restriction to only pump leachate to the vault to preclude a release to the environment is too limiting for successful operation of the GTF. The disposal of leachate should have more than one option to ensure timely operation of the unit and for process control purposes. The leachate could be pumped to the vault to maintain moisture on the surface of the grout to prevent cracking or spalling during the curing process.</p>	
275.	<p><u>Page 4-1, Section 4.0, Process Information.</u> There are no time frames presented in the paragraph which describes the grouting process.</p> <p><u>Requirement:</u> It should state in the text that the pouring of waste into the grouting vault can take 12 to 15 days, if at the maximum flow rate, and longer if at a lower flow rate. The initial curing is then expected to take approximately 30 days. Provide an estimate of how long until the vaults are closed.</p>	

**HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE**

July 7, 1993
Page 16 of 19

No.	Comment/Response	Ecology Concurrence
275.	<p>DOE-RL/WHC Response No. 1: The timeframe estimates for filling the vault and the curing time of the grout has been added. [p F11-17 through p F11-19]</p> <p><u>Ecology Response No. 2:</u> Time frame estimates for filling vaults and curing grout are found as described at p F11-17 through p F11-19. However, in all figures filling of the second vault of the pair was given as the minimal time for filling; there was no allowance for pouring in lifts or any other delay to permit the heat of hydration to dissipate.</p> <p><u>Requirement:</u> Determine the best-case and worst-case time frame effects which could result from the need to pace the pouring of grout to diminish or negate the effect of heat of hydration. Discuss these effects on the overall possibility of meeting established schedules to fill grout vaults. Identify any other impacts to the permit application as a result of needing to fill vaults in lifts.</p> <p>DOE-RL/WHC Response No. 2: The figures (p F11-17 through p F11-19) will be revised to reflect only the closure activities, and a note will be added to the figures to reflect that the filling and curing of vault pairs waste will pace closure activities. The pouring of the grout is not considered part of the closure activity. An 'operational process plan' will be provided to Ecology prior to processing waste, as stated in Chapter 3.0, Section 3.2.1.1, Waste Criteria, lines 40 to 47. The best case and worst case time estimates for filling vaults and curing grout will be provided in the 'operational process plan'.</p>	
308.	<p><u>Appendix 11A, Cover Design Engineering Report.</u> What is the reason for the dry of optimum moisture specification for the clay layer?</p> <p>DOE-RL/WHC Response No. 1: Based on the recommendations of Design, Construction and Evaluation of Clay Liners for Waste Management Facilities, EPA/530/SW-86/007F, the specifications of moisture content has been revised to wet of optimum (2% higher than optimum) for compaction of the bentonite liners. The B-714-C5 Specifications and Engineering Report have been changed to permit a higher moisture content. Kneading compaction will be accomplished by the deployment of sheep foot rollers to disperse the soil layer and reach the design permeability requirement. [APP 11A, Section 2200, p 8]</p>	

HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE

July 7, 1993
Page 17 of 19

No.	Comment/Response	Ecology Concurrence
308. cont.	<p><u>Ecology Response No. 2:</u> APP 11A, p 7, states that water will be added during mixing to obtain moisture content of optimum to 4% above optimum. No mention is made in this section about the "kneading compaction...", nor in the section of 02200 which discusses emplacing the bentonite layer.</p> <p><u>Requirement:</u> Use of the sheep foot roller is required during compaction of the bentonite layer and should either be explicitly stated in the specifications or the location of the text specifying this requirement should be noted.</p> <p>DOE-RL/WHC Response No. 2: The text will remain unchanged with respect to the type of equipment used to accomplish the compaction. There are other types of equipment available for compaction. It would not be appropriate to limit the work to a specific type of equipment at this time. The original comment was concerned with the moisture content of the clay layer. That comment was addressed in the first response by changing the moisture content to be used.</p>	
327.	<p><u>Ecology Comment:</u> The <i>Shoreline Management Act of 1971</i> from p 2-10, ln 36 is not referenced in Section 15.</p> <p><u>Requirement:</u> Include the <i>Shoreline Management of 1971</i> as a reference in Section 15 and relate it to the appropriate text in p 2-10.</p> <p>DOE-RL/WHC Response No. 1: The text will remain unchanged. This reference is provided on p 15-15, ln 7.</p>	
328.	<p><u>Ecology Comment:</u> The <i>Safe Drinking Water Act of 1974</i> from p 2-10, ln 45 is not referenced in Section 15.</p> <p><u>Requirement:</u> Include the <i>Safe Drinking Water Act of 1974</i> as a reference in Section 15 and relate it to the appropriate text in p 2-10.</p> <p>DOE-RL/WHC Response No. 1: The text will remain unchanged. This reference is provided on p 15-15, ln 5.</p>	

HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
 GROUT TREATMENT FACILITY
 NOTICE OF DEFICIENCY RESPONSE TABLE

July 7, 1993
 Page 18 of 19

No.	Comment/Response	Ecology Concurrence
329.	<p><u>Ecology Comment:</u> In Table 3-14 (p T3-14.2, ln 15), the last property "toxicity," has no "use" block filled.</p> <p><u>Requirement:</u> Replace Table 3-14 with a corrected copy showing the use of the data acquired under the "toxicity" category.</p> <p>DOE-RL/WHC Response No. 1: The text will be revised to correct Table 3-14.</p>	
330.	<p><u>Ecology Comment:</u> In the Reference Section, p 15-6, the following references are both listed as EPA 1984: ln 11 to 13--<i>Technical Addition to Methods for Chemical Analysis of Water and Wastes</i> and ln 15 to 17--<i>Test Method for Determining Inorganic Anions in Water by Ion Chromatography Method 300.0</i>.</p> <p><u>Requirement:</u> In Section 15, separately identify <i>Technical Addition to Methods for Chemical Analysis of Water and Wastes</i> as "EPA, 1984a" and <i>Test Method for Determining Inorganic Anions in Water by Ion Chromatography Method 300.0</i> as "EPA, 1984b. Locate and correctly endorse appropriate text references.</p> <p>DOE-RL/WHC Response No. 1: The text will be revised to correct the two references.</p>	
331.	<p><u>Ecology Comment:</u> Sections APP 7A and APP 10A have not been included in the revised pages provided to Ecology. Discussions or decisions based on the content of sections APP 7A and APP 10A cannot occur until Ecology has had sufficient time to evaluate the content of these sections.</p> <p><u>Requirement:</u> Provide Ecology with an estimate of the time at which Sections APP 7A and APP 10A of the Grout Permit Application will be made available. Provide Ecology with the revised Sections APP 7A and APP 10A. Provide Ecology with an analysis of which Sections of the Grout Permit Application are affected by the content of these sections.</p>	

HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION,
GROUT TREATMENT FACILITY
NOTICE OF DEFICIENCY RESPONSE TABLE

July 7, 1993
Page 19 of 19

No.	Comment/Response	Ecology Concurrence
331. cont.	<p>DOE-RL/WHC Response No. 1:</p> <p>Appendix 7A: See response No. 2 on Comment No. 51.</p> <p>Appendix 10A: Requirements for waste minimization are contained in 40 CFR 264.73(a) and 264.73(b)(9). The requirements of 40 CFR.264.73(a) state that the "owner or operator must keep a written operating record as his facility." The requirements of 264.73(b)(9) mandate: "a certification by the permittee no less often than annually, that the permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the permittee to be economically practicable..." To fulfill the requirements of 40 CFR 264.73(b)(9), a certification that the Hanford Facility has a waste minimization program in place will be entered, annually, into the Hanford Facility operating record. The Grout Treatment Facility Part B permit application documentation will be revised to refer to this certification and its location.</p>	

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Subject: TRANSMITTAL OF THE NOTICE OF DEFICIENCY RESPONSE TABLE FOR THE HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION, GROUT TREATMENT FACILITY, REVISION 2 (TSD: TD-2-1)

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