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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

7601 W. Clearwater, Suite 102 • Kennewick, Washington 99336 • (509) 546-2990
January 26, 1993

Mr. Steve Wisness
U. S. Department of Energy
P.O. Box 550 MSIN: A5-15
Richland, WA 99352

Dear Mr. Wisness:

Re: Phase II Liquid Effluent Program Wastewater Engineering Report and
BAT/AKART Studies, WHC-SD-W252-ER-001 (Consent Order No. DE-91NM-
177)

The Department of Ecology has completed its review of the document referenced
above. A Notice of Deficiency (NOD) is enclosed.

As noted in our comments, this plan is well thought-out and provides good
information. However, it does not include all the information required by WAC
173-240-130 for an engineering report. The additional information required
may be provided in a separate document or documents, if desired.

We also request that you re-evaluate the alternatives for the 400 Area
Secondary Cooling Water. (See comment number 59). The remaining comments
must be addressed but should not change the BAT/AKART alternative selected.

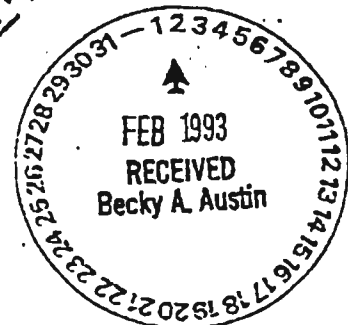
If you have any questions or comments regarding this letter, please call me at
736-3021.

Sincerely,

Melodie A. Selby
Melodie A. Selby, P.E.
Nuclear and Mixed Waste Management

MS:mf
Enclosure

- cc: Dana Bryson, DOE
- Doug Sherwood, EPA
- ~~Becky Austin, WHC~~
- Don Kelley, WHC
- Richard Oldham, WHC
- Joe Thrasher, WHC
- David Jansen, Ecology
- Dave Nylander, Ecology
- G. Thomas Tebb, Ecology



PHASE II LIQUID EFFLUENT PROGRAM (PROJECT W-252)
Wastewater Engineering Report and BAT/AKART Studies
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General

1. This plan is well thought-out and provides good information. However, it does not include all the information required by WAC 173-240-130 for an engineering report for an industrial wastewater facility. Additional information must be provided regarding:
- a. Locations of disposal facilities.
 - b. The amount of water lost to evaporation.
 - c. The amount and kind of chemicals used in the treatment process.
 - d. The basic design data and sizing calculations of the treatment units.
 - e. A discussion of the suitability of the proposed site for the facility.
 - f. Maps and layout sketches.
 - g. A description of the receiving water, location of the point of discharge, applicable water quality standards, and how water quality standards will be met outside of any applicable dilution zone.
 - h. If land application is chosen for discharge:
 - Geohydrologic evaluation of site, including depth to groundwater and groundwater movement during different times of the year

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- Water balance analysis of the proposed discharge area
- Overall effects of the proposed facility upon the groundwater in conjunction with any other land application facilities that may be present.

- i. Additional analyses and engineering assessment of effluent quality.
- j. Additional schedule information including required sampling and analysis, permitting, and preparation of Environmental Assessment.
- k. Information regarding compliance with SEPA and NEPA.
- l. Sufficient information so that plans and specifications can be developed without substantial changes.

This information may be provided in a separate document or documents, if desired.

2. The schedules provided in this document do not include additional sampling and analysis, SEPA/NEPA compliance, and permitting. These items can significantly affect the schedule and should be included.

Specific

3. 1-10/1.4 States that waste has "unique radiological and chemical characteristics." However, page ES-1 states that "none of these sources involve direct contact with radiochemical processes." Revise to be consistent.

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4.	5-1/5.1.1	"A preferred location for the disposal pond has not yet been determined." A final engineering report must be submitted when location is determined. (See comment number 1.)
5.	5-13/5.2.2.1	The minimum pipe size for the collection pipelines is given as 2 inches. These pipelines are up to 9000 feet long. Standard engineering practice for gravity flow pipe line calls for a minimum of 6 inch pipe. For runs longer than 300 feet, the usual minimum pipe size is 8 inches. (For example, see <i>Criteria for Sewage Works Design</i> , Washington State Department of Ecology, 1985).
6.	5-38/5.2.4.1	This section repeatedly uses the acronym ZEDT. This acronym is not defined in the text or in the acronym list provided.
7.	7-3/Figure 7-1	This schedule should include additional characterization required for several of the streams, any required Environmental Assessments, and permitting efforts since these items can significantly impact the schedule.
8.	8-3/8.4.3	This section states that for safety reasons, "... the procurement specifications will likely require that the individual process vendors maintain personnel at the facility site until reliable operation is established..." If this is necessary for safety, this report should require the procurement specifications to include these conditions.
9.	9-3 to 9-9-9 /Table 9-1	Additional information must be provided for a complete Engineering report. Specifically, provide the information requested in WAC 173-240-130 (2)(c)(iv), (2)(d), (2)(e), (2)(f), (2)(h), (2)(i), (2)(j), (2)(k), (2)(m), (2)(p), (2)(q), (2)(w), and (2)(x). See also comment 1.
10.	9-8/Table 9-1	The discussion of section (2)(r) states "no sludge would be generated". Then it states, "The solidified wastes generated would be stored and/or directly disposed in

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		permitted facilities on the Hanford Site". What solidified waste is generated if it is not sludge? Explain further.
11.	A.2-11/2.2.1	Category B is domestic wastewater. However, Table 9-1, page 9-3, implies that no domestic wastewater is included in the wastewater.
12.	A.2-12/2.2.2	This section will have to be revised based on the additional sampling and analysis required for some streams.
13.	A.2-16/2.2.2	Some words appear to be missing from the sentence that begins "Nickel was assumed to be same due to corrosion products..." Please revise.
14.	A.2-18/2.4	Bone char adsorption is identified as a candidate for removing plutonium. Why is this of concern when none of the streams contact radiochemicals? See comment number 3.
15.	A.2-23/2.5.10	This section states, regarding cost ranking, "It should be noted that these guidelines were not applicable in every case." If you are not going to follow the guidelines you established, you must explain why.
16.	A.2-27/3.0	This section states, "It is not within the scope of the Engineering Report to address the selection of the final disposal option". The selection of the final disposal option must be addressed in a final engineering report to meet the requirements of WAC 173-240-130.
17.	A.2-50/6.2.2	State whether the technologies described in this section were retained for further review or eliminated from consideration.
18.	B.1-13/2.1.1	This sentence appears to be missing a word: "The main purpose of is to provide a cooling mechanism from the exhaust vapors...." Revise.

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19.	B.1-17/2.1.2	"Other contributors flow into the warm water sump downstream of the sampler." State how the effluent will be sampled to include all contributors.
20.	B.1-19/2.1.3.1	Source 1 is stated to have a potential for radioactive contamination. This contradicts the statement on page ES-1 that "none of these sources involve direct contact with radiochemical processes." Revise to be consistent. See comment number 3 This is stated repeatedly throughout the appendices. Each instance is not noted.
21.	B.1-19/2.1.3.3	The difference between sources 3 and 3A is not clear. Source 3B, referenced in the title, is not described. Add additional information.
22.	B.1-19/2.1.3.4	"The best available data is that the ECWS is functionally tested once per month, rarely beyond that." Does this mean that you are not sure how often it is tested or how often it is used beyond testing?
23.	B.1-22/2.2.1	Please provide additional information regarding the laboratory that performed the analysis and the procedures used. Is this laboratory an EPA-approved laboratory? Were EPA procedures used?
24.	B.1-55/8.0	The schedule calls for construction of a treatment system, but the option chosen is source control. (See Page B-1.53, Section 7.0) Revise to be consistent.
25.	B.1-55/8.0	Add to the schedule permitting and SEPA/NEPA compliance.
26.	B.2-24/2.1.3.1	This section states that contaminate concentrations from Table 2-2 will be used for BAT/AKART analysis. Table 2-2 includes maximum and mean concentrations. Which will be used?
27.	B.2-41/4.0	"The main objective of the design alternatives to be discussed is the removal of heat energy from water." However, the technologies listed to be considered removed suspended solids, dissolved solids and organics, not heat. Revise to clarify.

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28.	B.2-57/5.2.9	Why is the amount of secondary waste generated discussed in this section instead of the next section? This is repeated throughout the appendices.
29.	B.2-64/5.3.8	Explain why rating was given.
30.	B.2-64/5.3.11	Alternative 3 incorporates the source controls from Alternative 2. Why are the source control costs so different? (\$5,280,000 with annual operating cost of \$110,000 for Alternative 3 and \$1,940,000 with annual operating cost of \$70,000 for Alternative 2. See page B.2-58.)
31.	B.2-70/5.4.11	According to the text, Alternative 4 incorporates the same source controls as Alternatives 2 and 3. However, this alternative shows still another cost for source controls (\$4,980,000 and annual operating cost of \$110,000). It seems that if the source control portions are the same, they should have the same cost. If not, explain why.
32.	B.2-76/7.4	State which existing facilities are expected to remain.
33.	B.2-79/8.0	Add to the schedule permitting and SEPA/NEPA compliance.
34.	B.2-83/10.0	Why were 100-D Area personnel interviewed regarding the 242-A Evaporator?
35.	B.3-20/2.1.2.2	Is Polyquest 683 the only treatment chemical currently added? This paragraph seems to imply more than one chemical is added to the boiler feed water.
36.	B.3-20/2.1.2.2	Is plugging of floor drains within 5 feet of potential sources sufficient for spill control? Spills can often travel more than 5 feet if no physical barriers prevent the flow.
37.	B.3-22/2.1.3.5	This source is stated to contain approximately 9% NaCl by weight. However, the regeneration description states that 330 gallons of 9% brine is added to

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		approximately 10,000 gallons of solution. This does not equal 9% by weight. Revise to remove apparent contradiction.
38.	B.3-24/2.2.1	If stream characteristics are estimated from the influent, the constituents in the brine used for the water softener regeneration should be included.
39.	B.3-31/3.2.1	This section states information on chlorine in the sanitary water is needed. How and when will this information be obtained?
40.	B.3-33/3.3.1	What are the requirements for Pasco's river discharge?
41.	B.3-37/4.2	This section states "The only water potentially discharging to the 216-B Ditch under this alternative would be raw water." Then it states "The floor and trench drains would continued to be administratively controlled to prevent spills from entering the sewer system." If the only water entering the system is raw water, where will the effluent from the floor and trench drains go?
42.	B.3-56/7.6	Include discussion of future plans.
43.	B.3.58/Fig. 8-1	Add to the schedule permitting, gathering of additional information needed, and SEPA/NEPA compliance.
44.	B.4-13/2.1	Please describe neutralized current acid waste in additional detail.
45.	B.4-37/4.0	Why was an alternative of additional source controls combined with end-of-pipe treatment not considered? <i>Best Available Technology (economically achievable) Guidance Document for the Hanford Site (WHC-EP-0137)</i> , 1988, calls for such an alternative to be considered.
46.	B.4-58/7.5	Permitting was rated Medium for the selected alternative. Why was permitting not identified as an uncertainty in the project?

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47.	B.4-58/7.6	Describe any plans that may affect this project or state that there are none.
48.	B.4-60/Fig. 8-1	Add to the schedule permitting, gathering of additional information needed, and SEPA/NEPA compliance.
49.	B.5-18/2.1.2.1	"Filtered water is chlorinated and then routed to the 183-D Clearwell. Chlorine is also added to the clearwells...." Since page B.5-15 states that chlorine is added before filtration, does this mean that chlorine is added three times? Page B.5-15 also states that chlorine is added twice. Revise to resolve contradiction.
50.	B.5-28/2.2.1	Define the rejection criteria for 2-Butanone.
51.	B.5-32/3.3.1	What are the requirements for Pasco's river discharge? State how and when the settling basin drain stream will be characterized to verify the assumptions made.
52.	B.5-34/3.3.1	State how and when characterization data needed for the filter backwash and settling basin sludges will be obtained.
53.	B.5-39/5.1.1	For this alternative, describe what will be done with sources other than filter backwash.
54.	B.5-42/5.1.1	Some words appear to be missing from this sentence: "The package plant any spills could be removed by using absorbents which would be disposed to a solid waste landfill."
55.	B.5-56/5.4.4	Explain why, if the technology has a history of safe operation, a safety rating of Medium is given.

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56.	B.4-60/Fig. 8-1	Add to the schedule permitting, gathering of additional information needed, and SEPA/NEPA compliance.
57.	B.6-22/2.1.3	This section states "A description of each stream is provided in the following sections." Actually, only descriptions of major contributors are provided.
58.	B.6-39/4.2	Why is additional source controls with current disposal method not considered as an option?
59.	B.6-63/Table 6-2	Alternatives 1 and 2 differ only in permitting and cost. Alternative 1 is chosen only because of its lower cost. The analysis suggests that it will be difficult to permit. I suggest an Alternative 2A be considered which includes most of the source controls but eliminates the higher cost source controls. Such an alternative would be more likely to be successfully permitted.
60.	B.6-65/7.5	Permitting was identified as an uncertainty for this option.
61.	B.6-68/Fig. 8-1	Add to the schedule permitting, gathering of additional information needed, and SEPA/NEPA compliance.
62.	B.7-16/2.1.2	This section implies that the data and the BAT/AKART study are only for standby mode. If so, another study will be required for operational mode. If not, explain in the document.
63.	B.7-24/2.2.1	Some words appear to be missing from this sentence: "Condensate wastewater stream."
64.	B.7-31/4.2	How would the remaining sources be disposed of?
65.	B.7-33/4.3	This section states that sources 8,9, 10 and 11 would be treated. Figures 4-1 and 4-2 show that source 11 has been eliminated.

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66.	B.7-44/5.3.1	See comment number 65.
67.	B.7-53/7.1	Section 5.2.1, page B.7-39, states that streams recycled to the 284 East Powerplant would be treated before entering the plant. This section does not describe the treatment. Revise to resolve contradiction.
68.	B.7-56/Fig. 8-1	Add to the schedule permitting, gathering of additional information needed, and SEPA/NEPA compliance.
69.	B.8-91/Fig. 8-1	Add to the schedule permitting, gathering of additional information needed, and SEPA/NEPA compliance.

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author: M. A. Selby, P.E. Addressee: S. H. Wisness, DOE Correspondence No.: Incoming: 9300269

Subject: PHASE II LIQUID EFFLUENT PROGRAM WASTEWATER ENGINEERING REPORT AND
 BAT/AKART STUDIES, WHC-SD-W252-ER-001 (CONSENT ORDER NO. DE-91NM-177)

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