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STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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April 5, 1999

Mr. Don W. Edwards
Environmental Safety and Regulatory Manager
BNFL, Inc. - TWRS Privatization
2940 George Washington Way
Richland, Washington 99352

Dear Mr. Edwards:

Thank you for giving the Washington State Department of Ecology (Ecology) the opportunity to review the pre-application drafts of Chapters Two, Three and Four of the dangerous waste permit application for the Tank Waste Remediation System-Privatization (TWRS-P) facility. We appreciate your continued willingness to work closely with us, and the rest of the Hanford Site community, as you develop your permit application.

As you know, our engineers and permit writers have spent considerable time with your design managers and team working through issues associated with the level of detail that will be necessary in Chapter Four. For that reason, and because your draft application for a permit modification is presently with the U.S. Department of Energy (USDOE) for review, we will limit our comments to Chapters Two and Three. As you have requested, we have focused our review on major issues that would substantially affect either the completeness of your application for a permit modification, or the compliance of your application with applicable dangerous waste regulations. Review of your actual application for a permit modification may raise new issues because we have not made any effort to provide detailed comments at this time.

Chapter 2 – Facility Description

Generally, the information provided in the facility description is complete. The detailed narrative describing waste treatment operations, and the processes generating dangerous waste is, for the most part, adequate. However, the following points should be considered.

First, it's acceptable to reference other portions of the permit application for more detailed information, but the level of detail presented in each section of the facility description should be consistent. For example, in Section 2.1.1.2, although the text states the sulfate ion exchange process is similar to the cesium and technetium ion exchange process, the spent sulfate resin disposal path is not identified. Second, in the pretreatment/treatment offgas discussions, it is difficult to identify which filter media require/do not require periodic replacement and subsequent disposal. Third, the simplified process flow diagram depicted in Figure 2-1 is a good start at providing a detailed flow diagram for tracking wastes through the pretreatment/treatment system. As this figure is also used in Chapters Three and Four, it would be helpful to have the diagram expanded to include all secondary waste streams generated, and their subsequent disposal paths.

The following areas require additional information or details. First, Section 2.2.1 states that there are no surface waters in the immediate vicinity of the facility, however, intermittent (seasonal) streams are not mentioned. Please address the occurrence/non-occurrence of intermittent streams in accordance with Washington Administrative Code (WAC) 173-303-806(4)(a)(xviii)(C). Second, Section 2.3 states the British Nuclear Fuels (BNFL), Inc. TWRS-P Facility design meets, or exceeds, seismic zone requirements for the Hanford Site. Please include references to the design specifications/information which demonstrate the facility's compliance with WAC 173-303-806(4)(a)(xi). Third, the following information is not present on the topographic map located in Appendix 2A: Map orientation via a north arrow, an indication of the land area BNFL, Inc. is leasing from USDOE, gate access into the facility, and indication of the load/unload areas for the Pretreatment and Low Activity Waste (LAW) Vitrification buildings.

It's important to note that references to other sections of the permit application for additional information should be complete, providing the specific section rather than just the chapter.

Chapter 3 – Waste Analysis Plan

Generally, you've made a good start on the Waste Analysis Plan. Our comments focus on four areas where additional information or detail will be needed to make your application complete and in compliance with applicable dangerous waste regulations. First, as we understand it, the Regulatory Data Quality Objective (DQO) will be implemented for the tank waste to generate the detailed chemical, physical, and biological analysis of dangerous waste required by WAC 173-303-300(2).

While this is acceptable, your Waste Analysis Plan should provide additional detail about implementation of the Regulatory DQO, and about the sampling and analysis you will conduct to verify the results of the Regulatory DQO as wastes are received at the TWRS-P Facility. Second, your Waste Analysis Plan should define quality assurance (QA) and quality control (QC), or reference the document satisfying these requirements (i.e., Quality Assurance Project Plan (QAPjP)). Third, your Waste Analysis Plan should include more facility-specific detailed information about sampling and analysis of the waste streams that will be generated at the TWRS-P Facility and should explain the rationale behind your sampling and analysis choices. Fourth, the methods you use to track wastes as they move within the TWRS-P Facility and through the treatment process should be identified and discussed. Each of these areas are detailed below.

Regulatory DQO

As you know, the Regulatory DQO is an agreement between Ecology and USDOE that covers characterization of the double-shell tank waste. While use of the data resulting from implementation of the Regulatory DQO should significantly streamline your development of a Waste Analysis Plan, it does not resolve all issues. For example, implementation of the Regulatory DQO will not automatically resolve waste compatibility issues, including waste compatibility with construction materials (e.g., tanks, liners, piping), and compatibility issues associated with re-circulating certain waste streams within your treatment processes, and with containing wastes that may be released during spills and other emergencies. These issues should be addressed in your Waste Analysis Plan.

In addition, please discuss the relationship of data and information gathered through implementation of the regulatory DQO to the pre-shipment review discussed in Section 3.2.1 of your pre-application draft Waste Analysis Plan. For example, for each batch of waste feed, which parameters in Tables 3-2 and 3-3 will be verified as part of the pre-shipment review? Under what circumstances will BNFL independently analyze split samples of waste feed? More generally, what is the rationale behind the choices you've made for sampling and analysis activities associated with pre-shipment review and waste receipt?

Quality Assurance/Quality Control

The pre-application draft of your Waste Analysis Plan contemplates development of a QAPjP. The actual Plan should be included in your application for a permit modification.

As you know, at a minimum, the QAPjP should include: chain of custody protocol; performance evaluation programs for radionuclides and organic and inorganic chemicals; quantitative QA/QC method blanks, duplicates, matrix spikes, surrogate spikes, and certified standards, ability to meet detection limits for land disposal restriction treatment requirements and other analyses, an information management system, analytical flow chart for all analyses, sample cleanup, sample preparation methods, data validation, defensible data packages, completeness, frequency of analyses, the feed rate monitoring method, and standard operating procedures.

Waste Streams Generated at the TWRS-P Facility

Your pre-application draft Waste Analysis Plan has detailed information about the waste streams that will be generated at the TWRS-P Facility and sent off the facility for further treatment and disposal. This includes the expected receiving facilities and a discussion of the parameters that will define whether waste streams meet the receiving facilities' acceptance criteria. This information is very useful; however, it is difficult to follow. It might be more helpful to include the sampling parameters for each waste stream generated at the TWRS-P Facility in the section of the Waste Analysis Plan that identifies the waste streams.

Also, for each waste stream that will be generated at the TWRS-P Facility, in addition to the information you've included about expected receiving facilities, you must identify the planned frequencies of your analysis, methods of obtaining representative samples (including sampling locations), and explain why the sampling parameters you've identified will provide sufficient information on the wastes' properties to comply with WAC 173-303-300(1) - (4). See WAC 173-303-300(5)(a) - (f). Note that in many cases, the mixture and derived from rules will, in part, govern the characterization of waste streams generated at the TWRS-P facility and the applicability of land disposal restriction treatment standards. For each waste stream, please explicitly discuss application of the mixture and derived from rules and other generator knowledge as well as characterization data that will be gathered through direct analysis. Care should be taken to thoroughly discuss the rationale behind your choices for sampling and analysis, as this will allow Ecology to evaluate your compliance with applicable waste analysis regulations.

Tracking Waste at the TWRS-P Facility

As you know, it is critical that the movement of wastes within the TWRS-P Facility be adequately monitored and tracked. Among other things, this will allow more accurate application of generator knowledge to characterization of secondary waste streams, reduce the potential for mixing of incompatible wastes, and facilitate response in the event of a spill or emergency.

This is especially important in a treatment system such as the one you are designing, where wastes may be re-circulated through many individual treatment steps or even back to the beginning of the treatment process. For secondary waste streams (e.g., glass, contaminated filters), accurate tracking is needed to ensure that secondary wastes are properly stored and sent for final treatment and/or disposition. The discussion of waste tracking on pages 3-12 of your pre-application draft Waste Analysis Plan should be significantly expanded. Please explicitly identify the methods you will use to track waste (e.g. mass balance) as it moves through the TWRS-P Facility treatment system, and the methods you will use to track storage and final treatment/disposition of each secondary waste stream. Care should be taken to thoroughly discuss the rationale behind your choices for waste tracking; this will allow Ecology to evaluate your compliance with applicable waste analysis regulations.

Additional Information

If you have any questions or require additional assistance, please contact Elizabeth McManus at (360) 407-6524.

Sincerely,

Suzanne Dahl, Manager
TWRS Disposal Project
Nuclear Waste Program

SD:EM:ld

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