



March 5, 1992

RECEIVED
MAR 11 1992
D. E. KELLEY

Steven H. Wisness
Hanford Project Manager
U.S. Department of Energy
P.O. Box 550, A5-19
Richland, Washington 99352

Re: Liquid Effluent Sampling and Analysis Plan

Dear Mr. Wisness:

The U. S. Environmental Protection Agency has completed its review of the Liquid Effluent Sampling Quality Assurance Project Plan, the Uranium Oxide (UO₃) Plant Process Condensate Effluent to 216-U-17 Crib Sampling and Analysis Plan, and Uranium Oxide (UO₃) Plant Wastewater Effluent to 216-U-14 Ditch Sampling and Analysis Plan. Reviews of the remaining sampling and analysis plans submitted in September 1991 will be completed by March 20, 1992. A copy of the general comments and comments on the Liquid Effluent Sampling Quality Assurance Project Plan (QAPjP) will be submitted with each sampling and analysis plan, because many of the comments will apply to all sampling and analysis plans. In addition, several general comments may relate to both the QAPjP and the sampling and analysis plans. EPA will leave the decision on whether to place the required modifications in either or both of these plans to the Department of Energy and Westinghouse Hanford Company.

EPA does not believe our comments on these plans require complete resolution prior to initiation of sampling activities, but we do believe that several comments may influence your sampling scheme. EPA would like to discuss these concerns at your earliest convenience to ensure that the data gathered on Hanford liquid effluents meets our needs and expectations.

Please call me at (509) 376-9529 to set up a meeting to discuss our comments.

Sincerely,

Douglas R. Sherwood
Environmental Engineer

Enclosure

cc: G. Anderson, Ecology
J. Mecca, DOE
D. Nguyen, WHC
T. Veneziano, WHC



GENERAL COMMENTS

The following general comments address issues that are contained both within the Liquid Effluent Sampling Quality Assurance Project Plan and the individual sampling and analysis plans.

1. **Comment:** Neither the Quality Assurance Project Plan (QAPjP) nor the individual sampling and analysis plans provide an adequate description of the data reporting process or data reporting requirements of the Hanford Federal Facility Agreement and Consent Order (TPA). Development of a data reporting process for liquid effluent characterization data represents a major long-term concern that cannot be resolved by revision of these plans. These plans need to clearly identify the organization responsible for data reporting and the preferred method for transmitting that information to EPA and Ecology. EPA does not consider transmission of individual data sets from each waste stream sampling event to be necessary, but such data should be available for our review upon request.

EPA would prefer that data be made available electronically through the Hanford Environmental Information System (HEIS). In addition, EPA believes that an annual report of some type should be submitted to EPA and Ecology and cleared for public use to illustrate compliance with the sampling and analysis plans and other operating requirements contained in Milestone M-17 (i.e., flow restrictions). WHC and DOE currently produce a Waste Status Summary Report that addresses similar issues, but has not historically contained liquid effluent characterization data. In any case, the reporting mechanism selected must include results of protocol sampling, routine monitoring, and flow rate data.

Data reporting requirements of the TPA identify reporting schedules for various sample types. Liquid effluent samples would be considered as low-level and/or mixed waste analyses under the TPA. WHC and DOE are required to submit laboratory analysis and quality assurance documentation, excluding validation in an average of 75 days, but not to exceed 90 days unless another schedule can be agreed to by EPA, Ecology, and DOE.

Recommendation: EPA recommends that DOE develop an overall plan for liquid effluent data management and reporting which is consistent with the requirements of the TPA. Such a plan does not need to be formally prepared and submitted, but a clear understanding of the responsible organization and a point of contact is required.

2. **Comment:** Provisions need to be added to both the QAPjP and the individual sampling and analysis plans to acknowledge TPA language which allows EPA or Ecology to split samples with DOE or to obtain samples independent of the DOE and WHC sampling activities. To date, EPA has split samples on a very limited basis. It will likely be at least late in FY 92 or early in FY 93 before EPA could acquire a sample splitting capability appropriate for the liquids sampling program.
3. **Comment:** The TPA requires DOE to submit laboratory QA/QC plans to EPA and Ecology for review as secondary documents prior to use of that laboratory. DOE and WHC have not identified the laboratory(s) that will support the liquid effluent sampling project with the exception of those laboratories identified for performance of the routine process monitoring program.

Recommendation: Please identify the laboratories to be used for the liquid effluent sampling and analysis program and supply the QA/QC plans for those laboratories not previously reviewed by EPA and Ecology.

4. **Comment:** EPA is aware that the Westinghouse Hanford Company Office of Sample Management (OSM) has developed three levels of data validation for SW-846 analysis. DOE needs to clearly identify which of these validation methods will be used for the liquid effluent sampling program. In addition, EPA requests that DOE provide examples of SW-846 data packages from the appropriate laboratories so that we can perform an independent review of the data package deliverables with the actual validation procedure. EPA considers this review to be an important aspect of the liquid effluent sampling program, but again this activity can be carried out while effluent sampling is underway. EPA hopes this effort will minimize or eliminate the need for resampling due to inadequate QA/QC or validation requirements.

LIQUID EFFLUENT SAMPLING QUALITY ASSURANCE PROJECT PLAN

1. Section 2.1 Objectives, page 2-1

Comment: Two additional objectives should be added to the Objectives section of the QAPjP. One objective not included in the current plan is "...provide data to support a RCRA delisting petition for those streams designated as dangerous waste". The second objective that should be included is "...provide data to support National Pollutant Discharge Elimination System permits or permit modifications subject to future surface water discharge".

Recommendation: Modify objectives.

2. Section 3.0 Figure 3.2, page 3-2

Comment: Figure 3.1 needs to be revised to identify the organization responsible for data reporting.

3. Section 10.0 Internal Quality Control, page 10-11

Comment: The QAPjP suggests that in cases where a one-time single analysis is performed, these requirements may be limited in scope. EPA considers this approach to be severely flawed. If DOE's position is to obtain a minimum number of samples, they then should consider a more thorough internal quality control program to ensure that those analyses are valid. One example of the importance of internal quality control can be illustrated by a review of past liquid effluent data. A review of previous UO₃ Plant Process Condensate analyses indicate that field, equipment, or trip blanks have not been collected and analyzed for metals, cyanide, or semi-volatile organics, therefore, if these constituents are found in the liquid effluent Ecology and EPA will attribute those contaminants to the process. If these constituents exceed effluent quality criteria, treatment for these substances may be required. EPA considers blanks, splits, and duplicates to be the most cost effective method to identify the presence of sample contaminants not attributable to the process in liquid effluent samples.

Recommendation: Consider the use of additional internal quality control measures for these liquid effluents and analytes previously identified in Hanford liquid effluents to verify their presence in these liquids as opposed to sample contaminants introduced into the sample in either the laboratory or in the field.

4. **Section 15.0 Quality Assurance Reports, page 15-1**

Comment: Data reporting language is inconsistent with the TPA. EPA and Ecology can request unvalidated data any time after completion of analysis. EPA does not consider specific quality assurance reports to be a requirement. EPA will request data packages from the appropriate organization and perform independent reviews of the QA/QC program. This effort will be performed on selected samples identified by EPA through a written request.

**URANIUM OXIDE (UO₃) PLANT PROCESS CONDENSATE EFFLUENT
TO 216-U-17 CRIB SAMPLING AND ANALYSIS PLANS**

1. **A. Sampling Objective, page 1**

Comment: The second sampling objective is obviously incorrect. Dramatic changes in effluent quality exist during different operating configurations. The differences in nitrate, fluoride, alpha, and beta concentrations are at least a factor 100 greater during calcination than during standby.

Recommendation: Rephrase the objective to address the range of contaminant concentrations over time or during different facility operating configurations.

2. **A. Sampling Objectives, page 1**

Comment: The last sentence of this section should read "Amendments to this document after approval can be considered class 3 changes in accordance with the TPA".

3. **D. Sampling Location and Frequency, page 9**

Comment: EPA and Ecology were informed that DOE would be processing a large quantity of storm water prior to initiation of the stabilization run. If DOE desires to use 216-U-17 as a receptor of these effluents until completion of project W-049, we suggest that at least one sample of this effluent be taken prior to initiation of the stabilization run during the storm water disposal period.

4. **F. Sampling Equipment and Procedures, page 10-11**

Comment: The list of sample containers does not include all of the sample bottles and preservation techniques necessary to perform a complete analysis of all SW-846 parameters. A complete characterization for all parameters is required as a baseline. EPA does not consider it necessary to perform duplicate analysis of the less common or unlikely constituents, but for dangerous waste designation purposes a complete analysis is required.

5. **F.2 Weekly Composite Process Samples**

Comment: From the description given in this section, it appears that no duplicates, spikes, or blanks are submitted as part of the weekly composite sampling program. At a minimum, duplicate samples should be submitted on a regular basis and splits of the protocol samples should be submitted to the process control laboratory in order to gain confidence and develop a correlation between the protocol samples and the weekly composite sampling.

6. G. Sample Handling and Analysis, page 12

Comment: EPA suggests that samples from U-Plant be gathered and submitted as a batch. If sampling efforts could be coordinated to obtain all U-Plant protocol samples during the same day, it would minimize the total number of samples required to meet sampling and analysis plan requirements. EPA suggests that samples of the plant raw water, pre- and post-neutralized process condensate, and the wastewater be submitted as a batch with the appropriate QA/QC samples. In addition, this approach would limit the number of raw water samples analyzed. If possible, EPA would prefer DOE and WHC obtain duplicate samples of the post-neutralized UO₃ Plant Process Condensate. This liquid effluent has shown the most significant variability and will likely be the most difficult to treat, should treatment be required. In addition, past data identified unknown organics in both the volatile and semi-volatile analysis for the U-Plant Process Condensate. Finally, this liquid historically has been the most concentrated effluent discharged from U-Plant.

**URANIUM OXIDE (UO₃) PLANT WASTEWATER EFFLUENT
TO DITCH SAMPLING AND ANALYSIS PLAN**

1. **A. Sampling Objectives, page 1**

Comment: Revise the last sentence in the last paragraph should read "Amendments to this document after approval shall be considered class 3 changes in accordance with the TPA".

2. **D.2 Sampling Frequency, page 6**

Comment: EPA and Ecology would prefer DOE and WHC to obtain one sample prior to initiation of the stabilization run. Although the UO₃ Plant wastewater does not appear to vary significantly in effluent quality due to operational status, a prestart sampling of the stream would support that position. EPA suggest that samples of the UO₃ Plant Process Condensate and the UO₃ Plant Wastewater be sampled on the same day and submitted as a batch for analysis. This type of coordinated sampling effort could allow DOE and WHC to submit one set of QA/QC check samples with this batch of samples.

3. **F. Sampling Equipment and Procedures, page 10-11**

Comment: The list of sample containers does not include all of the sample bottles and preservation techniques necessary to perform a complete analysis of all SW-846 parameters. A complete characterization for all parameters is required as a baseline. EPA does not consider it necessary to perform duplicate analysis of the less common or unlikely constituents, but for dangerous waste designation purposes a complete analysis is required. A reduction in scope of the analytical parameters will be considered for the U-Plant wastewater after dangerous waste designation is complete.

4. **F.2 Weekly Composite Process Samples, page 9**

Comment: From the description given in this section, it appears that no duplicates, spikes, or blanks are submitted as part of the weekly composite sampling program. At a minimum, duplicate samples should be submitted on a regular basis and splits of the protocol samples should be submitted to the process control laboratory in order to gain confidence and develop a correlation between the protocol samples and the weekly composite sampling.

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Comment: EPA suggests that samples from U-Plant be gathered and submitted as a batch. If sampling efforts could be coordinated to obtain all U-Plant protocol samples during the same it would minimize the total number of samples required to meet sampling and analysis plan requirements. EPA suggests that samples of the plant raw water, pre- and post-neutralized process condensate, and the wastewater be submitted as a batch with the appropriate QA/QC samples. In addition, this approach would limit the number of raw water samples analyzed.

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
D. R. Sherwood, EPA	S. H. Wisness, RL	Incoming 9201456

Subject: LIQUID EFFLUENT SAMPLING AND ANALYSIS PLAN

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