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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
3100 Port of Benton Blvd • Richland, WA 99352 • (509) 372-7950

August 17, 2005

Mr. Keith A. Klein
Richland Operations Office
United States Department of Energy
P.O. Box 550, MSIN: A7-50
Richland, Washington 99352

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EDMC

Mr. Ronald G. Gallagher
Fluor Hanford, Inc.
P.O. Box 1000, MSIN: H5-20
Richland, Washington 99352

Dear Mr. Klein and Mr. Gallagher:

Re: M-26 Inspection at the 340 Facility on March 3, 2005

On March 3, 2005, the Washington State Department of Ecology (Ecology) conducted an inspection regarding the Hanford Federal Facility Agreement and Consent Order (TPA) Milestone M-26-01O (2004 Hanford Site Mixed Waste Land Disposal Restrictions [LDR] Report). The focus of Ecology's inspection was on a storage assessment that was conducted at the 340 Facility as required by the LDR Report.

Ecology reviewed 340 Facility records to determine the thoroughness and completeness of the storage assessment that was conducted and whether the storage assessment met the intent of M-26-01O/LDR compliance for the 340 Facility.

One of the requirements of the LDR Report is to describe the path forward for treatment and disposal of mixed wastes to comply with LDR regulations. As part of that goal, Storage Assessments, followed by Data Gap Plans, are the process agreed to between Ecology, the United States Department of Energy, and its contractors to establish compliance with LDR regulations per M-26. Storage Assessments and Data Gap Plans should describe in sufficient detail what is known and unknown about the compliance status of facilities containing Potential Mixed Waste (PMW). Furthermore, the Data Gap Plan should describe what additional information or data needs to be obtained to characterize wastes within the facility and ensure the facility poses no environmental or personal safety threats.



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The Storage Assessment and Data Gap Plan for the 340 Facility failed to address these basic requirements both in scope and content. As a result, the USDOE-Richland Operations Office (RL) and Fluor Hanford, Incorporated (FH) have incurred a violation of TPA Milestone M-26 as described below.

Specifically, Ecology's March 3 inspection revealed deficiencies in two areas as follows:

1. The assembly and issuance of the annual LDR report by USDOE and its contractors appears to be viewed as simply an administrative task, particularly in regards to Storage Assessments and Data Gap Plans for facilities listed in the Potential Mixed Waste section of the report.
2. The data and information provided for the vault tanks within the 340 Facility specifically is unacceptable either to meet M-26 requirements for Storage Assessments/Data Gap Plans or to provide accurate information about the tanks and their contents.

In order to correct deficiency number one above, Ecology has met with USDOE and contractors during the regularly scheduled LDR Project Managers' Meetings and will continue to address this issue through this venue.

Deficiency number two must be addressed as described in the violation below.

VIOLATIONS:

1. Article VII, Work, Per the Hanford Federal Facility Agreement and Consent Order.

USDOE-RL failed to meet the requirements of Article VII within the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement or TPA) by the submittal of incomplete and substandard Storage Assessment (SA) and Data Gap Plan (DGP) for the 340 Facility as required by the TPA Milestone M-26, Land Disposal Restrictions Report.

The SA and DGP were observed to be incomplete and inadequate for the following reasons:

- *The description of the scope of the 340 Facility SA and DGP, as submitted to Ecology, was to validate the status of PMW matrices in the 340 Facility and determine whether any material should be added or removed from the report. This scope is insufficient to meet the requirements for an SA and DGP as described by the Resolution of Dispute. As a result, the SA and DGP were lacking basic information about waste and conditions of waste storage at the 340 Facility and information that would be applicable in assessing the compliance status of the 340 Facility according to state and federal standards.*

- *Readily available information regarding the quantity of waste remaining in the vault tanks was not provided in the SA or DGP.*
- *Although vault tank liquid level information is currently available, it is expected that liquid level detection capabilities will be lost for Vault Tank 1 by May 24, 2005, and lost for Vault Tank 2 by January 2007 due to continued evaporation of the waste. There are no plans for further liquid level monitoring. The SA and DGP failed to adequately describe the operational history of the 340 Facility relating to current compliance in that the history of spills and contamination within the vault was not disclosed.*
- *The SA and DGP failed to state the existence of an integrity assessment that was conducted on the vault tanks in 1996 while the 340 Facility was still in service. The SA and DGP did not disclose any of the integrity assessment's results.*
- *The integrity assessment of the 340 vault tanks provided to Ecology during its March 3 inspection was incomplete and the conclusions within it are based on insufficient data. Although the 340 Facility Integrity Assessment Report concluded the integrity of the vault tanks and the knowledge of the wastes they contain "to be acceptable", the information on which this conclusion was reached was incomplete. For example, information on the age of the system, materials of construction, corrosion protection, and design standards were incomplete or missing altogether. Ultrasonic testing was performed on only two small patches on each vault tank due to a cooling jacket covering most of the outer surface of the vault tanks and the original material thickness of the tank walls was not known. The Independent Qualified Registered Professional Engineer (IQRPE) states that "insufficient area was measured to determine whether or not significant pitting or stress corrosion cracking may be occurring", yet concluded that the vault tanks were acceptable for continued storage of the wastes they contain.*
- *Waste characterization information provided in the SA and DGP on the waste remaining in the vault tanks is inadequate to support a safety evaluation that allows long term storage. The waste characterization information used to support the conclusions in the SA and DGP was based on analysis of grab samples that were taken in 1998 to support transfer of vault tank waste to tank farms during the 340 Facility deactivation. This sampling and analysis event was a routine sampling used to ensure the waste transfer from the 340 Facility meets tank farms waste acceptance criteria. The analysis was limited to the scope of tank farms acceptance criteria and did not include analysis of the range of chemical wastes that could have been sent to the 340 vault tanks according to 340 waste transfer procedures. Although sampling data was provided by 300 Area generators to the 340 Facility before each transfer to the vault tanks, a complete*

verification of the contents of the vault tanks, including the liquids and sludge within them, has not been completed.

- The existence of solids in the vault tanks may add further uncertainty as to the completeness of the waste characterization, yet no data was provided on the accumulation of the sludge within these tanks. It was noted during the inspection that high dose rates were recorded on specific points around the exterior of the vault tanks, which may indicate the collection of solids deposited during an unknown time period on the internal mixing baffles of the tank. It was also noted during the inspection that the volume of waste in the vault tanks has been consistently evaporating, resulting in concentration of the waste, since the last transfer out of the tanks in 1998. To address safety issues regarding the continued concentration of the waste, a vulnerability report was presented as documentation supporting safe storage for the 340 vault tanks. This report was the result of a tank explosion in 1997 at the Plutonium Reclamation Facility and included a review of all tanks on the Hanford to determine whether they could pose a similar threat. The data sheet from this report for the 340 vault tanks referenced a detailed technical review that was used to reach the conclusions in the report that the 340 vault tanks posed no safety threat. However, this technical review could not be produced when Ecology inspectors requested it, and it remains unknown exactly what information was used to reach the conclusion that the vault tanks pose no threat. The report did note that there was a hazard present due to the storage of fissile materials within the wastes in the vault tanks.*
- The SA and DGP failed to adequately describe or consider the operational history of the 340 Facility, specifically, the history of spills and contamination within the vault.*

M-26 Inspection Compliance History:

January 14, 2004

224-T Transuranic Waste Storage and Assay Facility (TRUSAF) LDR Inspection: *Inspection to determine thoroughness and completeness of the LDR Storage Assessment and Data Gap Plan for the 224-T hot cells. The inspection generated one concern regarding an observed lack of thoroughness and detail in conducting the storage assessment and generating the Data Gap Plan. The concern also involved the apparent lack of plans to disposition the facility, and to obtain further information on the sinkholes outside of the facility, and the source of water intrusion into the cells.*

August 23, 2004

241-CX Tank System LDR Inspection: *Inspection to determine the LDR Report status for the 241-CX tank system. The 241-CX Tank System consists of three underground waste storage tanks associated with the Semi-works Facility. Two concerns resulted from this inspection. One*

concern involved the large number of unknowns regarding the tanks as they now remain, including little characterization of the waste they contain, as well as the condition of the tanks and the cause of a subsidence above one of the tanks. The other concern regarded an apparent problem with the LDR report instructions, whereby the 241-CX Tank System was not included in the Potential Mixed Waste (PMW) table even though, due to the amount and quality of the information on the tanks, the tank system should have been listed in the PMW table.

Please complete the following corrective measures within the time frames specified in order to correct the violation identified in this Notice of Non-Compliance. Failure to correct the violation described in this letter may result in the issuance of an administrative order and/or penalties per the Revised Code of Washington (RCW) 70.105.080. Please be advised that should Ecology determine a penalty is warranted due to failure to correct the violations as described in this letter, such penalty may be assessed based on the time the violations first occurred. A request for additional time to complete the corrective measure identified in this Notice of Non-Compliance must be in writing, describe the reasons for the request for additional time, and be received by me for consideration no later than September 23, 2005.

CORRECTIVE MEASURES:

1. Within 60 days of this Notice of Non-Compliance, USDOE-RL and FH must issue a report to Ecology, for our approval, that describes the following:
 - Implementation of a surveillance program for maintaining and inspecting the 340 vault tanks until such time as these tanks are closed. This program must consist, at a minimum, of the following:
 - a) Monthly inspections to confirm that no liquids in the form of precipitation, infiltration, or from any other source have accumulated within either of the two vault tanks or the vault itself.
 - b) Maintenance of liquid level detection equipment within the vault tanks to detect any liquid accumulations or increases within the vault tanks, and maintenance of leak detection equipment within the vault to detect any liquids accumulating within the vault.
 - The 340 vault tank surveillance program must describe the actions to be taken if liquids are detected within either of the two vault tanks or within the concrete vault. If liquids are detected, these actions must include, at a minimum, the following:

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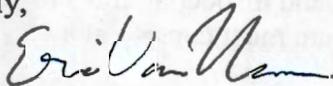
- a) Notify Ecology immediately upon discovery of liquids, or change in liquid level, within either the tanks or the vault.
 - b) Determine the source of the liquid intrusion and isolate the source.
 - c) Characterize by laboratory analysis the chemical composition of any liquids or sludge in the vault tanks or the concrete vault.
2. According to the TPA Milestone M-94-01, by December 31, 2005, USDOE-RL is scheduled to submit a schedule and TPA milestones to complete disposition of surplus facilities in the 300 Area. Within 60 days of December 31, 2005, USDOE-RL must submit a TPA change package that specifically includes the 340 Facility with a plan for when the facility will be dispositioned.

CONCERNS:

The significant lack of information and the inadequate scope of the SA and DGP submitted to Ecology reflect a misunderstanding of the purpose of the SA/DGP process and limit the use of the LDR report in the cleanup of Hanford.

If you have any questions regarding this letter, please contact me at (509) 3772-7929.

Sincerely,



Eric Van Mason
Compliance Inspector
Nuclear Waste Program

cc: Cliff Clark, USDOE
Greg Sinton, USDOE
Tony Miskho, FH
Joel Williams, FH
Stuart Harris, CTUIR
Gabriel Bohnee, NPT
Russell Jim, YN
Todd Martin, HAB
Ken Niles, OOE
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