Department of Energy
Washington, DC 20585

November 16, 2006

Mr. Mark Spears
President and Chief Executive Officer
CH2M Hill Hanford Group, Inc.
2440 Stevens Drive
Richland, WA 99352

EA-2006-06

Subject: Preliminary Notice of Violation and Proposed Civil Penalty - $82,500

Dear Mr. Spears:

This letter refers to the recent investigation at the Hanford Tank Farms by the Department of Energy's (DOE) Office of Enforcement, now within the Office of Health, Safety and Security. The investigation involved (1) the September 2005 Tank C-202 Mobile Retrieval System (MRS) multi-personnel contamination event, (2) the March 2006 ER-311 catch tank camera removal radiological event, and (3) additional radiological contamination events that occurred between 2003-2006 as they relate to quality improvement issues discussed in various DOE and CH2M Hill Hanford Group (CHG) assessment and event related reports.

An Investigation Summary Report describing the results of our investigation was issued to you on July 26, 2006. An Enforcement Conference was held on August 29, 2006, in Germantown, Maryland, with you and members of your staff to discuss these findings. An Enforcement Conference Summary Report is enclosed.

Based upon our evaluation of all the evidence in this matter, including information presented by you and members of your staff during the Enforcement Conference, DOE has concluded that violations of DOE's "Occupational Radiation Protection Rule" 10 CFR 835 have occurred. The violations are described in the enclosed Preliminary Notice of Violation (PNOV).

Section I of the PNOV describes a Severity Level (SL) II violation associated with multiple deficiencies in establishing effective radiological controls for removal of the MRS equipment from Tank C-202. Of particular concern with the noted deficiencies was the lack of an appropriate response by CHG to the observed changing work place conditions, i.e., a more hazardous plugged and pressurized tank system support line.

Section II of the PNOV describes a SL II violation associated with failures to maintain emergency response equipment and facilities.

Section III of the PNOV describes a SL II violation also associated with deficiencies in establishing radiological controls with camera removal operations from catch tank ER-311.

The three violations described above were mitigated 50 percent for detailed causal analysis and prompt corrective actions. Since the deficiencies and violations were disclosed by the events, no mitigation was provided for prompt identification.

As part of this investigation, our office also noted specific quality improvement deficiencies, some of which were already identified by CHG. The quality improvement deficiencies were associated with the recurring radiological events and implementation deficiencies involving CHG's processes for analyzing and effectively controlling radiological hazards with Hanford Tank Farm activities and projects. These concerns were described and documented in our Investigation Summary Report. I have elected to defer enforcement action on these quality improvement deficiencies at this time. The Office of Enforcement will, instead, reevaluate CHG's performance in six months, and then determine if further action is necessary as it relates to these specific quality improvement issues. I have reached this decision based on the fact that the corrective actions and improvement initiatives of the new CHG management team were still underway at the time of occurrence of some of the more recent events discussed in our investigation. CHG's senior management must ensure that these actions result in correcting DOE nuclear safety rule noncompliances associated with the recurring problems. Our office also noted, that when compared with prior Office of Enforcement investigations, improvements were noted in CHG's causal analysis efforts for the events described above.

You are required to respond to this letter and to follow the instructions specified in the enclosed PNOV when preparing your response. Your response should document any additional specific actions taken to date. Corrective actions will be tracked in the reports filed in the Noncompliance Tracking System (NTS). You should enter into the NTS (1) any additional actions you plan to take to prevent recurrence, and (2) the target completion dates of such actions.

After reviewing your response to the PNOV, including your proposed corrective actions entered into the NTS, DOE will determine whether further enforcement action is necessary to ensure compliance with DOE nuclear safety requirements. DOE will continue to monitor completion of corrective actions until these matters are resolved.

Sincerely,

Anthony A. Weadock

Anthony A. Weadock
Acting Director
Office of Enforcement
Office of Health, Safety and Security

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Enclosures:
Preliminary Notice of Violation
Enforcement Conference Summary
List of Attendees

cc: Roy Schepens, DOE-ORP
Patrick Carier, DOE-ORP PAAA Coordinator
Craig Anderson, CH2M Hill PAAA Coordinator
Richard Azzaro, DNFSB

Preliminary Notice of Violation
and
Proposed Imposition of Civil Penalty

CH2M Hill Hanford Group, Inc.
Tank Farm Facility

EA-2006-06

As a result of a Department of Energy's (DOE) evaluation of issues at the Hanford Tank Farm facilities, multiple violations of DOE nuclear safety requirements were identified. The issues included: (1) inadequate work planning and controls that resulted in personal contamination at Tank C-202, (2) inadequate readiness of emergency response equipment following the contamination event at Tank C-202, and (3) inadequate contamination control during the removal of a camera from the ER-311 catch tank. Issues 1 and 2 occurred on September 21, 2005, and issue 3 occurred on March 7, 2006.

In accordance with 10 CFR 820, Appendix A, "General Statement of Enforcement Policy," the violations are listed below.

I. As Low as Is Reasonably Achievable Violations Associated with Work Planning and Control at Tank C-202

10 CFR 835.1001 Design and control requires that (a) "Measures shall be taken to maintain radiation exposure in controlled areas ALARA through physical design features and administrative controls."

Contrary to the above, CH2M Hill Hanford Group Inc. (CHG) failed to establish or implement the necessary physical and administrative controls to adequately control the radiological hazards associated with the task of detaching the air and water hoses from Tank C-202. In addition, CHG personnel failed to evaluate changes to the operation and subsequent abnormal conditions (a plugged and pressurized air hose) concerning their impact on the original work planning assumptions and the need for changes to radiological controls.

The following specific deficiencies were disclosed by the event and appropriately identified in CHG's independent investigation report dated October 13, 2005, and the root cause report dated November 11, 2005.

a. CHG personnel failed to perform an adequate hazards analysis. The potential for waste migration into the air and water hoses was not considered in the hazard analysis although these hoses were open to the tank environment. The applicable Documented Safety Analysis (DSA) for the facility, Tank Farms Documented Safety Analysis - RPP 13033, Rev 1-N, indicated the potential for such conditions to occur as described in scenario CG-A.25 of the DSA. No design features or administrative controls were identified to prevent or mitigate the potential for radioactive releases from a rupture or planned disconnect of the air hose.

b. The work planning and work package, WS-04-00643, did not contain adequate radiological controls to protect workers who breached this system. No radiological surveys were required to be performed when the hoses were disconnected. The work planning assumed that no contamination would exist at the bulkhead fittings despite the fact that the air and water hoses were in direct communication with the tank environment. CHG's independent investigation identified that the work planning approach was not conservative in that it used the logic of "assume it is clean unless proven otherwise."

c. The clogged air hose was not communicated to the work crew responsible for disconnecting the hoses. The operation of MRS for waste retrieval of Tank C-202 was modified to eliminate the use of continuous airflow during waste retrieval operations. The air hose was connected to the bulkhead fitting, but airflow was not established in the system for at least part of the vacuum operations. Near the end of operations at Tank C-202, the air hose was pressurized and operators discovered that no flow existed and concluded it was plugged. The air hose was left in this condition with no formal controls or notification to the work crew assigned to remove the hoses. The plugged air hose was an indication that waste had migrated into the air hose and was responsible for maintaining a residual pressure in the system.

d. Work plan WS-04-00643 failed to adequately consider the potential multiple open pathways into Tank C-202 that resulted from removal of bulkhead fittings and/or disconnecting water hoses where the fittings were not self-sealing. The work planning failed to adequately address the need for bulkhead fittings for the hoses and to identify the necessary controls where open pathways resulted from disconnecting hoses. The open pathways presented a potential path for radioactive contamination to be released into the air.

This violation constitutes a Severity Level II problem.
Civil Penalty – $27,500

II. ALARA Violations Associated with the Emergency Response and Readiness of Facility

10 CFR 835.1001 Design and control requires that (a) “Measures shall be taken to maintain radiation exposure in controlled areas ALARA through physical design features and administrative controls.”

DSA, RPP 13033, Revision 1-N, Chapter 15 Emergency Preparedness Program, Section 15.4.4.2 requires that emergency equipment be inventoried and inspected to insure availability, accessibility, and operational status.

Contrary to the above, emergency decontamination equipment was not available in the C-200 area and the decontamination trailer equipment was not operational. Specifically:

a. The emergency response vehicle for the east areas had been out of service for an extended period and no backup vehicle was provided.

b. The C-200 change tents were not supplied with response kits or equipment for decontamination events.

c. Three contaminated workers were transported to a decontamination trailer near 702AZ. Decontamination by washing in a sink was the preferred method for the specific (neck and hair) areas of contamination in this event; however, the sink in the decontamination trailer was found to be inoperable. A shower in the trailer was working, but the drain valves were misaligned causing the contaminated water to overflow onto the ground creating a contaminated area.

This violation constitutes a Severity Level II problem.
Civil Penalty – $27,500

III. ALARA Violations Associated with the Contamination Event at ER-311

10 CFR 835.1001 Design and control requires that (a) “Measures shall be taken to maintain radiation exposure in controlled areas ALARA through physical design features and administrative controls.”

Contrary to the above, CHG failed to establish adequate controls to prevent the spread of contamination to workers removing a camera from the ER-311 catch tank. Specifically:

On March 7, 2006, one worker received skin contamination, one worker received skin and clothing contamination, and one worker received clothing contamination while removing a camera from the ER-311 catch tank. The camera was removed during an emergency work activity that was initiated in response to a catch tank leak. A decision was made by the work crew to use a wipe and survey process rather than provide a

physical barrier (sleeving) to protect workers from contamination during a camera removal process. The risk of spreading contamination was assumed to be low based upon the lack of detectable loose contamination and very low radiation levels encountered during removal of a flange on top of the riser where the camera was inserted. However, no surveys of inside the tank riser, where contact was made with the camera, were performed to identify the contamination levels.

The lack of specific standards and their application for the use of sleeving during camera removals resulted in various interpretations of when sleeving is required. This was determined by CHG to be the cause of the contamination event. In addition, surveys were taken during the process of extracting the camera, but they were not used to effectively control the work. During the final removal of the camera, the health physics technician (HPT) did not establish positive control of the evolution. No direction was provided to the workers to stop the camera movement until after the final large area wipe was counted. The workers removed the camera from the riser while the swipe was being counted and gust of wind transferred loose contamination to three workers.

This violation constitutes a Severity Level II problem.
Civil Penalty – $27,500

Pursuant to the provisions of 10 CFR 820.24, “Preliminary Notice of Violation” CHG is hereby required within 30 days of the date of this Preliminary Notice of Violation (PNOV), to submit a written reply to the PNOV by overnight carrier to the Director, Office of Enforcement, Attention: Office of the Docketing Clerk, HSS/EH-6, 270 Corporate Square Building, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-12190. Copies should also be sent to the Manager of the DOE Office of River Protection and to the Assistant Secretary for Environmental Management. This reply should be clearly marked as a "Reply to a Preliminary Notice of Violation" and should include the following for each violation: (1) admission or denial of the alleged violations; (2) any facts set forth herein which are viewed by CHG to not be correct; and (3) the reasons for the violations if admitted, or if denied, the basis for the denial. Corrective actions that have been or will be taken to avoid further violations shall be delineated with target and completion dates in DOE's Noncompliance Tracking System. In the event the violations set forth in this PNOV are admitted, this Notice will constitute a Final Order in compliance with the requirements of 10 CFR 820.24.

Any request for remission or further mitigation of civil penalty must be accompanied by a substantive justification demonstrating extenuating circumstances or other reasons why the assessed penalty should not be paid in full. Within 30 days after the issuance of the PNOV and civil penalty, unless the violations are denied, or remission or additional mitigation is requested, CHG shall pay the civil penalty of $82,500 imposed under section 234a of the Act by check, draft, or money order payable to the Treasurer of the United States (Account 891099) mailed to the Director, Office of Enforcement, Attention: Office of the Docketing Clerk, at the above address. If CHG should fail to answer within the time specified, the contractor will be issued a Final Order imposing the civil penalty.

Should additional mitigation of the proposed civil penalty be requested, CHG should address the adjustment factors described in section IX of 10 CFR 820, Appendix A.

Anthony A. Weadock

Acting Director
Office of Enforcement
Office of Health, Safety and Security

Dated at Washington, DC
This 16th day of November

Enforcement Conference Summary

An enforcement conference was held with CH2M Hill Hanford Group, Inc. (CHG) on August 29, 2006. The enforcement conference was held to discuss potential violations of nuclear safety requirements identified in an Office of Enforcement Investigation Summary Report issued on July 26, 2006. Selected key points from the enforcement conference are summarized below.

CHG identified no factual accuracy issues or concerns with the OE Investigation Summary Report. CHG senior management emphasized the importance of the issues being discussed as part of the OE investigation as well as their commitment to quality and performance improvement. CHG representatives describe additional initiatives and corrective actions intended to improve nuclear safety performance. Specific achievements were also discussed.

Clarification was provided concerning a potential 820.11 “Information Requirements” violation related to misleading information provided to OE investigators during the investigation interviews with CHG personnel. Mr. Spears stated that he confirmed that the information provided to OE in the interviews was not factually correct and not the official position of CHG. Mr. Spears stated that the facts represented in the causal analysis and independent investigation reports related to this issue were accurate and represented CHG’s official position. Mr. Spears also stated that he felt that the individuals involved in the interview were not intentionally misleading the OE investigators, but most likely could not fully recall the circumstances surrounding the events. Based upon this clarification of the discrepancy, OE determined that no violation of 820.11 had occurred.

List of Attendees

Office of Enforcement

Stephen M. Sohinki, Director
Peter D. Rodrik, Senior Enforcement Officer
Anthony A. Weadock, Senior Enforcement Officer
Steven B. Hosford, Technical Advisor

Office of River Protection

Shirley J. Olinger, Deputy Manager
Patrick Carier, PAAA Coordinator

CH2M Hill Hanford Group

Mark Spears, President and Chief Executive Officer
Jerry Long, Vice President, Waste Feed Operations
Fran Ito, Vice President, SH&Q
Craig Anderson, Price-Anderson Coordinator