



Department of Energy
Washington, DC 20585

June 14, 2007

Dr. Robert Iotti
President and Chief Executive Officer
CH2M-Washington Group Idaho, L.L.C.
2525 Freemont Street
Idaho Falls, Idaho 83415-5104

Dear Dr. Iotti:

This letter refers to the investigation of events at the Radioactive Waste Management Complex – Accelerated Retrieval Project (ARP) by the Department of Energy's (DOE) Office of Enforcement. The investigation summary report, *Multiple Radiological Protection Program Deficiencies and Safety Culture Concerns*, was provided to you in a letter dated February 20, 2007. An enforcement conference to discuss these findings was held on March 21, 2007, in Germantown, Maryland, with you and members of your staff. A summary of the conference is enclosed. Based on our evaluation of the evidence in this matter, including information that you and members of your staff presented during the conference, DOE has concluded that violations of 10 CFR Part 830, "Nuclear Safety Management," and 10 CFR Part 835, "Occupational Radiation Protection," have occurred. The enclosed Preliminary Notice of Violation (PNOV) EA-2007-03, describes the violations and a proposed civil penalty of \$55,000.

The PNOV describes a Severity Level II violation during the period of April and May 2006 that is associated with multiple radiation protection noncompliances identified during the DOE Idaho Operations Office (DOE-ID) assessment of ARP activities. The PNOV also includes a Severity Level II violation associated with the management assessment program's failure to identify any of the noncompliances found by the DOE-ID assessment during that same timeframe.

Of concern in this case was the safety culture problems indicated by an employee's fear of retaliation for raising safety issues and the emphasis on production over safety, as identified during the DOE-ID assessment. Additionally, the broad set of radiological protection programmatic issues and the nature of these violations provided several examples of a lack of rigor in the development and implementation of the radiological protection program at ARP. Also of concern was the lack of leadership by the previous management team with respect to radiological protection and inadequate emphasis on ensuring a sound technical basis for the radiological protection program. Aggravating the problem was the CH2M-Washington Group Idaho (CWI) self-assessment program's failure to identify the deficiencies in the development and

implementation of the radiological protection program, as well as the safety culture deficiencies noted above. Although there was no immediate consequence, these represented a programmatic breakdown that potentially increased the likelihood of an event.

Through your proactive efforts to conduct extensive, confidential interviews of employees using an independent consultant, CWI verified the presence of a safety culture problem at ARP. Using the same methodology, CWI also identified similar employee concerns, to varying degrees, at other facilities under its management. We hope that CWI will address these concerns effectively in order to maintain the integrity of the safety program and assure that safety is not sacrificed for production. DOE is encouraged by your acknowledgement of the safety culture deficiencies when first notified of the problem by DOE-ID, and the comprehensive actions that you and your senior managers are taking.

The proposed penalty includes a 50 percent mitigation in recognition of the comprehensive corrective actions you have put into effect since becoming the CWI senior manager. No additional mitigation was given for self-identification and reporting because the noncompliances were discovered only during the DOE-ID assessment, not by any self-assessment mechanism.

In accordance with 10 CFR Part 820.24, *Preliminary Notice of Violation*, you are required to respond within 30 days of the date of this letter and to follow the instructions specified in the enclosed PNOV when preparing your response. After reviewing your response to the PNOV, including any proposed, additional corrective actions entered into the Noncompliance Tracking System, DOE will determine whether further enforcement action is necessary to ensure compliance with DOE nuclear safety requirements. DOE will continue to monitor the completion of corrective actions until these matters are resolved.

Sincerely,



Arnold E. Guevara
Director
Office of Enforcement
Office of Health, Safety and Security

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Enclosures: Preliminary Notice of Violation
Enforcement Conference Summary

cc: Lee Fife, CWI Enforcement Coordinator

**Preliminary Notice of Violation
and
Proposed Imposition of Civil Penalty**

CH2M-Washington Group Idaho, L.L.C.
Idaho National Laboratory
Radioactive Waste Management Complex
Accelerated Retrieval Project

EA-2007-03

The Department of Energy (DOE) evaluated issues at the Idaho National Laboratory's Accelerated Retrieval Project (ARP) and identified multiple violations of DOE nuclear safety requirements, including: (1) inadequate radiological surveys and work practices, and (2) inadequate management assessments of the ARP radiation protection program. These were observed by DOE Idaho Operations Office (DOE-ID) personnel during an April and May 2006 assessment of ARP radiological work activities in response to an employee allegation regarding retaliation as a result of the employee's raising radiological safety concerns.

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

I. ARP Radiation Protection Program Deficiencies

- A. 10 CFR Part 835.401(a)(3) requires that "[m]onitoring of individuals and areas shall be performed to detect changes in radiological conditions."

Contrary to the above, during May and April 2006, CH2M-Washington Group Idaho (CWI) failed to effectively monitor individuals and areas to detect changes in beta/gamma radiological conditions.

Specifically, CWI issued Engineering Design File (EDF)-6435, *Alpha Only Personnel Contamination Surveys at the Accelerated Retrieval Project*, revision 0, dated December 14, 2005, that curtailed the prior practice at ARP of conducting beta/gamma personnel contamination surveys on exiting a controlled area. Alpha surveys were being conducted.

The DOE-ID assessment, however, identified that (1) the potential still existed for significant and changing beta/gamma contamination levels at ARP, (2) actual data reviewed by DOE-ID confirmed that the beta/gamma-to-alpha ratios were significant and ranged from 10:1 to

1:100, (3) the technical basis in EDF-6435 was not valid since it was based on an incorrect fixed beta/gamma ratio of 2.5:1 for the facility, and (4) the current, expedited alpha-only contamination surveys would not detect any significant changes in beta/gamma radiological conditions.

Further, the change in survey methodology was not consistent with the results of a CWI ALARA (As Low As is Reasonably Achievable) review for the ARP drum packing and drum movement activities that documented the potential for significant and changing beta/gamma contamination levels within the facility. ALARA review *ARP DPS OPS, Sampling, Drum Movement, Support Between Airlocks*, revision 1, dated January 24, 2006, referenced potential contamination levels inside drum packaging stations of greater than 1,000,000 dpm alpha and 1,000,000 dpm beta/gamma. This review also determined that the radionuclide quantities were based on best estimates and that records were very inconsistent, indicating the potential for changing conditions.

- B. 10 CFR Part 835.401(b)(2) requires that “[i]nstruments and equipment used for monitoring shall be appropriate for the type(s), levels, and energies of the radiation(s) encountered.”

Contrary to the above, instruments and equipment used for monitoring were not appropriate for the type(s), levels, and energies of the radiation(s) encountered in that the DOE-ID assessment (April-May 2006) documented that workers placed plastic bags over beta survey meter probes when surveying the filter head of a running derived air concentration (DAC) air sampler. ARP personnel had not established a technical basis to support placing plastic over the beta probe; in the absence of such technical basis, it may be assumed that the plastic shielding would render the survey meter ineffective in accurately detecting beta radiation. Further, no procedure was in place to govern the use of a plastic shielded probe on the running DAC air sampler.

- C. 10 CFR Part 835.1101(b) requires that “[m]aterial and equipment exceeding the removable surface contamination values specified in appendix D...may be conditionally released for movement on-site...only if appropriate monitoring is performed and appropriate controls for the movement are established and exercised.”

Contrary to the above, CWI released material and equipment having removable surface contamination levels greater than the Appendix D values without appropriate monitoring and controls.

Specifically, during May and April 2006, approximately sixty instruments that had been received from Rocky Flats were transferred to a storage area at Idaho National Laboratory (INL) pending their transfer to the Health Physics Instrument Laboratory (HPIL) for calibration. Before the transfer to HPIL, the instruments were surveyed by CWI staff and no radioactive contamination was found. However, as verified by a HPIL receipt contamination survey, two of the instruments had contamination levels exceeding Part 835 Appendix D values. Therefore, the initial CWI survey was not effective in identifying the two contaminated instruments, and those instruments were released for transfer without the required controls, such as appropriate identification and bagging, or decontamination.

- D. 10 CFR Part 830.122(c)(1) and (2) require, respectively, a contractor to "...[e]stablish and implement processes to detect and prevent quality problems..." and to "[i]dentify, control, and correct items, services, and processes that do not meet established requirements."

Contrary to the above, established and implemented processes to detect and prevent quality problems and to identify, control, and correct items, services, and processes that did not meet established requirements failed in that, as observed during April and May 2006, the DOE-ID assessment's review of continuous air monitor (CAM) response time data sheets identified nine occasions when CAMs remained in operation after they had failed their required weekly response checks. Further, DOE-ID determined that radiation protection program management failed to notify facility management of the instrument failures. CWI procedure, MCP-356, *Routine Air Monitoring*, revision 8, dated November 10, 2005, specifically requires that CAMs be tagged and placed out of service upon failure of the weekly instrument calibration check, and that the appropriate radiological control foreman and facility management be notified of the instrument failures. These actions were not taken as required. Radiological protection management failed to effectively identify and respond to these multiple occurrences.

- E. 10 CFR Part 830.122(d)(1) requires a contractor to "[p]repare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design."

Contrary to the above, documents were not reviewed and approved in that, as observed during April and May 2006, the cancellation of RIR ARP-06-0004 was not reviewed and approved as required. RIR ARP-06-0004 was simply marked across the sheet in large letters as "Invalid," without sections 2 or 3 being completed by the radiological control supervisor or radiological control manager, respectively, and with no documented basis for the conclusion of invalidity.

However, CWI procedure, EDF-6139, *Radiological Improvement Reporting at the Radioactive Waste Management Complex, Idaho Cleanup Project*, governs the initiation and processing of radiological improvement reports (RIR). EDF-6139 requires that:

1. If the review of the RIR by the radiological control supervisor determines that the RIR is invalid, then that person must complete section 2 of the RIR and invalidate the RIR by checking the invalid field and documenting the reason for the matter being invalid; and
2. If the review of the RIR by the radiological control manager, or designee, concludes that the RIR is invalid, that person must complete section 3 of the RIR and invalidate the RIR by checking the invalid field and documenting the reason for the matter being invalid.

- F. 10 CFR 830.122(e)(1) requires that work must be performed "...consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means."

10 CFR 835.1001(b) requires that for "...specific activities where use of physical design features is demonstrated to be impractical, administrative controls shall be used to maintain radiation exposures ALARA."

Document PRD-183, the INL Radiological Control Manual (RCM), provides general radiation safety requirements and guidance for all applicable CWI activities. The following sections of the RCM provide requirements that are supportive of the ALARA process: Chapter 1, *Radiological Health and Safety Policy*; article 337, *Controlling the Spread of Contamination*; article 342, *Work Conduct and Practices*; and article 344, *Review of Work in Progress*.

Contrary to the above, CWI work was not performed consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, and using approved instructions, procedures, or other approved means. Further, for specific activities where the use of physical design features was demonstrated to be impractical, administrative controls were not used to maintain radiation exposures ALARA in that, during April and May 2006, several work evolutions were observed in the vicinity of airlocks 1 and 2 which involved deficient radiological work practices. Specifically: (1) a worker dropped an open bag of contaminated waste on the floor several times in an attempt to compact the bag's contents, and then tossed it multiple times; (2) workers sat in a contaminated area with gloved hands on the back of their heads or touching their faces; (3) workers performed frisking too quickly; (4) workers ignored directions from radiological control technicians; and (5) a worker exited a contamination area without removing all anti-contamination clothing. These deficiencies occurred while the ARP Radiological Control Manager and Radiological Control Supervisor were in the area, and they were not observed to correct these deficiencies.

These violations constitute, in the aggregate, a Severity Level II problem.
Civil Penalty - \$27,500

II. Assessment Program Deficiencies

10 CFR Part 830.122 (i) requires a contractor to "[e]nsure managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives."

Contrary to the above, managers did not assess their management processes and identify and correct problems that hindered the organization from achieving its objectives in that, as observed during April and May 2006, the areas selected and methods used in performing management assessments were not found to be effective. The reports of the radiation protection program's assessments (intended to meet the requirements of 10 CFR Part 835.102, "Internal Audits") over the past two years show that those assessments did not identify substantive compliance or performance issues, and the few identified issues that represented noncompliance conditions

were designated as “safety concerns” and not correctly as “deficiencies” as required by MCP-598, *Corrective Action System*, revision 19. As a result of these miscategorizations, corrective actions were not initiated. Further, these assessments did not identify any of the deficiencies found during the DOE-ID assessment.

This constitutes a Severity Level II violation.
Civil Penalty - \$27,500

Pursuant to the provisions of 10 CFR Part 820.24, “Preliminary Notice of Violation,” CWI 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 express delivery to:

Director, Office of Enforcement
Attention: Docketing Clerk, HS-40
270 Corporate Square Building
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20874-1290

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 that CWI deems not to 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 should be delineated, with target and completion dates entered in DOE’s Noncompliance Tracking System. If the violations set forth in this PNOV are admitted, this Notice will constitute a Final Order in compliance with the requirements of 10 CFR Part 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 one or more violations are denied, or remission or additional mitigation is requested, CWI shall pay the civil penalty of \$55,000 imposed under section 234a of the Atomic Energy Act of 1954, as amended, by check, draft, or money order payable to the Treasurer of the United States (Account 891099) and mailed to the Director, Office of Enforcement, Attention: Office of the Docketing Clerk, at the above address. If CWI should fail to answer within the specified time, the contractor will be issued a Final Order imposing the civil penalty.

If additional mitigation of the proposed civil penalty is requested, CWI should address the adjustment factors described in section IX of 10 CFR Part 820, Appendix A.



Arnold E. Guevara
Director
Office of Enforcement
Office of Health, Safety and Security

Washington, DC
This 14th day of June 2007

Enforcement Conference Summary

Multiple Radiological Protection Program Deficiencies and Safety Culture Concerns

An enforcement conference was held with CH2M-Washington Group Idaho, L.L.C. (CWI), on March 21, 2007, in Germantown, Maryland, to discuss potential violations of nuclear safety requirements identified in an Office of Enforcement investigation summary report issued on February 20, 2007. Mr. Anthony Weadock, Senior Enforcement Officer, was the presiding officer for the conference. Mr. Weadock opened the meeting by explaining the reasons for and purpose of the enforcement conference, and explained the deliberation process that would occur following the conference in order to determine the enforcement outcome. Dr. Robert Iotti, president and chief executive officer of CWI, spoke next and, in his opening remarks, outlined the presentations that would be made by his staff. Selected key points from the conference are summarized below.

CWI raised no issues with the factual accuracy of the investigation summary report and stated that the new management team dealt with the employee concerns from the start. The contractor's employee concerns program (ECP) was found to have been placed too far down the management chain to be completely effective. The ECP now has a new, more experienced manager who is also a direct-report to the senior manager. Additional emphasis on resolving the safety culture issues included CWI's directing an independent investigation of the extent of condition; engaging an industry leader in human performance improvement; training managers and supervisors in desired behaviors, expectations, openness in communication, priority on safety, importance of reporting, and the desired CWI "Just Culture"; conducting personal meetings between managers and CWI senior management to address expectations for proper issue recognition and response; and replacing management and other supervisory individuals who did not embrace the desired safety culture and emphasized production over safety. The remaining deficiencies were considered to be technical issues that are more easily resolved through corrective actions, extent-of-condition reviews, corrective action effectiveness reviews, and emphasis on procedural compliance.

The contractor's assessment of the conditions underlying the technical deficiencies found that feedback and oversight mechanisms needed to be strengthened, and that the radiological improvement report (RIR) system was not coordinated with the sitewide deficiency reporting process; the use of RIRs has since been discontinued. Extent-of-condition reviews indicated that the radiological protection program (RPP) deficiencies were limited to the Accelerated Retrieval Project. Senior management has had to strengthen the RPP management assessment process, and has reviewed all engineering design files (EDF) to confirm the assumptions and technical bases within them. The EDFs are intended to be used only as technical basis documents. Consequently, to prevent any future use of EDFs as procedures, the EDF process has been

extensively revised. Finally, facility operations personnel have been reminded that radiological protection staff have the authority to control and stop work.

At the conclusion of CWI's presentations, Mr. Weadock then ended the conference.

List of Attendees

Office of Enforcement

Arnold Guevara, Director, HS-40
Martha Thompson, Deputy Director, HS-40
Steven Crowe, Acting Director, HS-43
Howard Wilchins, Senior Litigator, HS-40
Anthony Weadock, Senior Enforcement Officer, HS-42
Steven Zobel, Enforcement Officer, HS-42
Hank George, Technical Advisor

Office of Environmental Management

Dr. Robert Goldsmith, Director, Operations Oversight, EM-62
Philip Altomare, INL Liaison, EM-3.2

Idaho Operations Office

Guy Girard, Assistant Manager, Nuclear and Safety Performance
Kenneth Whitham, PAAA Coordinator

CH2M-Washington Group Idaho

Dr. Robert Iotti, President and CEO
Lane Butler, Vice President and Area Project Manager, Environmental Restoration
Brent Rankin, Vice President and ESH&QA Director
Lee Fife, PAAA Coordinator