



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064**

August 11, 2000

Mr. Marvin Freeman, Vice President
Rio Algom Mining Corporation
6305 Waterford Blvd., Suite 325
Oklahoma City, Oklahoma 73118

SUBJECT: NRC INSPECTION REPORT 40-8964/00-02 AND NOTICE OF VIOLATION

Dear Mr. Freeman:

This refers to the routine inspection conducted on July 13-14, 2000, at your Smith Ranch in-situ uranium processing facility in Converse County, Wyoming. The inspection consisted of a routine review of management organization and controls, site operations, radiation protection radioactive waste management, and environmental monitoring. The inspection findings were discussed with your staff at the exit briefing on July 14, 2000. The enclosed report presents the results of that inspection. Overall, the inspection determined that you had continued to operate the uranium production facility in a safe and effective manner.

Based on the results of this inspection, certain licensed activities were in violation of NRC requirements, as specified in the enclosed Notice of Violation (Notice). One violation was identified involving the calibration of radiation instruments without following the established procedure. This violation is a concern because the implementation of NRC licensed activities under written procedures is a key component in assuring safety and consistency of facility operations.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements. For your consideration and convenience, NRC Information Notice 96-28, "SUGGESTED GUIDANCE RELATING TO DEVELOPMENT AND IMPLEMENTATION OF CORRECTIVE ACTION," is enclosed.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Mr. Louis C. Carson II at (817) 860-8220 or Dr. Blair Spitzberg at (817) 860-8191.

Sincerely,

/D. Blair Spitzberg Acting for/

Dwight D. Chamberlain, Director
Division of Nuclear Material Safety

Docket No.: 40-8964
License No.: SUA-1548

Enclosures:

1. Notice of Violation
2. NRC Inspection Report
40-8964/00-02
3. NRC Information Notice 96-28

cc w/Enclosures 1 & 2:
Mr. Bill Ferdinand, General Manager
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Rio Algom Mining Corporation

-3-

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District I Supervisor
Land Quality Division
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Wyoming Radiation Control Program Director

bcc w\Enclosures 1 & 2 to DCD (IE07)

bcc w\Enclosures 1 & 2 (via ADAMS distrib):

EWMerschoff
 PTing, NMSS/FCSS/URS (T 8 E13)
 DMGillen, NMSS/FCSS/URB (T 7 J8)
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ENCLOSURE 1

NOTICE OF VIOLATION

Rio Algom Mining Corp.
Oklahoma City, Oklahoma

Docket No.: 40-8964
License No.: SUA-1548

During an NRC inspection conducted on July 13-14, 2000, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600 the violation is listed below:

License Condition 9.10 states, in part, that written procedures shall be established for non-operational activities to include in-plant monitoring and instrument calibration.

Contrary to the above, on June 7, 2000, the radiation safety technician calibrated the alpha radiation counter without following the established written procedure "Calibration of the Scintillation Counter." Consequently, the technician did not conduct the counter efficiency calibration or establish the instrument operating voltage as stated in the written procedure.

This is a Severity Level IV violation, (Supplement VI).

Pursuant to the provisions of 10 CFR 2.201, Rio Algom Corp., is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in

detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 11th day of August 2000

ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 40-8964

License No.: SUA-1548

Report No.: 40-8964/00-02

Licensee: Rio Algom Mining Corporation

Facility: Smith Ranch In-Situ Leach Facility

Location: Converse County, Wyoming

Dates: July 13-14, 2000

Inspectors: Louis C. Carson II, Health Physicist
Fuel Cycle/Decommissioning Branch

Jane M. Gunn, Hydrologist
Uranium Recovery Section
Division of Fuel Cycle Safety and Safeguards
Nuclear Materials Safety and Safeguards

Judith L. Walker, Health Physicist,
(Inspector-In-Training)
Fuel Cycle and Decommissioning Branch

Approved By: D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle/Decommissioning Branch

EXECUTIVE SUMMARY

Smith Ranch In-Situ Leach Facility
NRC Inspection Report 40-8964/00-02

This inspection included a review of site status; management organization and controls, in-situ leach operations, radiation protection, radioactive waste management, and environmental monitoring programs.

Management Organization and Controls

- The organization structure and staffing levels were determined to be acceptable for the work in progress at the facility (Section 2).

In-Situ Leach Facilities

- Routine site activities have been conducted in accordance with applicable license and regulatory requirements. Housekeeping was adequate, and no leakage was observed. Plant process parameters were within the licensed limits, site fences were in good condition, and perimeter postings were appropriate. No health or safety concern was identified during the plant tour (Section 3).

Environmental Protection and Radioactive Waste Management

- A review of the environmental monitoring and radioactive waste management programs revealed that the licensee was in compliance with the license and regulatory requirements. The licensee had not released any effluents into the environment in quantities greater than the limits specified in the regulations. Reports related to groundwater and environmental monitoring programs had been submitted to the NRC as required (Section 4).

Radiation Protection

- The inspectors' review of the radiation protection program revealed a violation of requirements established under License Condition 9.10 for the failure to implement the written procedure for calibrating an alpha radiation counter (Section 5).

Report Details

1 Site Status

A commercial license was issued during March 1992 to Rio Algom Mining Corporation to allow the company to recover uranium through in-situ leach operations at the Smith Ranch facility. Full scale construction of the central processing plant began in January 1996, and commercial operations began on June 20, 1997. Wellfields 1, 3, and 4 were in service during the inspection. The yellowcake dryer and filter press was operational to dry and package the yellowcake product.

Wellfield 1 was in service with six operating mine units. No additional mine units are planned for this wellfield. Wellfield 2 was not in service, but was anticipated to be in production in about 2 years because of the low-yield ore zones. Wellfield 3 was originally placed into operation on August 10, 1998, with three operating mine units, and five additional mine units had been subsequently placed in service. Wellfield 4 began production on September 10, 1999. Currently, six header houses were completed and two additional header houses were under construction in Wellfield 4.

A satellite facility was completed in August 1998 which supports mining operations from Wellfield 3. The satellite facility has sufficient capacity to support all mine units in Wellfields 3 and 4.

2 Management Organization and Controls (88005)

2.1 Inspection Scope

The organization structure was reviewed to ensure that the licensee had established an effective organization with defined responsibilities and functions.

2.2 Observations and Findings

License Condition 9.13 states that any changes to the licensee's corporate organization structure illustrated in Figure 9-4 of the March 31, 1988, application as amended by the submittal dated December 10, 1991, shall require approval of the NRC in the form of a license amendment. During this inspection, the licensee's functional organization was compared to the organization chart as referenced in the license. The licensee's overall organization structure was in agreement with the conditions of the license.

Approximately 86 individuals were employed at the site during this inspection, which included 12 well drillers. The general manager remained the highest ranking official on site, and the radiation safety officer (RSO) continued to report directly to the general manager. In summary, the licensee had fully staffed the site to support commercial operations.

License Conditions 9.13 and 9.14 delineates the responsibilities and qualifications for the RSO and radiation safety technicians. All qualifications and required refresher training had been completed as specified in the license and Regulatory Guide (RG) 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Mills will be As Low As Reasonably Achievable," dated May 1983. A new radiation safety technician was undergoing training for meeting qualifications as required by License Conditions 9.13 and 9.14.

2.3 Conclusions

The organization structure and staffing levels were determined to be acceptable for the work in progress at the facility.

3 In-Situ Leach Facilities (89001)

3.1 Inspection Scope

The purpose of this portion of the inspection was to determine if the licensee's operations and environmental protection program were in compliance with requirements established in the license and 10 CFR Part 20 regulations.

3.2 Observations and Finding

a. Process Plant Tour and Operations

A site tour was performed to verify that site activities were being conducted in accordance with applicable regulations and license conditions. During the site tour, plant buildings, equipment, fences, and gates were observed. Site fences were in good condition and were properly posted in accordance with License Condition 9.16. The facility and related components were operational and properly maintained. No equipment misalignments were identified and no process flow, level, or pressure indications were found outside required parameters. Housekeeping was adequate with no loose trash or debris on the floor. During the site tour, yellowcake dryers were not in operation, but yellowcake loading operations were in progress. To limit uranium uptake in workers, housekeeping controls were in effect and workers were donning respiratory protection equipment. No yellowcake product was observed on the floor of the Central Processing Plant.

b. Wellfield Operations

NRC inspectors observed field operations for drilling and Mechanical Integrity Testing (MIT) for new wells. Both operations were conducted with the Standard Operating Procedures (SOPs) for each activity, and licensee staff were knowledgeable about their respective operations. However, NRC staff noted that some details performed or evaluated by field personnel were not included in the SOPs. NRC staff understood that the licensee was revising its SOPs and would further evaluate the wellfield operations to be written into procedures.

c. Control of Evaporation Ponds

License Condition 11.2 states that the licensee shall perform and document daily visual inspections of the evaporation pond embankments, fences, and liners, as well as measurements of pond freeboard and checks of the leak detection system. During the site tours, the licensee's two evaporation ponds were inspected. All pond liners, fences, and embankments were in good condition. The observed pond levels were below the freeboard limits. During a review of the pond inspection records, the inspectors determined that the two ponds had not exceeded the freeboard limits. The licensee met the requirements of License Condition 11.2.

3.3 Conclusions

Routine site activities have been conducted in accordance with applicable license and regulatory requirements. Housekeeping was adequate, and no leakage was observed. Plant process parameters were within the licensed limits, site fences were in good condition, and perimeter postings were appropriate. No health or safety concern was identified during the plant tour.

**4 Radioactive Waste Management (88035)
Environmental Monitoring (88045)**

4.1 Inspection Scope

The environmental and radioactive waste management programs were reviewed to assess the effectiveness of the licensee to control waste and monitor the effects of site activities on the local environment.

4.2 Observations and Findings

a. Semiannual Effluent Reports

License Condition 12.2 states that the results of effluent and environmental monitoring shall be reported to the NRC in accordance with 10 CFR 40.65. These semiannual reports for 1999 were reviewed during the inspection. The environmental monitoring program consisted of air particulate, radon, groundwater, surface water, soil, and vegetation sampling. Measurements of ambient gamma exposure rates were also

performed. The semiannual reports from August 29, 1999, and February 29, 2000, were submitted to the NRC in a timely manner and provided relevant data for the facility.

b. Groundwater and Environmental Water Sampling

NRC inspectors reviewed groundwater monitoring well and effluent monitoring data. All required data was presented in the reports. Groundwater and surface water monitoring programs are required to be implemented in accordance with Table 5.3 of the license application. The groundwater program consisted of sampling livestock or domestic wells within 1 kilometer of operating wellfields on a quarterly basis for natural uranium and radium-226.

The inspectors' review of data for 1999 indicated that the concentrations of natural uranium and radium-226 were below the 10 CFR Part 20, Appendix B, effluent concentration limit of $3.0 \text{ E-}7 \text{ } \mu\text{Ci/ml}$ and $6.0 \text{ E-}8 \text{ } \mu\text{Ci/ml}$ for uranium and radium, respectively. During 1999 there was no flow in the sampling area (Sage Creek) for surface water, therefore, no analytical results were available for review.

c. Environmental Air Sampling

Air particulate sampling was continuously performed at three locations around the site in 1999. The samples were analyzed on a quarterly basis for their natural uranium, thorium-230, radium-226, and lead-210 concentrations. The results indicated that natural uranium was less than 4.4 percent of the limits. Thorium-230 and lead-210 concentrations were higher than reported in the previous year. The licensee assumed these values were attributed by outside factors such as the nearby power plant smoke stack, since the designated background station had reported increased values. The air sample results demonstrated that airborne radioactivity from the site was less than the 10 CFR Part 20, Appendix B, effluent concentration limits.

The licensee was required to sample for radon at three monitoring stations (upwind, downwind positions). Sampling was performed continuously (track etch detection) and analyzed quarterly. The sample results indicated that the maximum radon concentration of $2.6 \text{ E-}9$ microcuries per milliliter ($\mu\text{Ci/ml}$) was measured at the upwind location during the fourth quarter of 1999. The station downwind of the restricted area boundary measured $1.1 \text{ E-}9 \text{ } \mu\text{Ci/ml}$. The station at the nearest downwind residence measured $1.4 \text{ E-}9 \text{ } \mu\text{Ci/ml}$. All of the sample results were 26 percent or less of the radon-222 effluent concentration limit established in 10 CFR Part 20, Appendix B of $1.0 \text{ E-}10 \text{ } \mu\text{Ci/ml}$.

d. Environmental Exposure Rates

The licensee deployed environmental thermoluminescent dosimeters to monitor ambient gamma readings. The dosimeters were placed at seven locations as specified in Table 5.3 of the license application and were changed out quarterly. The highest ambient reading measured 3.0 microRoentgen per hour ($\mu\text{R/hr}$) above background, during the first quarter of 1999. This reading was measured at the fence line (downwind of the restricted area boundary). The background station, Dave's Waterwell measured 10.8

μ R/hr during the first period of 1999. Ambient gamma exposure rates were below the limits of 10 CFR 20.1301.

e. Soil/Vegetation

In accordance with Table 5.3 of the license application, the licensee is required to take soil and vegetation samples annually from the downwind air sampling station. The soil and vegetation were analyzed for natural uranium, radium-226 and lead-210. The soil and vegetation results did not identify any adverse trends.

f. Liquid Effluents

License Condition 10.8 provides restrictions for the control of liquid effluents. Liquid effluents were being returned to the process circuit, disposed of via deep-well disposal, or discharged to the evaporation ponds. During the site tour, no evidence of improper process fluid releases was observed. Output flow to the deep-well disposal system was 70 gpm. The licensee met the requirements of License Condition 10.8.

4.3 Conclusions

A review of the environmental monitoring and radioactive waste management programs revealed that the licensee was in compliance with the license and regulatory requirements. The licensee had not released any effluents into the environment in quantities greater than the limits specified in the regulations. Reports related to groundwater and environmental monitoring programs had been submitted to the NRC as required.

5 Radiation Protection (83822)

5.1 Inspection Scope

The purpose of this portion of the inspection effort was to determine if the licensee's radiation protection program was in compliance with requirements established in the license and 10 CFR Part 20 regulations.

5.2 Observations and Findings

a. Personnel Monitoring and Surface Contamination Control

License Condition 10.17 states that process workers shall shower or monitor themselves with an alpha survey instrument prior to exiting the restricted area. Should the results of monitoring exceed an action level of 1000 dpm/100 cm², employees shall decontaminate themselves to less than the action level. Also, this license condition states that the licensee shall perform spot surveys for alpha contamination at least quarterly on all workers leaving the facility. The licensee maintained an extensive number of log entries in this program area. A thorough check of the licensee's records indicated site employees were monitoring themselves with an alpha survey meter prior to exiting the

restricted area and no individual had left the site (after self-monitoring) with contamination above the action level. The inspectors concluded that site workers were adequately decontaminating and scanning themselves prior to exiting the restricted area.

License Condition 11.9 stipulates that the licensee shall perform monthly alpha contamination surveys of the facility laboratory and offices, and weekly surveys of eating areas and change rooms. The licensee had performed the weekly and monthly surveys on a routine basis during this inspection interval. Sample results obtained by the licensee indicated that contamination was below the respective license limits and action level.

d. Routine Ambient Gamma Surveys

License Condition 11.8 states that the licensee shall perform quarterly gamma radiation surveys in enclosed areas at the locations specified in the license application. In addition, the licensee shall conduct spot checks to confirm the adequacy of the gamma radiation monitoring plan. The gamma radiation survey records for this inspection interval were reviewed and found to be adequate.

During the site tour on July 13, 2000, ambient radiation levels were measured by inspectors using an NRC microRoentgen meter. Readings taken within the central plant measured 200 $\mu\text{R/hr}$ at the ion exchange columns, 10 $\mu\text{R/hr}$ in the control room, and 15 $\mu\text{R/hr}$ in the laboratory. Wellfield header houses measured 50-100 $\mu\text{R/hr}$. The administrative offices measured 20 $\mu\text{R/hr}$.

The inspectors' review of records revealed that the licensee had performed the routine surveys and spot checks as specified by the license. The inspectors did not identify any unexpected radiation levels.

d. Airborne Natural Uranium and Radon Progeny Surveys

License Condition 11.7 states that the licensee shall perform monthly surveys for natural uranium and radon progeny, and the licensee shall conduct spot surveys to confirm the adequacy of the yellowcake and radon progeny monitoring plan.

Airborne natural uranium sample results were reviewed from the period of February-May 2000. No air sample results were found to be in excess of the derived air concentration (DAC) value. There were some air sample results that measured from 15-43 percent of a DAC for natural uranium (5.0E-10 $\mu\text{Ci/ml}$). These samples contained uranium that was collected during yellowcake handling operations. The inspectors reviewed the licensee's process for performing dose assessments. Section 3.0 of the Health Physics Manual, "Airborne Radiation Programs," explained that this procedure was to provide an effective and efficient means to monitor and control radioactive exposures through a proper air sampling program. Section 3.2 of the procedure addressed the equipment and sample collection. Section 3.2.1, "Natural Uranium Radiometric Analysis," addressed analyzing samples and documentation. The procedure adequately covered collecting air filter samples and counting the radioactivity

on a 5-inch alpha scintillation counter to achieve net counts. However, the analyses section did not provide details on how to convert the net counts to a DAC. The RSO explained that the air sample data and count measurements were entered into a computer program. The computer calculated the radioactivity of the air sample, converted the activity to the appropriate DAC percentage, and calculated an equivalent natural uranium milligram value. The inspectors stated that the computer program was not mentioned in the procedure, and the licensee should consider adding some appropriate level of instructions regarding these air sample analyses to the procedure. The inspectors further noted that this first computer program did not assign personnel radiation dose based on the air sample analyses.

The licensee used a second computer program in which the air sample DAC values were entered. The program calculated the DAC-hour and assigned the committed effective dose equivalent (CEDE) to the worker. Again, the inspectors determined that the second computer program was not mentioned in the airborne monitoring procedure, and the licensee should consider adding some appropriate level of instruction to the procedure. The inspectors further noted that the RSO was the only person on staff that had access to both the air sample analyses and dose assessment computer programs and databases. The inspector found from reviewing records from April - May 2000, that the RSO was taking an average 8 days to complete the air sample analyses to determine the DAC value. Additionally, the RSO was completing the personnel dose assessment record from the air sample analyses on a quarterly basis. The inspectors did not identify any significant omissions in personnel exposure records.

e. Radiation Work Permits

License Condition 10.12 states where the potential for exposure to radioactive materials exists and for which no SOP exists, a radiation work permit (RWP) shall be required. The license condition further requires the RWPs to contain the following information: (1) the scope of the work to be performed, (2) any necessary precautions to reduce exposures, and (3) any supplemental radiological monitoring and sampling requirements.

The inspectors reviewed 30 RWPs written since the last inspection, and noted that RWP instructions were adequately detailed. Improvements in the quality of RWPs were noted, especially, in the revised RWP format and changes to SOP-1110, "Work Order/SOP."

f. Respiratory Protection

The licensee's respiratory protection program was reviewed during the inspection. The licensee had established a program which included a written policy statement, training, and issuance of positive and negative pressure respirators. During the site tour, the licensee's respirator checkout log and respirators were reviewed. The inspectors observed licensee personnel properly wearing full-face respirators and air purifying respirators during yellowcake cake packaging and cleanup operations. The inspectors toured the respirator storage and cleanup area and determined that this aspect of the licensee's program was adequate. The inspector examined the licensee's testing and

use of protection factors for the air purifying respirators and determined that this part of the program was adequate.

The licensee's training requirements were reviewed as detailed in the respiratory protection program manual. The licensee provided annual respiratory protection training which included respirator function and fit checks. Physical examinations, including spirometer tests and physician evaluations, were conducted annually on appropriate personnel. Individuals had their own dedicated masks, and each mask was inspected at least quarterly by the RSO or his representative.

Inspectors determined that the licensee had implemented a respiratory protection program that met the intent of 10 CFR 20.1703, "Use of Respiratory Protection Equipment."

g. Instrument Calibration

License Condition 10.18 states that all radiation monitoring, sampling, and detection equipment shall be calibrated after each repair as recommended by the manufacturer, or at least annually, whichever is more frequent.

The inspectors reviewed calibration records for various radiation survey instruments. During discussions with the RST-in-training, it was revealed that he did not use the approved procedure when calibrating the 5-inch alpha counter. During the inspectors' review of the latest calibration records for the 5-inch alpha counter dated June 7, 2000, the inspectors found the following:

- The average counts for each of the 13 counting intervals was not recorded.
- The licensee used a 2π source count rate in the calibration efficiency calculation instead of the 4π source activity that's recommended in NRC Information Notice 97-55: "Calculation of Surface Activity for Contaminated Equipment and Material."

Using Section 8.1 of the procedure "Drawer Counter and Alpha Scintillator Calibration and Function Check," the inspectors had the RST demonstrate how he calibrated the alpha counter. The inspectors found the RST did not calibrate the counter in accordance with the procedure as follows:

- Regarding plotting the instrument operating voltage curve on a graph, Step No. 15 required the RST to "divide the plateau into thirds and plot a point at the first third from the knee of the graph. The knee is the area where the increase in counts turns in to the plateau. This is the proper operating voltage for the instrument." On June 7, 2000, the RST did not divide the plateau of the curve into thirds. The RST only marked two points on the graph. According to the RST and the RSO, they used a calculation to derive the instrument operating voltage, but the calculation was not part of the procedure.

- To determine the efficiency of the alpha counter, procedure Step Nos. 7 - 9, required the RST to perform the following: set the counter timer for 3 minutes; start the counter; at the end of the 3 minutes, divide the gross count by 3 minutes to obtain counts per minute; and record the result on the appropriate form. On June 7, 2000, the RST set the counter timer to 1-minute and counted the calibration source. Additionally, the RST did not record the counts.

The inspectors determined that the licensee's failure to calibrate the 5-inch alpha counter in accordance with Section 8.1 of the instrument calibration procedure was a violation of License Condition 9.10 which states, in part, that written procedures shall be established for non-operational activities to include in-plant monitoring and instrument calibration (40-8964/0002-01).

The inspectors questioned whether the calibration that conducted on the alpha counter in June 2000 was valid based on the findings. Also, considering the 5-inch alpha counter was the main detector used for counting air sample filters, the inspector further questioned the validity of the analyses made with that counter. On July 14, 2000, the licensee wrote a work order/radiation work permit to determine if employee safety had been compromised, and, if the samples counted were valid.

In general, the inspectors observed that radiation survey instruments in the process plant had been checked functionally and had current calibration stickers affixed. The inspectors concluded that the licensee had, generally, maintained radiation survey instruments operable since the last inspection. However, the inspectors identified that the 5-inch alpha counter had not been calibrated in accordance with the established procedure. Therefore, the validity of the calibration rendered the operation of the instrument as questionable. The inspectors concluded that not calibrating the alpha counter in accordance with the established procedure was a violation of License Condition 9.10.

5.3 Conclusions

The inspectors' review of the radiation protection program revealed a violation of requirements established under License Condition 9.10. The licensee failed to implement the established SOP for calibrating an alpha radiation counter.

6 **Followup (92701)**

(Closed) VIO 40-8964/0001-01: Failure to use SOPs during remedial actions for spills of radioactive material

From July through December 1999, eight spill events occurred onsite that involved 98,330 gallons of production or injection liquids containing low levels of radioactive material, without an SOP or RWP. The licensee's failure to establish SOPs or RWPs for responding to radioactive material spills, controlling worker exposures from the spills during recovery operations, and conducting radiological surveys for assessing environmental impact was identified as a violation of License Conditions 9.10 and 10.12.

Based on the inspectors' findings, the licensee stated that SOPs would be established to incorporate steps to assure compliance with the intent of the license and regulations.

During this inspection, the inspectors verified that the corrective actions as stated in licensee letters dated March 7 and 29, 2000, were completed. Of particular note were the improvements to the licensee's Procedure SOP No. 1110 "Work Order/RWP." Additionally, no spills had been reported since the previous inspection.

7 Exit Meeting Summary

The inspectors presented the inspection results to the representatives of the licensee at the conclusion of the inspection on July 14, 2000. Licensee representatives acknowledged the findings as presented. The licensee did not identify any material reviewed as proprietary.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Cash, Supervisor, Radiation Safety & Environmental Affairs
P. Drummond, Manager, Plant Operations
W. P. Goranson, Manager, Radiation Safety, Regulatory Compliance & Licensing
B. Ferdinand, General Manager
J. McCarthy, Radiation Safety Officer

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

40-8964/0001-01 VIO The licensee failure to use SOPs for calibrating instruments.

Closed

40-8964/0001-01 VIO The license failed to use SOPs and RWPs during remedial actions associated with recovering from eight spill events that occurred from July to December 1999.

Discussed

None

INSPECTION PROCEDURES USED

IP 83822	Radiation Protection
IP 88005	Management Organization and Control
IP 88035	Radioactive Waste Management
IP 88045	Environmental Monitoring
IP 89001	In-Situ Leach Facilities
IP 92701	Followup

LIST OF ACRONYMS USED

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
DAC	Derived Air Concentration
dpm/100 cm ²	disintegrations per minute per 100 square centimeters
gpm	gallons per minute
μCi/ml	microcuries/milliliter
μR/hr	microRoentgen per hour
pCi/l	picocuries per liter
PDR	Public Document Room
RG	Regulatory Guide
RSO	Radiation Safety Officer
RSO	Radiation Safety Technician
RWP	Radiation Work Permit
SOP	Standard Operating Procedure
URS	Uranium Recovery Section