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

May 10, 2000

Mr. Stephen J. Pfaff, Radiation Coordinator
Petrotomics Company
P.O. Box 8509
Shirley Basin, Wyoming 82615

SUBJECT: NRC INSPECTION REPORT 040-06659/00-01

Dear Mr. Pfaff:

On April 12, 2000, the NRC completed an inspection at your former Shirley Basin Mill site in Carbon County, Wyoming. The inspection consisted of a routine review of site status, decommissioning and reclamation activities, radiation protection, and environmental monitoring. The inspection findings were presented to you and other members of your staff at the conclusion of the onsite inspection. The enclosed report presents the results of that inspection.

No cited violations were identified during the inspection; therefore, no response to this letter is required.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR).

Should you have any questions concerning this inspection, please contact Mr. Robert Evans at (817) 860-8234 or the undersigned at (817) 860-8191.

Sincerely,

/RA/
D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle & Decommissioning Branch

Docket No.: 040-06659
License No.: SUA-551

Enclosure:
NRC Inspection Report 40-665900-01

cc w/enclosure:
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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.	040-06659
License No.	SUA-551
Report No.	040-06659/00-01
Licensee:	Petrotomics Company
Facility:	Former Petrotomics Shirley Basin Uranium Mill
Location:	Carbon County, Wyoming
Dates:	April 11-12, 2000
Inspectors:	Judith L. Walker, Health Physicist (Inspector in Training) Fuel Cycle & Decommissioning Branch
	Robert J. Evans, PE, CHP, Health Physicist Nuclear Materials Inspection Branch
Approved By:	D. Blair Spitzberg, Ph.D., Chief Fuel Cycle & Decommissioning Branch
Attachments:	Supplementary Information Photographs Taken at the Shirley Basin Site

EXECUTIVE SUMMARY

Former Shirley Basin Mill Facility
NRC Inspection Report 040-06659/00-01

This inspection was a routine, announced inspection of site status, operations review, radiation protection, and environmental monitoring. Overall, the licensee was conducting site operations in accordance with license and regulatory requirements.

Site Status

The licensee's organizational structure was consistent with the previous inspection, with adequate oversight of the site's activities (Section 1).

Operations Review

Site activities were being conducted in accordance with the conditions of the license. Site fences, gates, perimeter postings, and security were adequate. No significant health or safety concern was identified during the site tour (Section 2.2).

A radiological survey was conducted and all surveyed areas of the site exhibited low gamma exposure rate measurements (Section 2.2).

Radiation Protection

The licensee had implemented a radiation protection program that met the requirements established in 10 CFR Part 20 and the conditions of the license. Occupational exposures were well below the NRC's annual dose limits. Specific program areas reviewed and deemed satisfactory included the contamination control program, instrument calibrations, employee training, and annual program reviews (Section 3).

Environmental Monitoring

A review of the licensee's environmental and groundwater monitoring programs, and the annual land use survey, indicated that the licensee was in compliance with the license requirements (Section 4)

All reports related to the groundwater and environmental monitoring programs had been submitted to the NRC as required. A review of the licensee's documentation of semi-annual effluent reports revealed that the radiological releases from the site into the environment were within limits established in 10 CFR Part 20 (Section 4).

Report Details

1 Site Status

The Shirley Basin uranium mill operated between 1962 and 1985. The mill was decommissioned in 1985 and the licensee's reclamation plan was approved in 1989 by the NRC. Activities in progress during the inspection included implementation of a groundwater corrective action program. The licensee plans to start reclamation of the site on or before May 15, 2000. Activities are to include completion of the tailings area radon barrier (Stage I area) on an area of approximately 35 acres. The licensee will also complete placement of a radon barrier in the reserve area and demolition of the old office buildings.

The onsite staff consisted of six individuals; a site supervisor, a radiation/environmental coordinator, a maintenance coordinator, two geotechnical engineers and one contract laborer. The offsite staff included the manager and project manager. The site supervisor is the site's highest ranking corporate official. The radiation/environmental coordinator was responsible for establishing, monitoring, and controlling procedures in the radiation safety/environmental program. The radiation/environmental coordinator reported to the site supervisor.

2 Operations Review (88020)

2.1 Inspection Scope

The objective of this portion of the inspection was to verify that site activities were being conducted in accordance with applicable regulations and the conditions of the license, and to ensure that operational controls were adequate to protect the health and safety of the workers and members of the general public.

2.2 Site Tour

Site buildings, fences, gates, and operating equipment were observed during the site tours. Fences were adequately posted as required by 10 CFR 20.1902. No health or safety hazards were identified during the site tours and the inspectors determined that the licensed material was adequately secured within the site property as required by 10 CFR 20.1801. Visitors were required to register at the site office and were not permitted to tour the facilities without appropriate authorization.

The inspectors performed radiological surveys using an NRC-issued Ludlum Model 19 microRoentgen meter calibrated to radium-226 (Serial Number 33541, calibration due date of October 12, 2000). Exposure rate readings were at background (0.020-0.025 millirems per hour) near the reserve area and at the top of the tailings pile with radon barrier.

2.3 Conclusions

Site activities were being conducted in accordance with the conditions of the license. Site fences, gates, and postings were adequate. Site security was also adequate. A radiological survey was conducted by the inspectors, and low ambient gamma exposure rates were observed in all areas of the site surveyed. No health or safety hazard was identified during the tour.

3 Radiation Protection (83822)

3.1 Inspection Scope

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

3.2 Occupational Exposure Monitoring

The licensee's exposure monitoring program was reviewed to ensure that no worker exceeded the occupational dose limits specified in 10 CFR 20.1201. The licensee demonstrated that occupational exposure rates were less than 10 percent of the annual limit; therefore as of March 1999 the licensee terminated the thermoluminescent dosimeters (TLDs) program. The inspector reviewed the licensee's exposure records for calender years 1998-1999. The highest exposure recorded on a TLD was 11 millirems in 1998 and 0 millirem for 1999, which were both well below the annual limit of 5,000 millirems specified in 10 CFR 20.1201. The inspectors concluded that no individual exceeded the NRC's annual dose limits. The TLDs were supplied by Eberline Company, an accredited member of the National Voluntary Laboratory Accreditation Program.

3.3 Contamination Control

License Condition 16 states that the release of equipment or packages from the restricted area shall be in accordance with the document entitled "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct or Source Materials." The inspectors reviewed the equipment check survey records for 1998-1999, which consisted of vehicles leaving the site for unrestricted use. No vehicles had left the site for unrestricted use with contamination levels in excess of the release limits. No other equipment was released from the site. The licensee was not required to perform routine spot check surveys of the facility according to the reduced activity at the facility.

3.4 Standard Operating Procedures

License Condition 29 states that standard operating procedures shall be established for instrument calibrations. The licensee's instrument calibration records were reviewed. The records indicated that the licensee had performed calibrations annually, after

repairs, or at the manufacturer's specification on their alpha, beta-gamma, and gamma survey meters.

3.5 Routine Audits

10 CFR 20.1101(c) states that the licensee shall periodically (at least annually) review the radiation protection program content and implementation. License Condition 14 states that the licensee shall document reports on audits and inspections. The licensee submitted their 1999 audit to the NRC by letter dated April 21, 1999. The audit did not identify any issues that were considered safety significant.

3.6 Training

License Condition 11 as amended, modified training requirements from annually to if needed, as determined by the radiation coordinator. There has been no additional training done since 1997; however, there have been quarterly safety meetings held to discuss safety significant issues with site employees.

3.7 Conclusions

The licensee had implemented a radiation protection program that met the requirements established in 10 CFR Part 20 and the conditions of the license. Occupational exposures for 1998-1999 were well below the NRC's annual dose limits. Other programs reviewed and deemed satisfactory were contamination control, standard operating procedures, annual program reviews and training.

4 Environmental Monitoring (88045)

4.1 Inspection Scope

The environmental monitoring and groundwater corrective action programs were reviewed to assess the effectiveness of the licensee's program and to evaluate the effects, if any, of site activities on the local environment.

4.2 Environmental Monitoring

License Condition 41 states that the licensee shall implement the revised environmental and effluent monitoring program dated February 10, 1994. On March 24, 1999, the licensee amended the license to delete this requirement. The inspectors reviewed the licensee's quarterly environmental monitoring reports for 1998 and the first and second quarters of 1999. The program in place at the site consisted of air particulate, radon gas and direct radiation sampling.

The air particulate sampling measured radioactivity at one sampler at or near the downwind boundary with continuous sampling composited quarterly for analysis for U-natural, Th-230, and Ra-226. All results were well below the applicable effluent concentration limits listed in 10 CFR 20, Appendix B, Table 2.

Radon-222 was sampled at two stations, one upwind and one downwind with continuous sampling at each location. The average value for the upwind and downwind sites were essentially the same resulting in a 0 millirem exposure.

Environmental thermoluminescent dosimeters (TLDs) were used to measure the ambient gamma exposures at two sample stations (downwind & upwind). The upwind, background station measured 171.6 millirem for 1998 and the downwind station measured 184.4 millirem. The downwind station measured an ambient gamma exposure rate of 12.8 millirems higher than the upwind station during 1998. The difference in exposure rates were down in 1998 from the difference measured in 1997 (33 millirems).

License Condition 20 requires that the licensee submit semi-annual reports of radiological effluent and environmental data in accordance with 10 CFR 40.65 to assure public exposure to radiation is minimal. The inspectors reviewed the licensee's 10 CFR 40.65 reports submitted to the NRC for 1998-1999. The licensee reported no radionuclide liquid effluents released to the surface unrestricted area.

4.3 Annual Land Use Survey

License Condition 21 requires that the licensee conduct an annual survey of land use in the area within 5 miles of the mill and submit a report of this survey to the NRC each year. The inspectors reviewed the licensee's 1998-1999 land use survey records that were submitted to the NRC. No changes were reported in the land use area within 5 miles of the restricted boundary surrounding the site.

4.4 Public Dose Assessment

The inspectors performed a public dose assessment to ensure that the site operations did not cause a total effective dose equivalent in excess of 100 millirem per year to individual members of the public specified in 10 CFR 20.1301(a). The environmental monitoring data for 1998 was used in the assessment. The nearest resident was located approximately 4.8 miles from the site. The inspectors noted that the Rn-222 concentrations, air particulate samples and ambient gamma monitors, all resulted in exposures well below the 100 millirem limit. The inspectors concluded that site operations had a negligible impact on the nearest resident.

4.5 Groundwater Corrective Action Program

License Condition 47.A requires that the licensee implement a groundwater compliance monitoring program. In accordance with License Condition 47.A, the licensee is required to sample eight wells on a semi-annual basis. The inspectors reviewed the licensee's 1998-1999 semi-annual effluent reports. Based on this review, the inspectors determined that the licensee collected all groundwater samples as required.

License Condition 47.B lists four point of compliance wells, 5-DC, 19-DC, 5-SC, and 51-SC. On October 6, 1998, the licensee's Compliance Monitoring Program (CMP) became effective and also received concurrence on alternate concentration limits for

groundwater standards. The inspectors reviewed the 1998-1999 compliance monitoring reports. All POC well parameters were below the ACL limits established by the NRC. Most wells showed improvement or no change in concentration limits.

4.6 Conclusions

The licensee had effectively implemented the environmental and effluent monitoring program and was in compliance with the applicable license requirements. Review of the licensee's documentation and the semi-annual effluent reports revealed that the licensee met the dose limits for individual members of the public specified in 10 CFR Part 20.

5 Exit Meeting Summary

The inspectors presented the preliminary inspection results to the representatives of the licensee at the conclusion of the inspection on April 12, 2000. Licensee representatives acknowledged the findings as presented. The licensee did not identify any information reviewed by the inspectors as propriety information.

ATTACHMENT 1

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Ronald A. Juday, Supervisor
Stephen J. Pfaff, Radiation Coordinator

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
mr/hr	millirems per hour
PDR	Public Document Room
RSO	radiation safety officer
RWP	radiation work permit
TLD	thermoluminescent dosimeter

Attachment 2 is photos - See ML003715011