



PDR

40-8698

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R. B. Sewell  
Manager of Operations

September 6, 1979

Mr. Jack Rothfleisch  
Nuclear Regulatory Commission  
7915 Eastern Avenue  
Silver Spring, Maryland 20910

Re: Docket #40-8698

Dear Mr. Rothfleisch:

Enclosed are page revisions dated September 6, 1979 to Plateau Resources Limited's Environmental Report dated May, 1978 and Source Material License Application dated May 8, 1978, in accordance with recent telephone conversations with you. Included in these revisions is an update of Mr. Jay Davis' resume to incorporate more detail of his past experience and expand on his activities.

Sincerely,

R. B. Sewell  
Manager of Operations

Encls.

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Revisions to

Application for a Source Material License

SHOOTERING CANYON URANIUM PROJECT

GARFIELD COUNTY UTAH

For

Plateau Resources Limited

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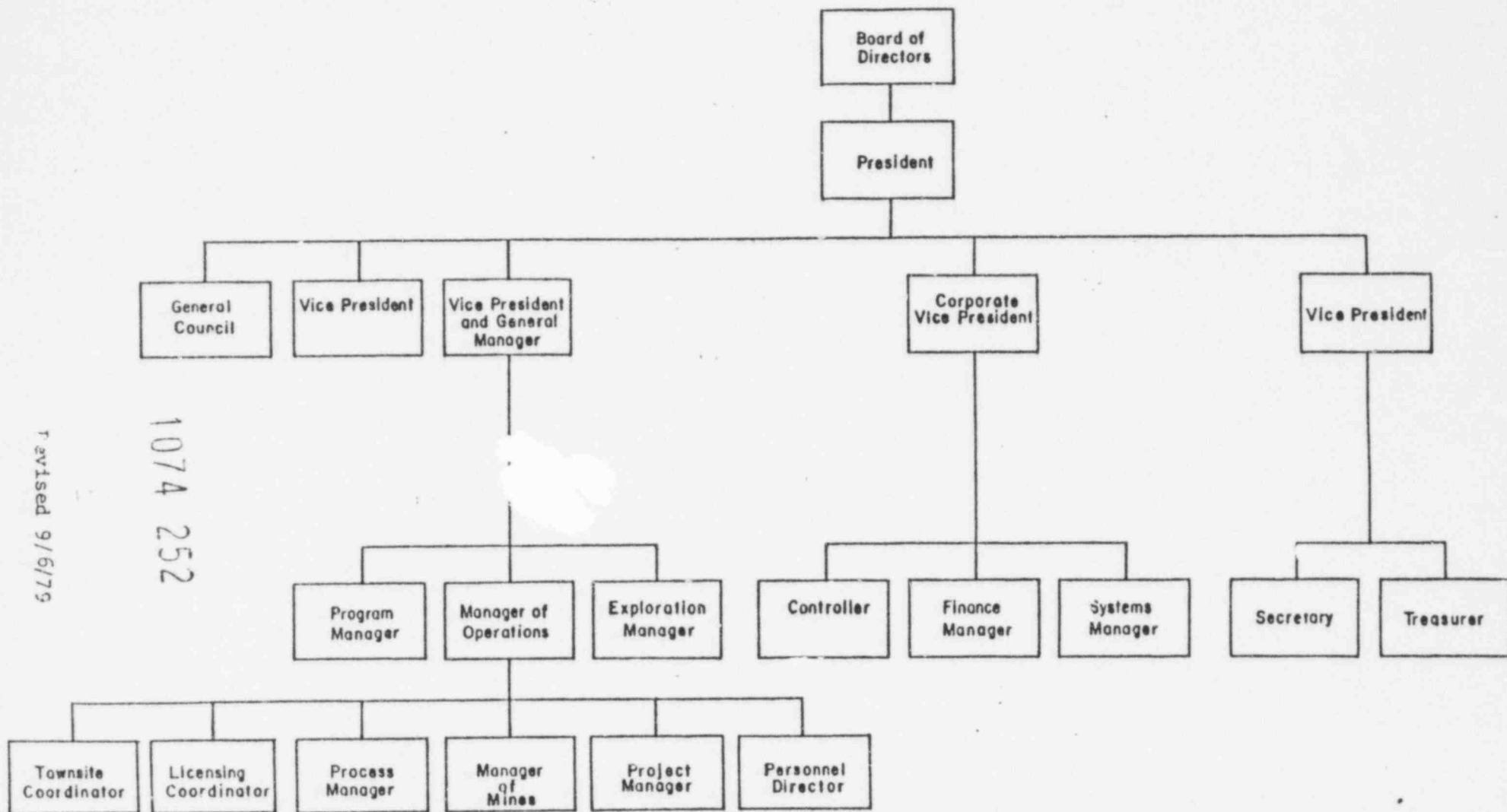
### 5.1 Corporate Organization

Figure 5-1 shows the corporate organization of Plateau Resources Limited. The management organization for the construction and operation phases of the Shootering Canyon project are presented in Figures 5-2 and 5-3, respectively.

The Vice President and General Manager of PRL (Figure 5-1) has the responsibility for all production and support operations. He has the full authority to deal with all problems related to the operation of the Shootering Canyon processing facility. He is responsible for assuring the implementation of the quality control and quality assurance programs for the facility. The operational responsibilities and authorities of the Vice President and General Manager in respect to quality assurance, and operations, maintenance, environmental and radiological health, and quality control are delegated to the Program Manager and the Manager of Operations, respectively (Figure 5-1). Also reporting to the Vice President and General Manager is the Manager of Exploration, who is responsible for the mineral property exploration and acquisition program.

The Process Manager, Mine Manager, Project Manager, Licensing Coordinator, Townsite Coordinator and Personnel Director report directly to the Manager of Operations (Figures 5-1, 5-2 and 5-3). The Process Manager is responsible for operation of all processing facilities as well as ore purchases. The Project Manager is responsible for the engineering and construction of the processing facility and is charged, through the Vice President and General Manager and Manager of Operations, with the responsibility and authority to implement and conduct the quality control program. During the engineering and construction phase of the processing facility, the Project Manager is assisted in performance of the responsibilities by the Technical Superintendent and the construction

1074 251



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1074 252

Figure 5-1. CHART OF ORGANIZATION - PLATEAU RESOURCES LIMITED

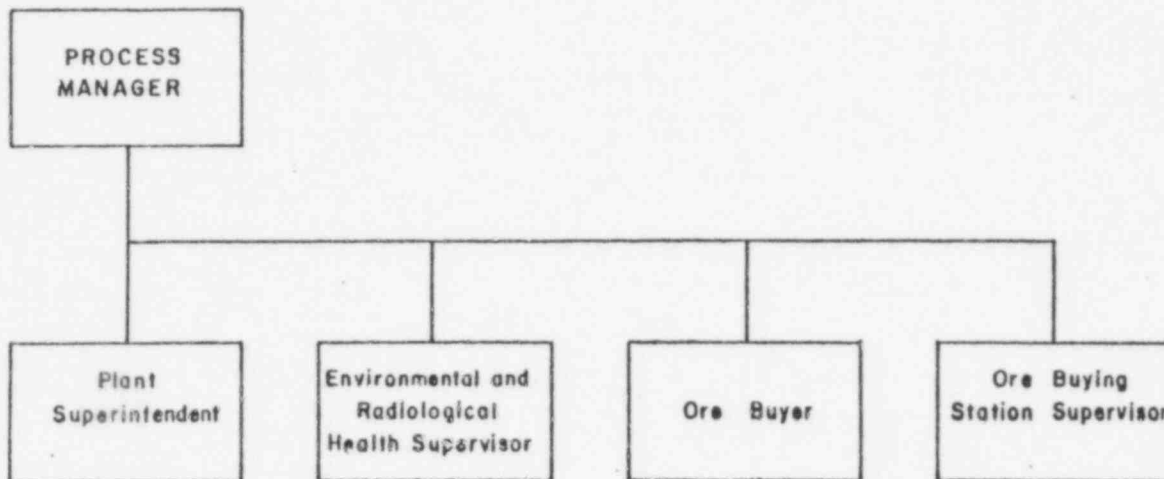
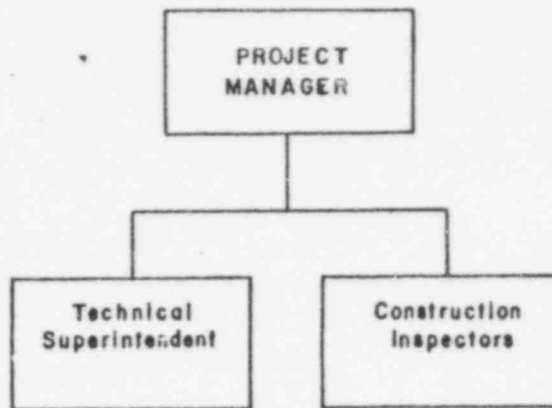


Figure 5-2. CHART OF ORGANIZATION - SHOOTERING CANYON PROCESSING FACILITY, ENGINEERING AND CONSTRUCTION PHASE

inspectors, who all report directly to the Project Manager (Figure 5-2). During the operation of the facility, the Plant Superintendent reports directly to the Process Manager and has the authority to conduct plant operations, maintenance and the quality control program. He is also responsible for the development, review, implementation and adherence to operating procedures and routine and non-routine maintenance activities. He has the authority to approve and make changes in these procedures and programs. The Plant Superintendent is also responsible for adherence to the environmental and radiation health procedures. The Plant Superintendent is assisted by the Laboratory Supervisor and the Technical Superintendent. The Environmental and Radiological Health Supervisor also reports directly to the Process Manager and has the responsibility and authority to develop and implement the environmental and radiological health and safety programs including preparation and maintenance of written operating procedures specifically for the radiation safety and environmental monitoring and control programs. He supervises all facility radiation protection and environmental survey, sampling and monitoring programs, maintenance of radiation exposure and survey records. He has the authority to cancel, postpone or modify any plant operation or activity upon detection of unusual radiological hazards.

The management control program is described in Section 7.0 of this application. This program contains provisions to ensure that all routine operational activities are conducted in accordance with written procedures that have been reviewed and approved by the environmental and radiological health staff. These operating procedures will be reviewed at intervals not to exceed one year. The program also includes a work order system covering non-routine functions, such as maintenance activities, that are not covered by operating procedures. All work orders are required to be reviewed and approved by the environmental and radiological health staff prior to their implementation.

The management audit and internal inspection program, including types and scopes of reviews, audits, and inspections, and individual responsibilities, is described in Section 7.0 of this application. PRL is committed to maintaining as low as reasonably achievable (ALARA) exposures for personnel and ALARA effluent releases. One of the primary objectives of the plant design (refer to Section 3.0 of the

this form is provided in Appendix B. Employees will be allocated adequate time to examine the documents described above, followed by a question and answer period for further clarification. The initial briefing will include a plant walk-through with particular emphasis on the employee's specific work area.

### Exposure Abatement

Exposure abatement is a two-fold problem; i.e., external and internal. Employees will be instructed in proper work scheduling in order to minimize the time spent in any area which poses a significant external radiation dose. Minimizing exposure to significant concentrations of airborne radioactive material will be the most detailed portion of the training program. Employees will be instructed on the modes of entry of radioactive materials into the body; i.e., ingestion, inhalation, absorption through the skin, and absorption directly in the bloodstream.

To limit ingestion, mouth pipetting is prohibited. The consumption of cigarettes and foodstuffs is not allowed in areas where radioactive materials are handled or stored. In addition, a thorough washing is required after handling any radioactive substance.

To limit exposure by inhalation, all employees will be supplied with an approved respirator as required. Those individuals assigned to areas requiring the use of a respirator must be deemed physically able to perform the work and use the respiratory protective equipment. A physician is to make this determination prior to assignment of the worker and is to review the medical status of each respirator user at least annually.

Respiratory protection will be required to be used by all personnel working in the yellowcake drying and packaging areas.

Respirator protection will be required for employees if airborne levels are likely to exceed 25 percent of MPC. PRL's respiratory protection program is based on Regulatory Guide 8.15, "Acceptable Programs for Respiratory Protection" and NUREG-0041, "Manual on Respiratory Protection Against Airborne Radioactive Materials." This program will be directed by the ERHS.

### On-The-Job Training

The continuing on-the-job training will be carried out informally, primarily by the workers' immediate supervisor, but supported by the Radiological Health Supervisor. This training will be very specific for the job the particular worker has been assigned. It will generally cover the same training as the initial briefing, but will also include emergency procedures.

### Safety Meetings

Monthly radiological safety meetings lasting at least 30 minutes will be attended by all workers and supervisors. These meetings will generally consist of a film or other educational aid followed by open discussion. The use of films and other aids will facilitate the training of all employees in recent advancements in radiological health protection. The open discussion will allow employees to voice ideas, questions, and grievances concerning radiological health protection; thereby involving all levels of the company in maintaining a viable and safe radiological safety program.

### 5.4 Security

The boundary limits of the processing facility will be posted and enclosed by a fence restricting the area to people and large animals, such as cattle. The process plant, run-of-mine ore lay-down patio, ancilliary facilities (such as laboratory, office building, warehouse and maintenance facilities, electrical power distribution, reagent storage, and water wells), and the entire tailings disposal area will be located within the boundary limits of the facility. Gates will control the designated points of access to the facility. Posted signs strategically located, will state "Keep Out - Restricted Area," for such areas as the tailings impoundment. Similar warning or information signs will be posted in pertinent locations.

1074 256



An essential feature of any program is periodic evaluation of the adequacy of the program and of its implementation at the processing facility. The program provides for periodic audits of the operation of the quality control program and for audits and/or evaluations of the effectiveness of the program itself. These audit functions may be carried out by members of the staff of Plateau or by outside personnel, or by a combination of these. Where outside personnel are used in any phase of this audit and evaluation, the same criteria for performance of the quality related functions will be applied as required by the Plateau Program. The portion of the program described in this paragraph is hereinafter referred to as quality assurance.

#### Organization and Responsibilities

Organizational responsibilities and authorities are described in section 5.1, pages 11-16 of this application.

The Program Manager will review the quality control program to assure that it complies with the objectives of this plan. Differences of opinion between the Program Manager and the Manager of Operations' staff will be resolved by the Vice President and General Manager. The Program Manager may receive assistance from members of the operations organization in the discharge of his responsibilities in the quality assurance program related to health and safety activities. In the event the Program Manager obtains such assistance in connection with audit, inspection and evaluation activities, in no case shall any operations employee participate in an inspection, audit or evaluation of activities which are directly under his supervision or which he performed.

#### Quality Control Responsibilities

Responsibilities relating to the Quality Control Program are assigned as follows.

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1074 258

## Design and Engineering Phase

During design and engineering, the Project Manager will be responsible for assuring that design documents are reviewed for conformance with design criteria. Special attention will be directed to the suitability of design and/or specifications related to the following:

- The proper control of dusting through the use of dust collectors, enclosure of equipment, etc., particularly in operations involving 1) ore handling, grinding, sampling, and storage and 2) ammonium diuranate calcination and yellowcake crushing and packaging.
- The proper control of ventilation to minimize release of radon-222 to working areas and to otherwise minimize the dusting of radioactive materials.
- The proper design of the tailings impoundment dam, particularly those features impacting on dam height and integrity, and resistance to wave action and erosion.
- The proper design and location of sampling wells around the tailings impoundment to permit the detection of leakage of radioactive materials from the impoundment.
- The proper design of tailings stabilization when the tailings impoundment is relegated to an inactive status.
- The general integrity of facility equipment design involved in the processing or storage of radioactive materials to minimize or prevent leakage of radioactive solids or liquids.

1074 259

Start-Up. Prior to facility operations, the Plant Superintendent will verify or cause to have verified:

- Proper operation of level indicators.
- Leak-tightness of process piping system.
- Separation of sanitary and process water system.
- Proper routing of drains.
- Operability of remote actuation valves.
- Proper function of the ventilation systems and air cleaning equipment.

Prior to facility operation, the environmental and Radiological Health Supervisor will verify:

- Operability of air monitors.
- Readiness of emergency equipment.

#### Operational Control

The Environmental and Radiological Health Supervisor will be responsible for radiation protection and environmental monitoring. He and/or his staff will:

- Develop and implement a radiation protection orientation and training program for all employees.
- Establish a program for training the radiation protection specialist(s).
- Perform annual reviews of training documentation to verify the adequacy of course content and training records.

1074 260

- Develop sampling and surveying procedures for radiation protection and environmental impact considerations.
- Review and approve procurement of radiation protection and environmental monitoring instruments and calibration standards.
- A weekly documented inspection of all work and storage areas with a report to the ERHS of any items of non-compliance affecting radiological safety.
- Perform monthly inspections of work and storage areas and practices with respect to radiation safety and perform monthly reviews of all monitoring and exposure data to ensure completeness, detection of abnormal conditions and adequacy of followup actions as well as to detect trends and/or deviations from the ALAR philosophy. The results of this review will be reported to the Process Manager.
- Quarterly review of the radiation instrument calibration records and procedures.
- Establish and maintain an overcheck program utilizing independent laboratories to verify sample analysis accuracy.
- Quarterly review of the overcheck program records to insure the detection and correction of discrepancies.
- Report semiannually by written report to the Manager of Operations, the Process Manager and the Plant Superintendent address any upward trends in monitoring or survey data, abnormal emissions, items of regulatory non-compliance and recommendations for necessary corrective actions. This report will also include an evaluation of the adequacy of implementation of the license conditions and ALARA philosophy.

The Plant Superintendent will cause the following to be performed:

- A documented visual inspection each shift of the tailings impoundment system.
- A daily documented visual surveillance of all mill areas by an operations foreman to ensure implementation of required radiation safety practices.

1074 261

## Deviations and Corrective Actions

If and whenever the Process Manager receives a communication identifying a problem or prospective problem in the milling facility which might be reasonably expected to create an unacceptable radiological safety condition in the facility or to increase the risk of off-site consequences of the plant's activities, he will immediately initiate an investigation designed to develop a plan for corrective action.

## Records and Reports

Records will be maintained to provide documentation of all quality control and quality assurance activities related to the environmental and radiological health program for a minimum of five years. The records will include the results of sampling, analyses, surveys, monitoring, and equipment calibration and training, reports of inspections and audits, subsequent reviews and investigations and corrective actions.

The Program Manager has the assigned responsibility of developing and maintaining an appropriate system for the collection, verification, filing and retention of all such records.

## Training

A training program will be established by the Environmental and Radiological Health Supervisor for all plant personnel which will include:

- principles of radiation safety
- radiological monitoring and analytical procedures
- radiation safety program of plant.

Personnel will be required to complete this training program prior to being assigned to work requiring minimum supervision.

A training program will be established by the Program Manager for all persons assigned to conduct inspections, audits and surveillance activities which will include:

- objectives of the inspection and radiological monitoring programs
- review of applicable regulations and Plateau Resources Limited license conditions inspection procedures

- audit principles, as they are applicable to the responsibilities of the particular individuals involved.

Personnel will be required to complete the training programs prior to initiating any inspection, audit, or surveillance activity.

### Audits

A system of planned and documented audits is intended to assure continuing compliance with the quality assurance program described herein for controlling the quality of work related to radiological safety in the facility. The responsibility for conducting, reporting and following up on these audits is assigned to the Program Manager and his staff. The audits will be conducted in accordance with a predetermined schedule using a check list covering the elements of the system which are to be audited.

Two categories of audits will be conducted: audits of the operations of the quality control plan and quality assurance system audits. The objective of the audits for the quality control plan is to evaluate the extent of compliance of the operating organization to the requirements of the plan. The audits will involve a review of the following:

- adherence to established procedures
- measurement quality control program
- inspection activities
- sample evaluation program
- measurement results
- nature of identified deficiencies and corrective actions taken in connection with these deficiencies
- adequacy of documentation
- training programs
- radiological health and safety program.

1074 263

The radiological safety audit will be conducted in two parts. The first part will be conducted semiannually by the Program Manager's office with internal assistance as required and will include a review of operating procedures, exposure records, monthly inspection reports, training programs and reports of safety meetings. The second part will be conducted annually by an outside consultant Radiation Health Physics Specialist who will inspect, review and evaluate the facility records, the program performance and adherence to the ALARA philosophy. One inspection will be conducted prior to start-up. Other audits will be conducted every six months during the first year of operations and annually thereafter. Quality assurance system audits will provide a biannual evaluation of the effectiveness and adequacy of the quality assurance system.

All audits will be documented and reported to the Vice President and General Manager, the Manager of Operations, and the Process Manager for review and initiation of corrective action on any deficiencies discovered during the audit.

1074 264



Appendix A

RESUME  
RADIOLOGICAL HEALTH  
AND  
SAFETY SUPERVISOR

NAME: Jay W. Davis

EDUCATION: Green River High, Green River, Utah (1965-1967) - course of study General.

Northeast Missouri State University, Kirksville, Missouri (summer 1966) - course of study Mathematics (went on a Grant, accredited course sponsored by National Science Foundation).

University of Nevada, Reno, Nevada (1967-1969) - course of study Geology and Chemistry.

Evaluation of Visible Emissions (February 1978), Utah State Division of Health. Bureau of Air Quality. Certificate received.

Environmental Protection Agency (March 1978), Seminar entitled "Clean Air Act" in Denver, Colorado.

Radiological Health Physics Course (June 1978), Lowell University, Lowell, Massachusetts. Certificate Received.

Radiation Monitoring and Control (February 1979), Mine Safety and Health Administration. Certificate received.

Rocky Mountain Center for Occupational and Environmental Health post graduate course "Park City Environmental Health Conference" in Park City, Utah (April 1979).

I have attended the State wide hearings in Utah on the State Implementation Plan to the Clean Air Act since the beginning of 1978.

Practical training in radiation safety at mine and leach facility for nine months.

I have pursued, on a personal basis, intensive studies of all phases of radiological health, particularly internal dosimetry as relates to uranium mining and processing.

I am currently pursuing a BS in chemistry from the University of Utah.

MEMBERSHIPS: Regular Membership - American Public Health Association

CERTIFICATIONS: Instructor Surface and Instructor Underground, all phases of MSHA required training (January 1979) Mine Safety and Health Administration. Certificate Received.

EXPERIENCE: HYDRO-JET SERVICES\* Green River, Utah, (3/1/78 through present) Environmental and Radiological Health Supervisor. Duties include the following: 1) Establish complete radiological and environmental programs for Blanding Ore Buying Station, R&D mill and mines; also, safety at the Blanding Ore Buying Station; safety program for the Ore Buying Station; 2) Select and/or develop all sampling, analytical calculations, calculations for radiological exposure control, decontamination, quality control, employee training and documentation procedures, establish industrial hygiene monitoring methods; 3) Select all equipment, sources, outside laboratories, etc. for 2. above; 4) Perform the above; 5) Review all operational procedures to verify that they are radiologically and environmentally safe; 6) Assist in and review design of ventilation systems for the Ore Buying Station and the proposed Shootering Canyon Uranium Processing facility; 7) Make routine and non-routine reports required within the company and with State and Federal regulating bodies; 8) Assist in developing the environmental report and subsequent documents for the full term ore buying station source material license and the proposed Shootering Canyon Uranium Processing Facility; 9) Assist in developing pre-operational monitoring programs for the proposed Shootering Canyon Uranium Processing Facility; 10) Implement the pre-operational monitoring program for the proposed Shootering Canyon Uranium Processing Facility; 11) Review the Ore Buying Station design to verify that it is radiologically and environmentally safe.

URANIUM ORE BUYING STATION (5/1/77 through 3/1/78) Analytical Chemist. Duties included: 1) Set up and equip laboratory for analyses of ore buying station process samples, metallurgical samples and radiological and environmental samples; 2) Select and/or develop procedures for the above analyses; 3) Perform the above analyses; 4) Establish and maintain quality control program as pertains to the above.

R&D URANIUM MILL (1/1/76 through 5/1/77) Lab Supervisor. Duties included: 1) Supervise analyses of mill process, metallurgical, radiological and environmental samples; 2) Select and/or develop procedures for the above; 3) Supervise metallurgical testing relating to mill process; 4) Maintain quality control program.

\*Hydro-Jet operations purchased 5/77 ; employment continued with Plateau Resources Limited.

1074 266

EXPERIENCE:  
(Cont.)

R&D URANIUM MILL (8/15/75 through 1/1/76) Chemist. Duties included:  
1) Routine and non-routine mill process and metallurgical sample analyses; 2) Routine and non-routine radiological and environmental sample analyses; 3) Perform metallurgical balance calculations and maintain process records; 4) Establish and maintain quality control program.

CELESCO INDUSTRIES, INC., Green River, Utah, (6/1/73 to 2/15/75)  
Electrical/Mechanical Technician in Operations Department.

UNITED CAMPGROUNDS, Green River, Utah (2/1/73 to 6/15/73), surveying and earth moving.

CELESCO INDUSTRIES, INC., Costa Mesa, California (1972 & 1973), aerospace electrical work; missile electronic assembly - trouble shooting; circuit testing; pre-flight electronics check-out.

SELF-EMPLOYED, Service Station Lessor (1970 & 1971) had five employees.

McCABE DRILLING, grouting contractor on dam construction. Had six employees.

1074 267

Revisions to  
Environmental Report

SHOOTERING CANYON URANIUM PROJECT  
GARFIELD COUNTY UTAH

For  
Plateau Resources Limited

1074 268

measure and record his exposures, detect exposure trends, and define areas where exposures could be reduced.

Supervisory personnel will be trained and familiar with all facets of the project. Nonprofessional employees will be thoroughly trained on the job and will receive instruction in radiological, health, and safety precautions.

Personnel Monitoring. External radiation exposure of individual employees will be monitored by a dosimeter system provided by a contract service.

Employees working in the product precipitation, drying, and packaging areas will wear thermoluminescent dosimeters (TLDs) or film badges with a sensitivity range of 1 to 1000 millirem (mrem) during a minimum of three nonconsecutive calendar months in any calendar year. The dosimeter will be worn during working hours for a period of one month, then returned to the supplier for measurement. The ERHS will prepare and issue periodic exposure summaries. The calculated cumulative exposure of each employee in the radiation dosimeter program will be filed in accordance with 10 CFR 20.102 and 10 CFR 20.401.

Employees working in areas where continuous duty could result in exposure approaching or exceeding 25 percent of the standards expressed in 10 CFR 20.101 will wear dosimeters during all working hours. Any dosimeter indicating an exposure exceeding 25% of the maximum permissible exposures listed in 10 CFR 20 will initiate prompt corrective action as required to reduce exposure levels to as low as reasonably achievable.

In addition, spot surveys for alpha contamination will be performed and documented quarterly by PRL on all employees leaving the plant area. Alpha contamination levels on skin or clothing in excess of 1000 dpm/100 cm<sup>2</sup> shall require additional decontamination and investigation by radiation safety staff.

Area Monitoring. The restricted area will be monitored quarterly to determine the levels of external radiation present at representative locations. Measurements will be made using an Eberline Model 520 Geiger counter or equivalent. Two units of this type will be available.

1074 269

The instruments will be checked at each use against a source and they will be calibrated at six-month intervals.

Results of the survey will comply with 10 CFR 20.101 and 20.401. Locations of the specific points to be surveyed within the plant are shown in Table 6.2-1. Additions or deletions will be made to this list as indicated by monitoring data. In addition to the sample locations given in Table 6.2-1, several points around the tailings disposal area will be monitored.

Monitoring of other areas and nonemployee personnel and vehicles will be done as necessary to ensure compliance with applicable regulations.

Sources of radiation other than material will be monitored to detect leaks from sealed sources and for adequate shielding of x-ray equipment. Such monitoring will include density measuring devices and analytical x-ray equipment.

Airborne Radioactive Material. Airborne radioactive material concentrations will be determined at specific work locations within the restricted area. A time study will be conducted and updated at least annually to determine the amount of time spent by employees in each job category in those areas covered by the in-plant airborne radiation monitoring program. The information along with the general area and breathing zone airborne radiation concentration data will be used to calculate time weighted exposures. A computer program or equivalent method will be used to determine weekly, monthly, and quarterly exposures for each facility employee. When non-routine maintenance is performed, accurate time records will be kept and, together with the results of special area or breathing zone samples taken over this period, will be used to determine employee exposure.

If an employee reaches an action level of 25% of maximum permissible exposure based on calculated TWE (time weighted exposure), the ERHS will initiate an investigation of the employees' work record and exposure history to identify any problem areas. If any problem areas are noted, they will be studied and the necessary corrective measures will be taken to ensure reduction of future exposure to as low as reasonably achievable.

Samples will be collected monthly for a minimum of 60 minutes each at each location listed on Table 6.2-2. These locations were selected on the basis of expected employee occupancy and potential sources of airborne radioactivity. Each sample filter will be analyzed for uranium. In addition, analyses for Radon-226, Thorium-230 and Pb-210 will be performed semiannually for a representative sample from each location. Special area samples will be taken during all non-routine maintenance of yellowcake processing equipment.

Table 6.2-2. AIRBORNE RADIATION SAMPLE LOCATIONS

---

Ore jaw-crusher feed hopper area  
Ore conveyor gallery  
Secondary crusher area  
Ore picking and screening area  
Ore sampling plant area  
Ore sampling preparation area  
Fine ore loading area  
Fine ore discharge area  
Rod mill feed area  
Rod mill discharge area  
Leach tank area  
Contercurrent Decant thickener area  
Solvent Extraction extraction section area  
Solvent Extraction stripping section area  
Yellowcake precipitation tank area  
Yellowcake thickener area  
Yellowcake drum filter area  
Yellowcake drier area  
Yellowcake packaging area  
Yellowcake storage area  
Laboratory area  
Lunch area  
Change room  
Maintenance shop area  
Shift foreman office  
General office area

1074 271

Personnel required to perform nonroutine activities likely to cause an increase in concentrations of airborne radioactive material in excess of the maximum permissible concentration (as shown in 10 CFR 20) will wear individual air samplers while performing these activities. The results will be used in exposure calculations for these personnel. In addition, personnel throughout the plant will for at least a full shift on a quarterly basis wear individual air samplers. Results from this program will be used to confirm general area results. Individual air samplers are calibrated, battery-powered air pumps with air filters, such as MSA No. 92813 or the equivalent. Natural uranium content of dust collected will be measured by fluorimetric methods.

Radon daughter surveys will be made periodically to check exposures and ventilation equipment. In addition, rapid working level measurements will be made periodically to obtain supplemental readings and for emergency situations where such a quick measurement would be desirable.

The following equipment will be used for airborne radioactive material monitoring:

- Counting equipment: two Eberline PS-1 and SPA-1 detectors or equivalent. The instruments will be checked at each use against a source and will be cross-calibrated every six months in a laboratory using a scintillation alpha counter.
- Instant working level meter: an MDA Scientific instant working level meter or equivalent. The meter will be checked against a source at each use and calibrated at six-month intervals.
- Eberline Model 08-600 high-volume samplers or equivalent.

Bioassay. A bioassay program will be conducted at the plant using appropriate parts of Regulatory Guide 8.11 as a guide. Annual in vivo tests will be performed on personnel in selected area of the plant.

Urinalysis for plant employees will be performed semiannually. Adjustments will be made based on experience. Bioassay measurements in conjunction with unusual incidents, such as fire, spills, equipment malfunctions, or other departures from normal operations, will be addressed in the detailed emergency procedures manual. Any result of 20 ug/l of

1074 272



uranium or higher will dictate a repeat sampling for confirmation. If the data are confirmed, an evaluation of work habits, work area, and use of protective equipment will be conducted and sampling will be accelerated. Any confirmed level above 40 ug/l will trigger work area restrictions for the affected employee.

Good Housekeeping Practices and Clean Area Monitoring. Employees will be issued standard safety equipment, including safety shoes, glasses, and hardhats as appropriate. In addition, they will be required to wear chemical goggles and rubber gloves when handling hazardous liquids. If nonremovable radionuclides accumulate on the safety equipment, it will be disposed of in an approved manner and new equipment will be issued.

A complete change of outerwear will be provided to protect persons required to work in yellowcake product areas or to perform maintenance on equipment from these areas. This outerwear will not be permitted beyond the plant confine. Showers will be required at the end of each shift.

Showers, change rooms, and laundry facilities will be located in the plant and available to all mill personnel so that they may leave their work clothes at the mill. All employees will be required to either shower or monitor themselves for alpha radiation contamination with a survey meter at the change room exit before leaving the restricted area. If clothing is not changed it will be monitored. Daily shower and clothing change records will be maintained.

"Clean" and "dirty" areas will be designated to prevent cross-contamination. Product area operators will be required to follow a strict clothing change procedure at the beginning and end of each shift. At the beginning of a shift, these operators will deposit their street clothes in the clean area and put on company-furnished clean outerwear before proceeding through the "dirty" area into the plant. At the end of a shift, the operators will enter the "dirty" area, where they will deposit their outerwear into a receptacle and then proceed to the shower room for a shower. Before entering the clean area, these employees will be monitored for radiation contamination. If the measurements exceed 2200 disintegrations per minute (dpm) per 100 square centimeters (cm<sup>2</sup>) of beta-gamma radiation or 220 dpm/100 cm<sup>2</sup> of alpha radiation, then decontamination procedures will be instituted. Decontamination will be accomplished to 500 dpm/100 cm<sup>2</sup> beta-gamma radiation or 50 dpm/100 cm<sup>2</sup>

alpha radiation. After monitoring, the operators will then proceed to the clean area, change to street clothes, and leave the plant.

All dirty laundry, including coveralls and towels, will be laundered at the plant. All wash water from the laundry and the showers will be returned to the process.

Surface contamination in the lunchroom, laboratory, change room, control rooms and administrative offices will be monitored weekly (both smear and total contamination). An Eberline PAC-L-SAGE alpha survey meter and an Eberline Model 520 Geiger counter or equivalents will be used. The action level will be 1000 dpm/100 cm<sup>2</sup> of beta-gamma contamination or 100 dpm/100 cm<sup>2</sup> of alpha contamination. Both survey and decontamination procedures will be conducted in conformance with Annex C, "Guideline for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated November, 1976. Areas showing activities greater than Annex C limits will be decontaminated and resurveyed and an investigation will be conducted by the ERHS to determine and to take prompt action to correct the cause for the activity.

A shift superintendent will conduct and document a daily visual surveillance of all mill areas to ascertain proper implementation of radiation safety practices including good cleanup practices to minimize unnecessary surface buildups of radioactive particulates.

#### Environmental Radiological Monitoring Program

Ionizing Radiation. Aerial ionizing radiation will be monitored by the use of thermoluminescent dosimeters (TLDs) at nine sites in the project vicinity (Figure 6.2-1). The TLDs will be mounted 3 feet

1074 274