



# COLORADO DEPARTMENT OF HEALTH

Richard D. Lamm  
Governor

Frank A. Traylor, M.D.  
Executive Director

December 5, 1980

G. Wayne Kerr, Director  
Office of State Programs  
Mail Stop 7210A  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Wayne:

Thank you for your letter dated October 15, 1980 and received October 20th, in which you transmit comments and questions on the draft license for the Pioneer Uranium, Inc. ore buying station near Slick Rock, Colorado.

The Pioneer buying station license had already been issued September 15, 1980. A copy is enclosed.

Also enclosed is a copy of the Department's response to a National Wildlife Federation letter dated August 11, 1980. NWF's followup with your office of the August 11th letter evidently prompted your reviewer's special attention to the Pioneer draft license.

Division staff generally acknowledges your comments. Some suggestions paralleled changes made in the final license. Others indicate that certain provisions may have been misread or misunderstood. A telephone call might have been useful.

Division staff remain persuaded that licensee commitment to regulatory guidance, which describes "methods acceptable to the NRC staff of implementing specific parts of the Commission's regulations", should be reinforced by license condition. Staff also is persuaded that final drawings are appropriately required just prior to actual construction or operation.

In order to better compare stipulations of our respective licenses, the Department requests a copy of each uranium recovery license issued by NRC after November 17, 1980. Of particular interest would also be copies of ore buying, mechanical ore sorting, or ore concentrating facility licenses.

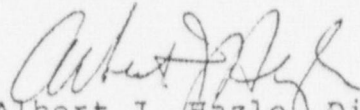
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G. Wayne Kerr  
December 5, 1980  
Page Two

Thanks again for taking the time to review the draft  
license and to provide your comments to the Department.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Albert J. Hazle". The signature is fluid and cursive, with the first name "Albert" being more prominent.

Albert J. Hazle, Director  
Radiation and Hazardous  
Wastes Control Division

AJH/KLKW/dw  
Enclosures  
cc: K. Hamill, NRC  
S. Lange, Pioneer

NOTES IN RESPONSE TO NRC PIONEER DRAFT  
ORE BUYING STATION COMMENTS AND QUESTIONS

Paragraph 1. No Comment

2. The word "may" in line 2 is gratuitous. The license certainly modifies and adds to (overrides) licensee commitments in other documents.

Major topics of course receive the most reviewer attention. Conflicting statements which are detected are resolved. Meticulous cross-checking, phrase-by-phrase, between each and every document submitted by an applicant is neither necessary nor likely done by NRC any more than state staff. LC 10C provides a means of resolving conflicts that remain because of oversight, which occurs occasionally when one document amplifies another.

- .3 All applicable permits should indeed be obtained before the license issues. However, certain agencies, e.g., the Mined Land Reclamation Board in Colorado, may be unable to issue their permit before the RML is issued. The most obtainable may be an assurance that a permit is likely to be issued. However, based on the phrase "before beginning operation under this license", the provision for verification of "satisfactory progress" was deleted.



Financial surety arrangements should indeed be executed before the license issues. The NRC reviewer failed to keep in mind a draft license was under review, with the surety not necessarily yet final. In addition, time of execution may vary; of significance is that the license not become effective until the surety is in place.

LC 28A(1) and A(2) are questions of detail for Department records. Plans were reviewed and approved.

4. Breach of surface runoff diversion ditches or catchment-evaporation ponds can erode ore stockpiles or carry ground dust off site.
5. LC 22F was modified by explicitly stating the page in the licensee's application which commits to RG 8.10. The reviewer failed to ascertain whether documentation of the ALARA review was available. The final phase of LC 22F means that departures from RG 8.10 require prior approval by the Department.
6. LC 23A also allows for fallibility. The specific monitoring program in 22B is designed to demonstrate necessary compliance and was so determined by the Department. Changes are usually needed based on experience during actual operations. LC 23A provides the basis for requiring such upgrading.



Regarding bioassay, LC 23C was modified by explicitly citing the page in the licensee's application which contains the commitment. Documentation of review was available.

7. The language of LC 24C is modified from NRC licenses (e.g. SUA-1350, LC 19). The reviewer failed to take note of the "not otherwise identified" phrase.
8. As previously for LC 22F and LC 23A, the reviewers comment on LC 25 was beside the point.
9. Neither Department nor NRC regulations specify decontamination limits. Like NRC, the Department provides a regulatory position to licensees. Unlike this regulatory guidance is not as referenced by license condition.
10. The bond amount would not have been set without assessing its adequacy.

**COLORADO DEPARTMENT OF HEALTH**

Richard D. Lamm  
Governor



Frank A. Bickel, M.D.  
Executive Director

November 26, 1980

Mr. Luke L. Danielson, Counsel  
National Wildlife Federation  
Natural Resource Clinic  
Fleming Law Building  
Boulder, CO 80309

Dear Mr. Danielson:

Thank you for your letter of August 11, 1980, concerning the Department's draft license for Pioneer Uranium, Inc.'s proposed ore buying station near Slick Rock, Colorado.

The Division always is grateful for useful comments and tries to acknowledge their receipt. Division staff, as a matter of policy, consider public comments before making a final recommendation concerning issuance of a license or conditions of licensure. However, in some instances, the volume of comment, in combination with staff workload and priorities, dictates that the Division cannot respond individually on an item-by-item basis.

Please also find enclosed an October 15, 1980 U.S. Nuclear Regulatory Commission letter concerning the Pioneer draft license. Certain of the NRC staff's misapprehensions simply reflect not comprehending alternate, potentially more protective, licensing approaches. The Department's approach to radioactive materials licensing attempts to be neither too permissive nor too rigid.

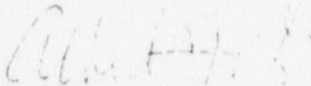
Enclosed are brief responses to the National Wildlife Federation comments of August 11. The language of several license conditions was clarified or modified pursuant to your letter.

As you know, the Department welcomes public comment at any time. The Pioneer application, Environmental Report, and Design Report were sent to the Denver Public Library Energy and Conservation Library May 25, 1979 and have been available through the Colorado Open Space Council as well as the office of this Division.

Mr. Luke L. Danielson, Counsel  
November 26, 1980  
Page Two

The Department made its final licensing decision on September 15, 1980. A copy of Pioneer's buying station license is enclosed. Thank you for your interest.

Sincerely yours,

  
Albert J. Hazle, Director  
Radiation and Hazardous  
Wastes Control Division

AJH/KLKW/dw

Enclosures

cc: W. Jacobi, RHW  
R. Griffith, AG  
S. Lange, Pioneer



RESPONSES TO AUGUST 11th COMMENTS  
BY THE NATIONAL WILDLIFE FEDERATION  
ON THE PIONEER URAVAN INC. DRAFT ORE BUYING STATION LICENSE

General Comments:

1. The Pioneer application, Environmental Report (ER), and Investigation and Design Report (DR) were sent to the Denver Public Library Energy and Conservation Library on May 25, 1979, are available from the Colorado Open Space Council and, of course, are available at the Department. Placement of loose-leaf notebooks containing agency comments and Pioneer responses was confirmed to the Department by letter July 2, 1980.

Neither statute nor regulation require a formal public comment period. The Department welcomes comment at any time. Public opinions on the San Miguel Project were received March 13, 1980 in Egnar and in numerous letters to the Department.

A 10-day comment period, which allowed for about a week from receipt of the document to the requested postmark date the following Monday, was considered appropriate for the ore buying station. The Department provides a 30-day comment period for milling projects.

After deciding to issue the draft license for comment, the Department determined that a brief, non-technical, explanatory summary would be useful, although not required.

2. License Condition (LC) 22A states:

The licensee shall operate according to and maintain a comprehensive written manual of administrative, operating, monitoring, and decontamination procedures, including instructions and precautions to keep radiation exposures and effluents as low as reasonably achievable (ALARA).

Such a written manual is not possible to provide at the time of application, before final designs are set and equipment chosen. LC 28A and LC 28C(3) insure that it will be available before operation. The ALARA manual will be incorporated into the license by amendment of LC 10A, replacing 10A(5) and 10A(8).

The license can be most readily understood as a hierarchy of constraints on the licensee's authorized use of the radioactive material. Rules and regulations are minimum standards which must be met. Regulatory policy, as stated in regulatory guides, for example, define acceptable approaches to providing the necessary public health and environmental protection. An applicant may propose alternative approaches and/or make commitments more protective than those suggested in regulatory guidance.

Incorporating the applicant's documents by reference adds specificity to the license. An applicant's statements are often more restrictive than regulations and regulatory guidelines. Their incorporation by license condition thus achieves a greater degree of health, safety and environmental protection and control.

Incorporating by reference part of the Environmental Report establishes a definite baseline, both through the descriptive language and the tabulations of pre-operational data, against which any changes can later be compared. To make this more clear, LC 10A has been modified to specify ER Chapters 2, 6, parts of 9, plus three appendices, as well as DR pages 5-34, plus appendices A and B.

Since the applicant's proposals may change in the course of interaction with reviewing agencies, final compilation by the licensee of its in-plant and environmental ALARA commitments into a single written manual clarifies and codifies the licensee's program and is useful both for the applicant and the Department.

To suggest that the Department prepare a "licensing document", other than the license, is to misunderstand the basic process of license review and approval. The project proponent applies for a radioactive materials license, describing the proposed project. If information on impacts and protections is inadequate, the Department requests additional details. If an applicant's preferred alternative does not adequately protect public health, safety and the environment, the applicant must modify its proposal or suggest an alternative.

If the Department determines that a proposal is acceptable, with certain stipulations, a license is drafted which reflects those stipulations in conditions of licensure. The license includes certain general and standard conditions, concerning which a

Section 3.0 explicitly states that agency written comments are on file for public review at the Department and repositories. Section 3.0 also serves as an index by agency to comments pertinent to given interest areas.

2. While not necessarily required for an ore buying station, such review was conducted by and is documented at the Department.
3. As stated previously, the application, ER, DR and other review documents are and have been available. Indications from staff at the Denver Public Library are that use of the uranium licensing shelf materials has been extensive.
4. The revised LC 10C is:

The following license conditions modify and add to commitments in the documents referenced in 10A above. If statements in documents conflict, the more restrictive statement shall control, unless determined otherwise by the Department.

5. LC 11 locates the licensee's property. LC 15A confines all construction to a subarea of the property. LC 16A delineates the boundary for which access control is required.
6. The reference to details of ownership, specified in LC 10A, Reference 5, item 10-1-2 is clear.
7. LC 13A was clarified to read:

The licensee shall have obtained all local, state and federal public health, safety, and environmental protection permits, before beginning operation under this license.

8. Regulatory Guide 4.14 is titled "Measuring, Evaluating, and Reporting Radioactivity in Releases of Radioactive Materials in Liquid and Airborne Effluents From Uranium Mills" (emphasis added). An appropriate operational monitoring program for an ore buying station is not necessarily as extensive, depending on the facility and site.
9. LC 25C is to be modified as follows:

- A. To 25C(5), add "the intersection of the East Branch of Nicholas Wash with the north exclusion area boundary and with the site (property) boundary on the south."



- B. Add 25C(6): "A contamination survey shall be conducted along the East Branch of Nicholas Wash, along Wash No. 1, and along Wash No. 2 from their northern intersection with the exclusion area boundary to Colorado Highway 141 on the south."
- C. Revise 25C(6) as 25C(7): "If observed or evidenced to have escaped catchment on site, surface water shall be sampled immediately, upstream and downstream from the point of escape, and analyzed for natural uranium, thorium-230, radium-226, and lead-210."

10. Thank you.

11. Data from a year of preoperational monitoring has been submitted. Pioneer is to prepare a comprehensive report of the initial data plus additional, subsequent data.

Like the ALARA manual, final engineering drawings are not usually available until after the license application is submitted.

The application discusses dust suppression measures in detail (Ore Buying Station Radioactive Materials License Application, pages 19-22), as does NUS-3200, "Prevention of Significant Deterioration Permit Application for the San Miguel Project", submitted to the U.S. Environmental Protection Agency.

Final choices by brand name of suppressants and their application protocols will be included in the licensee's ALARA manual, which must be reviewed and approved by the Department.

Even though the facility's offsite dose commitments are calculated to be less than one (1) millirem per year, the Department believes LC 288 offers an opportunity to implement the ALARA philosophy by achieving a further order-of-magnitude reduction in dusting, thereby relieving reliance on suppressants (and the attendant human judgment and behavior factor in their application).

12. LC 29 requires that the licensee's operational monitoring begin three months early.
13. Correspondence concerning reclamation plans, their cost, and the surety agreement is available for review at the Department. The Colorado Geological Survey and Division staff reviewed the plans and costs,

the Treasurer's office reviewed the inflation adjustment provision, and the Attorney General's office reviewed the legal language.

14. The location of the nearest resident is five (5) kilometers due west of the site, as specified in information supplied by Pioneer to the Department and NRC for modeling of offsite dose commitments.
15. LC 30 was added as follows:
  - A. The licensee shall, no more than 90 days after construction is essentially complete, and before operation begins, provide the following documentation, certified by a professional engineer, to the Department, and such agencies as the Department designates:
    - (1) As-built drawings of the ore receiving, sampling and crushing facility;
    - (2) As-built drawings of the ore storage facilities; and
    - (3) As-built drawings of all culverts, storm sewers, and runoff catchment-evaporation facilities.
  - B. The licensee shall provide the Department, and such agencies as the Department designates, a brief written explanation of any and all significant differences between facility plans as submitted, reference 4, condition 10A, of this license and the facility as built.

Present LC 30 is renumbered to LC 31.

STATE OF COLORADO  
DEPARTMENT OF PUBLIC HEALTH  
RADIOACTIVE MATERIALS LICENSE

Pursuant to the Radiation Control Act Title 25, Article 11, CRS 1973, as amended, and the Radiation Control Regulations Part III, and in reliance on statements and representations heretofore made by the licensee designated below, a license is hereby issued authorizing such licensee to transfer, receive, possess and use the radioactive material(s) designated below; and to use such radioactive materials for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations, and orders now or hereafter in effect of the Colorado Department of Health and to any conditions specified below.

Licensee 1 Name <b>PIONEER URANUM, INCORPORATED</b> (Pioneer Corporation)		3 License number Colo 418-025
2 Address <b>2516 Foresight Circle</b> <b>P.O. Box 2065</b> <b>Grand Junction, Colorado 81501</b>		4 Expiration date <b>September 15, 1985</b> 5 Reference number None
6. Radioactive materials (element and mass number) A. Natural uranium, natural thorium, and associated decay products.	7. Chemical and/or physical form A. Mine run ores and crushed mine run ores.	8. Maximum quantity licensee may possess at any one time A. 200,000 metric tons

CONDITIONS

9. Authorized use (Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.)
- A. For receiving, crushing, sampling, analyzing and stockpiling uranium- and thorium-bearing ores.
- 10.A. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in conditions 6, 7, and 8 of this license in accordance with statements, representations, and procedures contained in the licensee's
- (1) Ore Buying Station Application, submitted April 18, 1979;
  - (2) San Miguel Project Environmental Report (chapters 2 and 6; sections 9.1 and 9.4; appendices 1, 2, and 3), submitted January 19, 1980;
  - (3) San Miguel Project Investigation and Design Report (page 5-34; appendices A and B), submitted January 19, 1980;
  - (4) Davy-McKee drawings submitted September 3, 1980, and Ore Buying Station and Site Plot Plans (OBS);
  - (5) Letter dated May 13, 1980, with enclosures;
  - (6) Bond for Performance of License Requirements (Financial Surety), dated August 26, 1980;
  - (7) Letter dated July 1, 1980;
  - (8) Letter dated February 5, 1980 (with enclosures).



STATE OF COLORADO  
COLORADO DEPARTMENT OF HEALTH  
RADIOACTIVE MATERIALS LICENSE

License Number Colo-418-025

10. continued.

- B. The Rules and Regulations Pertaining to Radiation Control, as updated by the State Board of Health and as interpreted from time to time by policy directive of the Division of Radiation and Hazardous Wastes Control ("the Division"), shall govern the licensee's statements in applications and letters, unless the statements are more restrictive than the regulations.
- C. The following license conditions modify and add to commitments in the documents referenced in 10A above. If statements in documents conflict, the more restrictive statement shall control, unless determined otherwise by the Department.

11. Authorized place of use:

The licensee's facility in Township 44 North, Range 18 West, N.M. P.M., San Miguel County, Colorado (approximately 3.8 miles east of Slick Rock):

Section 26: SW1/4, S1/2 SE1/4, N1/2 SE1/4.  
Section 27: NE1/4, E1/2 NW1/4, SE1/4.  
Section 34: N1/2 NE1/4.  
Section 35: All.

(except those tracts previously conveyed for road and highway purposes).

- 12. The licensee shall provide the Department with written notification of any proposed change in property ownership from that described in item 10-1-2, reference 5, condition 10A of this license.

STATE OF COLORADO  
COLORADO DEPARTMENT OF HEALTH  
RADIOACTIVE MATERIALS LICENSE

License Number --Colo 418-025--

13. A. The licensee shall have obtained all local, state and federal public health, safety and environmental protection permits, before beginning operation under this license.
- B. Within the scope of the applicable statute and lawful regulations thereunder, the licensee shall operate in full compliance with the regulatory requirements of every other Division of the Department and each non-Department permitting agency.
- C. The licensee shall notify the Division of all applications to each permitting agency for significant permit modification or renewal.
14. A. This license shall not become effective unless and until the licensee has properly executed a surety agreement and delivered to the State surety instrument(s) necessary and sufficient to cover decommissioning, decontamination, and reclamation of the facility and site.
- B. The license shall maintain all surety instruments in effect until final action on any renewal is taken by the Department.
15. A. The licensee shall confine all construction to the facilities designated in the "OBS Plot Plan", reference 4, condition 10A of this license, and to the area bounded as shown in Davy-McKee drawings 00-21-005 (OBS) and 00-21-006 (OBS), reference 4, condition 10A of this license.
- B. The licensee shall not disturb additional areas or construct additional facilities without a license amendment.
- C. The licensee shall not disturb, nor permit others to disturb, either directly or indirectly, any identified cultural resource site, except as authorized in writing by the Department, or by such other agency as the Department may designate.
- D. The licensee shall have an archaeological survey conducted, and approved by such agency as the Department may designate, before disturbing any presently undisturbed soils or sites which have not been subject to an appropriate, detailed archaeological survey.

STATE OF COLORADO  
COLORADO DEPARTMENT OF HEALTH  
RADIOACTIVE MATERIALS LICENSE

License Number Colo 418-025

16. A. The licensee shall fence and post the exclusion area boundary as in Davy-McKee drawings 00-21-005 (OBS) and 00-21-006 (OBS), reference 4, condition 10A of this license, in accordance with RH 4.11 of the Rules and Regulations Pertaining to Radiation Control.
- B. The licensee is hereby exempted from the requirements of RH 4.11 for areas within the exclusion area boundary, provided all entrances to the property are conspicuously posted with the sign: Any Area or Container on this Property May Contain Radioactive Materials.
17. The licensee shall operate the facility in accordance with references listed in Condition 10A, at a rate not to exceed 350,000 metric tons per year or 1,100 metric tons per day on a yearly average.
18. Radioactive material shall be used by or under the supervision of the Manager, the Environmental/Radiation Safety Engineer, or such other person as the Department authorizes in writing. An authorized user shall be on hand or immediately available at all times during facility operation.
19. The licensee shall obtain a license amendment for any significant changes in the facility process circuit described in reference 1 and illustrated in ("Pictorial Flowsheet: Coarse and Fine Ore"), Davy McKee drawing 00-11-14, reference 4, condition 10A of this license.
20. The licensee shall immediately suspend operation in affected areas of the facility if any emissions control equipment fails to operate.
21. The licensee shall immediately upon discovery notify the Director, Radiation and Hazardous Wastes Control Division, Colorado Department of Health, 4210 East 11th Avenue, Denver, Colorado (telephone 303-320-8333) by telephone and telegraph of any failure or imminent threat of failure in any diversion or retention system which results or may result in a release of radioactive material into unrestricted areas. This requirement is in addition to the requirements of Part IV, State of Colorado Rules and Regulations Pertaining to Radiation Control.



STATE OF COLORADO  
COLORADO DEPARTMENT OF HEALTH  
RADIOACTIVE MATERIALS LICENSE

License Number Colo 418-025

22. A. The licensee shall operate according to and maintain a comprehensive written manual of administrative, operating, monitoring, and decontamination procedures, including instructions and precautions to keep radiation exposures and effluents as low as reasonably achievable (ALARA).
- B. The licensee shall not allow eating and smoking in controlled areas, except in control rooms, offices, and lunchrooms, or other areas designated by the Environmental/Radiation Safety Engineer.
- C. The licensee's Environmental/Radiation Safety Engineer shall prepare a special work permit, describing specific radiological controls, prior to start of any work or maintenance having radiation safety implications and for which no written procedure exists. A copy of these permits shall be maintained for inspection by the Department.
- D. The licensee's Environmental/Radiation Safety Engineer shall document employee review of procedures applicable to each employee's assignment and Colorado radiation control regulations, Part X.
- E. The licensee shall, by April 1 and October 1 of each calendar year, provide to the Department a semi-annual report on the program for maintaining uranium, thorium and decay product exposures and releases ALARA, as detailed in items 10-1-36 and 10-1-37, reference 5, condition 10A of this license, (including as attachments the Environmental/Radiation Safety Engineer's quarterly reports to the Manager, the Vice President's audit, and any revisions to the written procedures manual).
- F. As stated in the licensee's application (page 45, reference 1, condition 10A, of this license), the licensee's program to keep exposures and effluents as low as reasonably achievable (ALARA) shall conform to U. S. Nuclear Regulatory Commission Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Exposure as Low as Reasonably Achievable", except as previously authorized by the Department.
- G. The licensee shall submit proposed procedure manual ALARA revisions to the Department whenever new or revised regulatory guidance is provided to the licensee by the Department.

STATE OF COLORADO  
COLORADO DEPARTMENT OF HEALTH  
RADIOACTIVE MATERIALS LICENSE

License Number Colo 418-02S

23. A. The licensee's personnel and facility monitoring program shall be sufficient to enable the Department to estimate maximum potential occupational dose commitment and to demonstrate compliance with Part IV, Colorado Rules and Regulations Pertaining to Radiation Control.
- B. The licensee's personnel and facility monitoring program shall be as in reference 1, condition 10A, of this license, as revised by reference 5, condition 10A.
- C. As stated in the licensee's application (page 48, reference 1, condition 10A of this license), the licensee shall conform to U. S. Nuclear Regulatory Commission Regulatory Guide 3.22 (revision 0, or as subsequently revised) unless references 1 or 5, condition 10A, or other conditions of this license are more restrictive.
24. A. The licensee shall conduct operations in such a manner as to provide reasonable assurance that the annual dose equivalent does not exceed 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public as the result of exposures to planned discharges of radioactive materials, radon and its progeny excepted, to the general environment from uranium fuel cycle operations and to radiation from these operations.
- B. The licensee shall prepare and record an evaluation of any activity, particularly modifications in operating procedures and equipment, with potential public health and environmental impacts not previously assessed, or significantly greater than previously assessed. If significant adverse impacts could result, the licensee shall submit the written evaluation to the Department for review.
- C. The licensee shall provide to the Department an acceptable plan of action to eliminate or effectively control any unexpected harmful effects or irreversible damage detected during operation and not otherwise identified in references 1 through 5, condition 10A of this license.

STATE OF COLORADO  
COLORADO DEPARTMENT OF HEALTH  
RADIOACTIVE MATERIALS LICENSE

License Number --C01Q-418-Q0--

25. A. The licensee's environmental monitoring and analysis program shall be sufficient to enable the Department to estimate maximum potential radiation dose commitment to individuals and populations off-site and to demonstrate compliance with condition 24A of this license.
- B. The licensee's environmental monitoring and analysis program shall be as in reference 1, condition 10A of this license, as revised by reference 5, condition 10A, and by the following:
- C. (1) Stack emissions shall be:
- (a) Sampled semi-annually at the primary crushing and sampling dust collector stack (emission point 2) and the secondary crushing and screening dust collector stack (emission point 3), unless otherwise authorized in writing by the Department.
  - (b) Analyzed for natural uranium, thorium-230, radium-226, and lead-210 in each sample.
- (2) Flow rates of the process stacks identified in (1) above shall be measured whenever samples are taken and whenever process changes significantly alter flow rates.
- (3) Air particulates shall be:
- (a) Continuously sampled at the locations designated as TSP-1, TSP-2, TSP-3 in figure 1 referred to by item 3-1-2 (January 4, 1980 licensee letter to Dunn, enclosed with reference 8, condition 10A of this license), and at a control location to be designated with approval of the Department;



STATE OF COLORADO  
COLORADO DEPARTMENT OF HEALTH  
RADIOACTIVE MATERIALS LICENSE

License Number Colo-418-025

25. C. Continued

- (b) Collected with weekly filter changes, or more frequently as required by dust loading;
  - (c) Composited quarterly by location; and
  - (d) Analyzed quarterly for natural uranium, thorium-230, radium-226, and lead-210.
- (4) Radon-222 gas shall be sampled at TSP-1, TSP-2, TSP-3, and a control location (258(1)(a) above) continuously or at least one week per calendar month representing approximately the same period each month.
- (5) Surface soils shall be collected annually proximate to TSP-1, TSP-2, TSP-3, the intersection of the East Branch of Nicholas Wash with the north exclusion area boundary and with the site (property) boundary on the south, and a control location (258(1)(a) above) using a consistent technique to a depth of 5 cm, and analyzed for natural uranium, thorium-230, radium-226, and lead-210.
- (6) A contamination survey shall be conducted annually along the East Branch of Nicholas Wash, along Wash No. 1, and along Wash No. 2 from their northern intersection with the exclusion area boundary to Colorado Highway 141 on the south.
- (7) If observed or evidenced to have escaped catchment on site, surface water shall be sampled immediately, upstream and downstream from the point of escape, and analyzed for natural uranium, thorium-230, radium-226, and lead-210.
- D. The licensee shall calibrate all radiation monitoring and sampling equipment after repair, and unless otherwise authorized by the Department, at least semi-annually or at the manufacturer's suggested interval, whichever is more frequent.

STATE OF COLORADO  
COLORADO DEPARTMENT OF HEALTH  
RADIOACTIVE MATERIALS LICENSE

License Number --Colo-413-025--

25 Continued

- E. The license shall insure that lower limits of detection are such that the standard deviation estimated for random error of the analysis is not greater than ten per cent (10%) of the measured value.
  - F. The licensee shall report date, type, and location for each analytical result, including the magnitude of the random error to the 95% uncertainty level.
  - G. The licensee shall include statistical and graphical summaries including estimates of random and systematic errors, of all effluent release data and all environmental monitoring data in the April 1 and October 1 reports required by condition 22E of this license.
26. The licensee shall release contaminated equipment, packages or materials from controlled areas for repair, reuse, resale or disposal only after documented decontamination meeting the requirements of the Department.
27. A. The licensee shall conduct an annual survey of land use (residences, grazing, wells, etc.) in an area within five kilometers of the facility. A report of the survey shall be submitted to the Department by April 1 of each year, and shall indicate any differences in land use from that described in the licensee's previous annual land use report.
- B. The licensee shall include in the land use report a summary of efforts during the previous calendar year to mitigate impacts of facility operation due to increased mining or construction activity, due to increased traffic, road maintenance, and accident risk, or due to other forces affecting local governments and socioeconomic conditions.

STATE OF COLORADO  
COLORADO DEPARTMENT OF HEALTH  
RADIOACTIVE MATERIALS LICENSE

License Number Colo.413-025...

28. A. The license shall submit an initial written procedures manual incorporating programs outlined in references 1 through 5, condition 10A, and in this license, no more than 90 days from issuance of this license.
- B. The licensee shall, no less than 30 days prior to commencing any construction, provide an estimate of the relative cost and potential effectiveness of cone, shed, or silo structures over ore stockpiles in reducing dust emissions and off-site radiation dose commitments.
- C. The licensee shall provide, no less than 30 days prior to commencing operation, the following documentation to the Department and such agencies as the Department designates:
- (1) Name, training, and experience of all users to be listed in condition 18 of this license.
  - (2) Characteristics, capabilities and application protocol for road and stockpile dust control chemical wetting and binding agents.
  - (3) A complete, comprehensive written manual of administrative, operating, monitoring, and decontamination procedures, including instructions and precautions to keep exposures and releases ALARA, and including specific information on analytical equipment, laboratories, and procedures for each element of the monitoring program.
  - (4) A comprehensive report, including statistical and graphical summaries, of the licensee's preoperational environmental program, including all available meteorological and air particulate data.
29. The licensee shall implement all monitoring programs 90 days prior to commencing construction.
30. A. The licensee shall, no more than 90 days after construction is essentially complete, and before operation begins, provide the following documentation, certified by a professional engineer, to the Department, and such agencies as the Department designates:



STATE OF COLORADO  
COLORADO DEPARTMENT OF HEALTH  
RADIOACTIVE MATERIALS LICENSE

License Number Colo 413-02S

30. A. Continued

- (1) As-built drawings of the ore receiving, sampling, and crushing facility;
- (2) As-built drawings of the ore storage facilities; and
- (3) As-built drawings of all culverts, stormsewers and runoff catchment-evaporation facilities.

B. The licensee shall provide to the Department, and such agencies as the Department designates, a brief written explanation of any and all significant differences between facility plans as submitted, reference 4, condition 10A, of this license and the facility as built.

31. The licensee shall obtain approval from the Department of the written procedures manual before beginning operation. Readiness for operation will be verified by a Department on-site inspection.
32. The licensee shall decommission, decontaminate, and reclaim the ore buying station facility and site in accordance with both the general and specifically applicable procedures, statements and representations in sections 9.1 and 9.4, reference 2, and in reference 7, condition 10A of this license, as adjusted pursuant to the Bond for Performance of License Requirements (Financial Surety), reference 6, condition 10A.

ORIGINAL SIGNED BY  
A. J. HAZLE

Date September 15, 1980  
CDH-FM-16 Rev. 1 (7-31-76)

16133

PDR

Hamill, Pioneer  
lic

WM-20

INTER-OFFICE COMMUNICATION

TO : Pioneer Slick Rock Mill file

DATE : October 20, 1980

FROM: Ken Weaver

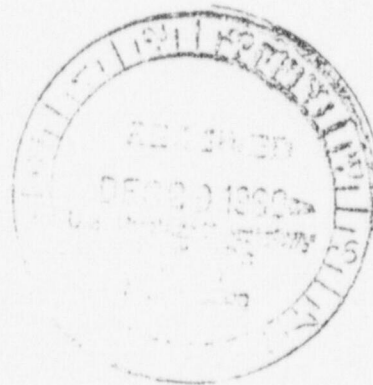
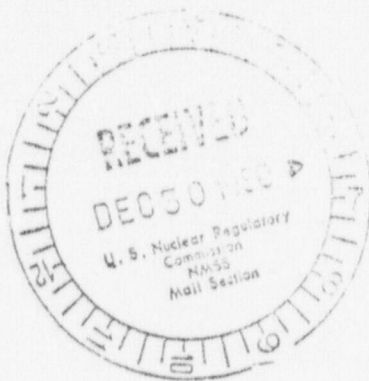
SUBJECT: Mill ALARA Manual

In telcon 10-20-80 with Steve Lange, Pioneer Nuclear Inc., requested Draft ALARA Manual by November 12, 1980. Lange agreed to the target and that no letter was necessary.

I discussed with Lange three advisory items:

1. The requirement that in estimating time-weighted exposures for employees working in diverse mill areas contributions from uranium dust, soluble uranium, and radon and progeny must all be factored in;
2. The importance of a good breathing zone sampling program;
3. The desirability of having an on-site minicomputer to calculate time-weighted exposures and analyze trends in monitoring data.

Lange was informed that because the NRC Environmental and Radiological Assessment document had not yet been received by the Department, publication of a Draft Licensing Review Summary was unlikely before early December, with any hearing not likely before early January.



**FEE EXEMPT**

*Ken H. Weaver*

10-20-80

Signature