Colorado Department of Health

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Frank A. Traylor, Jr., M.D.
Executive Director

April 21, 1980

Ralph B. Stewart, President
Pioneer Uravan, Incorporated
P.O. Box 151
Amarillo, Texas 79105

Attn: Steve Lange

Dear Mr. Stewart:

Enclosed are comments by the Radiation Control Section on the application by Pioneer Uravan, Inc., for a radioactive materials license to operate an ore buying station near Slick Rock, Colorado.

Since reviews by other agencies are by and large complete, adequate response to these comments will enable the Department to begin summarizing its review and to make a preliminary licensing determination. As you will note, these comments go into considerable detail, to both enable you to know explicitly the Department's expectations and to expedite final discussions on Pioneer's radiation protection program.

The Department has three general comments at this time:

1. Pioneer's on-site health physics and off-site monitoring activities, as modified in light of the enclosed comments and further discussion, should ultimately be presented in a single, detailed, well-indexed, in-house safety manual.

2. The Department intends to estimate off-site radiation dose commitments by availing itself of the U.S. Nuclear Regulatory Commission analysis of ore handling and storage emissions (being prepared for Pioneer's proposed uranium mill). The data presented in Table 6/7-E of the application and calculations based on them are considered anomalous.

3. A separate financial surety agreement, based on an itemized decommissioning, decontamination, and reclamation plan, will be required for the ore buying station.

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The Department is making every reasonable effort to expedite review of your application. It is suggested that a meeting be scheduled to discuss these comments and your responses just as soon as your written responses are drafted.

If you have any questions, please contact Ken Weaver of this Division.

Sincerely,

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

AJH:KLW:cw

cc: N. Noack, Solid Waste Control
R. Shukle, Water Quality Control
W. Dunn, Chemistry Section

Enclosure

Site

10-1-1. Is an accurate metes and bounds description available for the parts of Sections 26, 27, 34 and 35, T. 44 N., R. 18 W., which will be within the ore buying station boundaries? If so, please provide a copy.

10-1-2. Is a detailed final map available which shows the controlled area boundary which is to be fenced and posted with "RESTRICTED AREA" Signs? If so, please provide a copy.

10-1-3. Is the ore buying station site owned in fee simple or leased? Please provide documentation of the site ownership status.

10-1-4. What mineral resources (beneath the site) are known to be foregone due to the construction of the proposed ore buying station? Who has title to them?

Organization and Management

10-1-5. What is the current organization chart for Pioneer Uravan, Inc.? (OBS RMLA, Figure 1/2-I, p.2)?

10-1-6. What will be the division of labor for the ore buying station four person crew (OBS RMLA, p.7)?

10-1-7. Is the "Manager/OBS Superintendent" (M/S) already chosen? If so, provide a curriculum vitae (OBS RMLA, 8/9, p.32)?

10-1-8. The detailed training program in radiation protection proposed for the manager is sometimes overlooked and to be commended (OBS RMLA, 5.1.2, p.11).

Radiation Protection Officer

10-1-9. Is the "Environmental/Radiation Safety Engineer" (E/RSE) already chosen? If so, provide a curriculum vitae (OBS RMLA, 8/9, p. 32)?

10-1-10. Will the E/RSE's B.S. degree be from an accredited college or university (preferably) in environmental or radiological science (OBS RMLA, 4.2.2.a., p.3)?

10-1-11. Will the E/RSE have had at least two years experience in radiation safety, environmental and occupational health activities, with one year specialized experience in "hands-on" radiation protection at uranium mining, milling, or other nuclear facilities? (OBS RMLA, 4.2.2.c., p. 9)?

10-1-12. Will the E/RSE have had at least a one month formal training course in health physics, with at least one week specifically applicable to uranium mining and milling (OBS RMLA, 4.2.2.c., p.9)?

10-1-13. Will the E/RSE attend a minimum of one refresher course every two years (OBS RMLA, 3.1.3, p.11)?

10-1-14. Will the E/RSE have both the responsibility and the authority to suspend any work activity that presents a potential for or is a serious hazard to workers or is a violation of State Regulations or license conditions (OBS RMLA, 4.2.2, p.8)? Will this authority be demonstrated by written policy statement?

10-1-15. Will the E/RSE have other safety-related duties, such as industrial hygiene, but no direct production-related responsibility (OBS RMLA, 4.1.2, p.7)?

4-1-16. Will the E/RSE have the responsibility and authority to review and approve in writing all standard operating procedures, as they are developed and when any process change is made?

4-1-17. Will the E/RSE review and approve any special repair or non-routine maintenance work for which no standard operating procedure is available and where extra precaution may be required?

ALARA

4-1-18. In what respects will Pioneer's ALARA program depart from U.S. Nuclear Regulatory Commission Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposure as Low as Reasonably Achievable", i.e., how will the "intent" as distinct from specific recommendations be followed (OBS RMLA, 14.1.1 (1.4), p. 45)?

10-1-19. Will Pioneer document specific design features which help keep exposures ALARA (OBS RMLA, 14.1.2, p. 46)?

10-1-20. Will Pioneer document, where design modifications have been considered but not implemented, the reasons for rejecting the alternatives examined?

10-1-21. Pioneer is to be complimented for recognising that unnecessary accidents and exposures often result when employees are stressed by unplanned and overtaxing workloads (OBS RMLA, 14.1.3, para. 2, p. 46).

Standard Operating Procedures

10-1-22. From pages 7, 8, 45 and 46 of the RMLA, it appears that standard operating procedures (SOPs) will focus primarily on the program to maintain exposures ALARA and that the SOPs will be developed primarily by the manager. Will the E/RSE assist in writing SOPs?

10-1-23. Will the R/RSE review and approve all written SOPs before final approval by the manager?

10-1-24. Will the manager, not the R/RSE, have the specific responsibility of ensuring adherence to SOPs?

10-1-25. Will the manager have the only direct responsibility for periodic (monthly) review of SOPs?

10-1-26. Will written SOPs be established for all activities involving radioactive material?

10-1-27. Will SOPs be available not only for the receiving, crushing and sampling equipment, but for the health physics program and environmental monitoring and control program, including radiological monitoring, sampling, analysis, and instrument calibration?

10-1-28. Will an up-to-date copy of each SOP be kept in each area where it is used?

10-1-29. Will all SOPs be reviewed and approved in writing as developed or whenever a change in procedure is made?

10-1-30. Will the R/RSE re-review each SOP at least annually?

Audits

10-1-31. Will, in order to provide higher management with the information necessary to keep exposures ALARA, the R/RSE conduct an inspection or "audit" occasionally (weekly?) in areas of greatest exposure potential or of non-routine activity (GJS EMLA, 14.1.1, p. 46)?

10-1-32. Will worker conformance of correct procedure be observed and problems noted in writing by brief entry in a logbook?

10-1-33. Will logbook entries be dated, signed and maintained on file for at least five years?

10-1-34. Will the R/RSE report significant problems promptly to the manager?

10-1-35. Will the R/RSE submit to the manager a brief written report each month, discussing personnel exposure data for the month, any significant problems, and proposed corrective actions?

10-1-36. Will the R/RSE submit to the manager an annual report on the program for maintaining exposures to uranium and its decay products ALARA, including the following items:

1. Employee exposure records
2. Bioassay results
3. Operating procedures that were reviewed that year
4. Monthly reports made to the manager
5. Training program
6. Safety meeting reports
7. Calibration and use of radiation protection equipment
8. Quality assurance for laboratory analyses of samples

10-1-37. Will the annual report discuss (1) trends in personnel exposures identified by the R/RSS on the Corporate Vice-President's quarterly audit (OBS RMLA, 14.1.1, para. 4, p. 45), (2) trends in effluent releases, and (3) opportunities for reducing exposures?

10-1-38. Will the report be submitted to the Department 90 days after the close of each calendar year?

10-1-39. Will the manager review and initial the R/RSS's brief monthly written report, in part thus verifying that the ALARA philosophy is being followed (OBS RMLA, 4.1.1, p. 7)?

10-1-40. Will the manager record any observations which result from the manager's monthly review of SOPs, effluent and environmental monitoring, exposure records and walk-through inspections (OBS RMLA, 14.1 1, para. 3, p. 43)?

10-1-41. Will the R/RSS's monthly report, with the manager's additions to it, be maintained on file and accessible to inspection for at least five years?

10-1-42. Will the independent audits directed by the Vice-President and Manager of Operations (OBS RMLA, 14.1.1, para. 4, p. 45) also be maintained on file and accessible to inspection for at least five years?

Training

10-1-43. Section 5.1.a (OBS RMLA, p. 10) clearer wording would be "...understanding of the health implications of radiation exposure and the basic safety precautions necessary to reduce radiation exposure as low as is reasonably achievable."

10-1-44. In Section 5.1.b (OBS RMLA, p. 10) it would be desirable to add after "protective devices" the words "and their limitations".

10-1-45. Is a copy of the proposed "hazard statement" yet available (OBS RMLA, 5.1, p. 10)?

10-1-46. Will a quarterly safety meeting for employees, including the manager, devote at least 30 minutes to health physics matters?

10-1-47. Will new employees be instructed, before beginning their jobs, in hazards of exposure to uranium and its decay products, how uranium and its decay products enter the body, and why exposures should be kept ALARA (OBS RMLA, 5.1.1, (1.3), p. 10)?

10-1-48. Will this instruction before beginning their jobs be at least two hours?

10-1-49. Will new employees also be given specialized instruction in the health and safety aspects of the jobs they'll perform?

10-1-50. Will each worker review test results with the instructor, with wrong answers being explained by the instructor until the worker understands the correct answer (OBS ERLA, 5.1.1, para. 2, p. 10)?

10-1-51. Will employees be instructed in the International System units of radioactivity (the Becquerel) and radiation dose equivalent (the Sievert), as well as past units of Curies and rem?

10-1-52. Will notices of changes in Department regulations also be posted for a minimum period (OBS ERLA, 5.2, para. 2, p. 12)?

10-1-53. Can an additional "Rule for Radiation Protection" item c. state that a shower and change of clothes following work is generally desirable (OBS ERLA, 5.2.1, p. 12)?

Plant Design

The OBS Application and ER contain sometimes sketchy engineering design and construction information, nor does it refer to other documents providing such information. From the application, the Division assumes that the major mechanical equipment will be: the scale and scale house; the receiving hopper with grizzly, at which primary crushing occurs; the underground vibrating belt conveyer to the sampling plant; the non-enclosed four-stage sampling equipment; and the radial stacker or portable belt conveyer(s) of sampled material to ore storage piles. A trailer providing sanitary and office facilities will be located near by.

10-1-54. Is a detailed process description, including basic ore flow and sampling cuts available? If so, please provide it.

10-1-55. Are detailed drawings of the complete OBS facility yet available? If so, please provide them.

10-1-56. Where will sample assay be done?

10-1-57. What is the expected plant life?

10-1-58. Is a floor plan for the sampling plant, including proposed area monitoring locations, available? If so, please provide it.

10-1-59. Will the sampling plant be partially or completely enclosed (initial air permits require that the equipment be enclosed)? If the plant is enclosed as well, what ventilation will be provided?

10-1-60. Will a septic or leach fold system be constructed for shower and toilet wastes? If so, please provide a drawing clearly locating them and showing that any other proposed construction will not interfere with them?

10-1-61. Will a guardhouse, shop, warehouse, and/or laboratory building be constructed for the OBS?

10-1-62. Where will culverts and storm sewers be located (OSS RMLA, 6/7-8, p.22)?

10-1-63. Will upslope runoff be diverted away from the ore stockpile and operating areas by dikes or ditches?

10-1-64. Will runoff from the ore stockpile and operating area be retained by catchment structures until evaporated, as seems to be indicated by the artist's drawing?

10-1-65. Will a spillway or overflow be constructed?

10-1-66. How often will runoff diversion and collection dikes be inspected?

10-1-67. Will an impermeable pad be constructed under the ore storage area?

10-1-68. How close to zero discharge of effluent waters will the OSS operation be?

Airborne Radioactivity

10-1-69. Is it correct that no in-plant suspended particulate or radon sampling is proposed (OSS RMLA, 12.2.2, p. 36), although an outdoor sampling station is proposed near the screening and secondary crushing area?

10-1-70. Generally, at least for the first year of operation at a new facility, routine airborne particulate and radon and/or radon progeny monitoring is required. These measurements should be representative of the air inhaled by the workers present and be taken while normal ore handling is occurring (major equipment status and ventilation conditions during sampling should be noted). Will Pioneer institute such a program?

10-1-71. A minimum sampling program for airborne uranium ore dust includes monthly grab samples for 30 minutes duration in worker-occupied areas in which ore is actively handled. Dust sampling locations should coincide with radon sampling locations. Where previous measurements have shown that ore dust or radon (or progeny) concentrations are not elevated, the Department may allow reduction of sampling to quarterly or semi-annual intervals. Will Pioneer institute such a program?

10-1-72. If any area has been designated as an airborne radioactivity area, sampling frequency is generally increased to weekly. As stated in RH 1.6, Colorado Rules and Regulations Pertaining to Radiation Control, any operating area, in which airborne radioactive material exists in concentrations in excess of Appendix A, Table I, Column 1 of Part 4 or exceeds 25% of those concentrations when averaged over the number of hours in any week during which individuals are in the area, requires posting as an "AIRBORNE RADIOACTIVITY AREA" pursuant to RH 4.11.4. For purpose of Table I, Column 1, in lieu of other values specified in Appendix A, the following values may be used for uranium

ore dust: 1 E-10 uCi/ml gross alpha (this applies to alpha emissions of 238U (negligible), 234U, 230Th, and 226Ra; 5E-10 uCi/ml natural uranium; or 75 micrograms per cubic meter of air natural uranium.

What ore dust suspended particulate sampling is proposed to establish whether an "airborne radioactivity area" designation is appropriate for the sampling facility? What action will be taken if 25% of the units in Table 1, Column 1 of Appendix A, Part 4, are exceeded?

10-1-73. Where large amounts of ore are stockpiled and calm periods occur, significant concentrations of radon and its short-lived decay products may occur. If radon progeny are present in a potential "airborne radioactivity area", initial sampling frequency is generally weekly and the fraction of MPC for the combination of ore dust and radon is calculated (Appendix A, Part 4) to see if the NRC 1.6 definition of an airborne radioactivity area is met. Similarly, where 230Th and 226Ra in air are analyzed separately, their contribution (relative to Table 1, Column 1, concentrations) must be factored in. (the Cotter Corporation ore buying station at Whitewater, Colorado, has on occasion exceeded MPC for 230Th near its conveyers, although analytical error is suspected by Cotter).

What 230Th or 226Ra sampling is proposed in conjunction with establishing whether an "airborne radioactivity area" designation is appropriate for the sampling facility?

10-1-74. Department policy is that the appropriate radon concentration for Table 1, Column 1 is 3 E-8 uCi/ml of air and that footnote 3, Appendix B, p. 20-18 of 10 CFR Part 20, (U.S. Nuclear Regulatory Commission, December 1, 1978) now applies.

What airborne radon (progeny) sampling is proposed in conjunction with establishing whether an "airborne radioactivity area" designation is appropriate or to establish general levels?

If measured airborne radon concentrations exceed 0.03 working level (WL), radon progeny are clearly indicated. All values, including negative values, should be recorded, since the most accurate annual average for an area is obtained by averaging all measured values, including values obtained which are below the lower limit of detection.

10-1-75. In Figure 12-I (p. 39, OBS RMLA), the procedure is after "Knametz", not "Kumetz".

10-1-76. Has a specific low-volume regulated air sampler yet been chosen (OBS RMLA, 10.1, p. 38)? If so, provide its type and performance characteristics.

10-1-77. The application states that the dry gas meters "can" be checked against a wet test meter every two years. Provide the protocol and actual frequency of calibration which will be used.

10-1-78. Note that the U.S. Nuclear Regulatory Commission draft Regulatory Guide, "Calibration and Error Limits of Air Sampling Instruments for Total Volume of Air Sampled", published October 1979 will apply.

10-1-79. Has a specific continuous low-volume radon instrument yet been chosen (OBS RMLA, 10.3, p. 33)? If so, provide its type and performance characteristics.

10-1-80. Who will calibrate the radon sampling pump and filter system? Who will calibrate the alpha counter? Against what available alpha counter of known efficiency? (OBS RMLA, 10.3, p. 33).

10-1-81. As discussed previously, will any high-volume sampling be conducted in the sampling plant? If so, what radionuclides will be analyzed?

Area Monitoring

10-1-82. Have specific area monitoring instruments yet been chosen (OBS RMLA, 10.2, p. 33)? If so, provide their type and performance characteristics.

10-1-83. What type and activity of secondary standard source (s) will be used for area survey equipment calibration? Will an ore or tailings "secondary standard" be available? (OBS RMLA, 11.2, p. 34).

10-1-84. What locations other than the five finally chosen were considered for external radiation surveys but not included?

10-1-85. Will haulage road surveys for spilled ore be made routinely? Has a haulage road baseline survey been conducted?

10-1-86. The Department's position is that for an operation which is maintaining exposures ALARA, any radiation level exceeding 2.5 mR/hr. is to be regarded, a priori, as "unusual" (OBS RMLA, 12.1.1, p. 35). Thus a survey to determine the cause of an excessive level should be made in any case. Surveys performed for determining whether a "radiation area" exists (SR 1.6 and RI 4.11.2) should be representative of where workers sometimes stand, generally about waist height and 18" from surfaces, so that whole body exposures are estimated (OBS RMLA, 12.1.1, p. 35 and 12.3, p. 37).

Bioassay Program

10-1-87. What parts of U.S. Nuclear Regulatory Commission Regulatory Guide 8.22, "Bioassay at Uranium Mills" will not be followed at the San Miguel Project ore buying station (OBS RMLA, 14.3, p. 48)?

10-1-88. A more appropriate formulation of the first sentence of 14.3.1 (OBS RMLA, p. 48) would be "The program will use urinalysis to determine whether employees are taking in detectable amounts of uranium."

10-1-89. What possible modifications to the initial bioassay program based on air sampling and internal deposition data are anticipated (OBS RMLA, 14.3.2, para. 2, p. 48)?

10-1-90. What other radionuclides or toxic materials might be indicated for bioassay?

10-1-91. Why, radiobiologically, was the frequency of six months chosen for routine urine sampling (OBS RMLA, 14.3.2, para. 1, p. 48)? As your answer to Mr. Bill Dunn (January 4, 1980 letter) suggests, a more protective approach would be more frequently at first, then less frequently as justified.

10-1-92. Has a specific laboratory yet been selected for analysis of bioassay samples? If so, which one? What certifications does it have?

10-1-93. With respect to maintaining exposures ALARA, the best first step in acting on an anomalous bioassay result is to notify the worker immediately and preclude further unnecessary exposure until new results are obtained (OBS RMLA, 14.3.4, p. 49). Will Pioneer adopt this approach?

10-1-94. What specific reporting criteria will be used in notifying the Department of anomalous bioassay results?

Personnel Monitoring

10-1-95. Has a specific TLD vendor and badge type yet been chosen (OBS RMLA, 12.1.2, p. 35)? If so, provide the type and performance characteristics.

10-1-96. What laboratory will determine TLD results?

10-1-97. Will all personnel exposure records be kept on Form AOR-RH-17 or equivalent and pursuant to RH 4.10 and RH 4.21?

10-1-98. Regarding excessive exposure to an employee (OBS RMLA, 12.1.2, p. 36), the first actions are to preclude further exposure and then to make the employee cognizant of the exposure. Checking back with the laboratory is part of the E/RSE's investigation. Will Pioneer adopt this approach?

10-1-99. Will actions taken by the E/RSE on excessive exposures be documented in the E/RSE's logbook and reported pursuant to RH 4.24 if required?

10-1-100. It appears paragraphs 1 and 2 on p. 36 (OBS RMLA) are miscoupled. If TLD's are used and exchanged monthly, they will not adequately indicate whether exposure has exceeded limits for any 40-hour work week.

10-1-101. The first month of operation will probably not be typical of operation over a longer term. Will the R/RSE carry a program of swipes more frequent than semi-weekly (OBS RMLA, 12.3, p. 37) beyond the first month or defer a more frequent swipe program until the OBS operation is out of its shake down period?

10-1-102. Will the R/RSE take occasional swipes representative of diverse operating periods and include a discussion of them in the monthly report for the second or third month or so?

10-1-103. Is any in-vivo whole body counting of employees scheduled?

Respiratory Protection

10-1-104. As provided in RM 4.4.3, no allowance shall be made for particle size or the use of protective clothing or equipment in determining whether an individual is exposed to an airborne concentration of any radionuclide in excess of the limits specified in Appendix A, Table 1. Authorized exceptions are possible for respirators under RM 4.4.3.3, but to date have not been granted.

Does Pioneer intend to apply for authorized exception under RM 4.4.3.3?

10-1-105. Respiratory protective devices are not a substitute for design and operational controls in meeting applicable limits or maintaining exposures ALARA. Thus, need for the respirator wear program should not be based on use to enable continued work in an area exceeding the 40 hr/wk MPC (OBS RMLA, 14.2.2, p. 47) but instead to provide added protection to the workers in dustier areas.

Does Pioneer plan to use the respirator program to enable work in areas exceeding the 40 hr/wk MPC?

10-1-106. Does the R/RSE have authority to assure that all protective equipment is properly worn (OBS RMLA, 14.2.4, p. 47)?

10-1-107. Does the shift supervisor have the responsibility for reporting improper practices to the R/RSE (OBS RMLA, 14.2.4, para. 2, p. 47)?

10-1-108. What parts of U.S. Nuclear Regulatory Commission Regulatory Guide 8.15, "Acceptable Programs for Respiratory Protection and NUREG-0041 will not be followed at the San Miguel Project ore buying station (OBS RMLA, 14.2, para. 2, p. 46)?

Environmental Monitoring

10-1-109. Has high-volume air sampling continued routinely at the "down wind" station used during the preoperational characterization (OBS RMLA, 13.2, p. 40)? If so, please submit the data.

10-1-110. Have air particulate sampling locations changed from those presented in reply to Mr. Dunn's comment 8-1-2 (Pioneer letter of 1-4-80)?

10-1-111. Why is no air particulate sampling station located at the nearest site boundary location to the southwest, when this is the direction of greatest ground level particulates (ER 5.5-2, "maximum ground level particulates... 650 meters southwest of the ore recovery hopper"?

10-1-112. Is any air particulate sampling station proposed generally perpendicular to the main wind vector, as is sometimes desirable?

10-1-113. What consideration has been given to a sampling location for air particulates remote from the site which will be used as a control or background location during operation? Is such a station in existance for some other company's operation?

10-1-114. Since the ore storage area yields a major fraction of released particulates and since monitoring is to evaluate the adequacy of ore and ore dust retention systems, why are no analyses for natural uranium, ^{230}Th, ^{226}Ra, and ^{210}Ra (as recommended by U.S. Nuclear Regulatory Commission Regulatory Guide 4.14, Section 2.1.2) proposed?

10-1-115. Has a specific continuous low-volume air sampler model yet been chosen (OBS RMLA, 15.1.2, p. 52)? If so, provide its type and performance characteristics.

10-1-116. Has a specific environmental radon monitor yet been chosen (OBS RMLA, 15.1.2, para. 3, p. 52)? If so, provide its type and performance characteristics.

10-1-117. Why was a semi-annual frequency chosen for stack sampling (OBS RMLA, 15.1.1, p. 51)?

10-1-118. Were other parameters than natural uranium considered for stack sample analysis (OBS RMLA, 15.1.1, p. 51)?

10-1-119. Has meteorological data-gathering continued routinely since the preoperational characterization (OBS RMLA, 13.1, p. 40 and ER, Section 2.7)? If so, please submit data summaries.

10-1-120. Is 639 observations with missing data out of 8120 total observations for the preoperational characterization period of 2-9-78 to 2-8-79 considered above average for wind speed data-gathering (Pioneer response to NRC, 12-28-79, p. E-16)? What uncertainity is associated with the estimated 6.2 miles per hour mean wind speed?

10-1-121. Why does the OBS RMLA not include surface water monitoring of drainage ways entering or leaving the restricted area? "Generally, natural drainage systems (such as dry washes) which carry surface runoff from the site following a precipitation event should be sampled following the event with the appropriate frequency" (Note 4, p. 4, U.S. NRC Branch Position on Operational Monitoring).

10-1-122. What provision has been made for measuring or estimating runoff flow volumes through drainage ways entering or leaving the restricted area?

10-1-123. Pioneer has relocated and renumbered surface water sampling stations between the December 1978 EA and the locations provided to Mr. Shukla of Water Quality Control on January 7, 1980. Why were each of these changes made? Which of these "preoperational" locations would be appropriate to sample in the early stages of a runoff event to provide information as to whether runoff on drainages leaving the restricted area of the ore buying station is having an off-site impact?

10-1-124. If surface water samples are taken, will natural uranium, 230Th, and 226Ra been analyzed for, as recommended by U.S. Nuclear Regulatory Commission Regulatory Guide 4.14?

10-1-125. Will annual soil samples be collected at the same locations for collection of air particulate samples?

10-1-126. Will soil samples be analyzed for natural uranium, 226Ra, and 210Pb?

10-1-127. Have TLD's or track etch detectors been considered for an outdoor gamma measurement program?

10-1-128. Where will uranium assays be done (ORS EMLA, 12.4.1, p. 37)? By what method?

10-1-129. Where will analyses for 230Th, 226Ra, and 210Pb be done if required?

10-1-130. What quality assurance guidance will be used by Pioneer or required of contractors to Pioneer? Will Pioneer or its contractor follow U.S. Nuclear Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment"? If not, in what respects will Pioneer's or its contractor's quality Assurance program differ from Regulatory Guide 4.15?

10-1-131. How will process and health/physics/environmental samples be kept separate? given priority?

10-1-132. What protocol will be specifically followed in handling and analyzing ore dust on filters?

10-1-133. Will an annual report on the radiological monitoring program for the previous calendar year be submitted to the Department as a separate report, by May 1 of each year?

10-1-134. Will reporting of sampling and analysis results follow Section 5 of U.S. NRC Regulatory Guide 4.14? If not, in what way not?

Contamination Control

10-1-133. What decontamination guidelines will be used for tools and components that are removed for repair or maintenance on site? For tools and components that are removed for repair or maintenance off-site, but intended to be returned to the site?

10-1-136. Department policy discourages proliferation of contaminated material burial sites. RH 4.19 clearly applies. A Certificate of Designation for a solid waste disposal system is likely required as well. Does Pioneer plan near-term on-site burial (OBS RMLA, 14.4, p. 49)? Or does "approved burial area refer to a commercial low-level radioactive waste disposal site such as that at Beatty, Nevada or to a site approved operated by some governmental agency?

Transportation

10-1-137. Pioneer states that "Delivery and transportation procedures are the responsibility of the mine operators (OBS RMLA, 6/7-2, p. 15) and implies that a contract hauler will carry appropriate accident liability insurance.

Department policy, however, is that the consignee, with its specialized knowledge of radiation protection, is obligated to participate in cleanup of any spillage incident involving its ore.

Will Pioneer develop written emergency procedures for transportation incident response? How does Pioneer propose to provide that any impacted area be decontaminated essentially to background?

10-1-138. When will contract haulers be required to cover their trucks?

10-1-139. Who will enforce the speed limits on the site access road (OBS RMLA, 6/7-4.2.1, p. 18), which has been required in Pioneer's initial air permit to be reduced from 25 mph to 20 mph? On the ore-storage area at 10 mph (OBS RMLA, 6/7-4.2, p. 18)?

10-1-140. Does Pioneer have an estimate of the average fuel consumption and cost for the maximum 33 trucks per day coming from mines ranging within the stated radius of 50 to 100 miles?

Minor Technical Corrections to the OBS RMLA:

10-1-141. p. 10, 3.1.c:
Compliance is to Parts 9 and 4, Colorado Rules and Regulations Pertaining to Radiation Control (as well as 10 CFR 19 and 10 CFR 20).

10-1-142. p.11, 5.1.1.c.1:
Allowable exposure is based on Part 4, as well as 10 CFR 20.

10-1-143. p.12, 5.1.3.c.1 and 2:
The relevant regulations are Part 9 and Part 4.

10-1-144. p. 12, 5.2, line 1:
Part 9 of Colorado's Rules and Regulations Pertaining to Radiation Control covers posting of notices to employees.

10-1-145. p. 12, 5.2, line 6:
The complete Colorado Rules and Regulations Pertaining to Radiation Control should be available for examination.

10-1-146. p. 35, 12.1.1, para. 3; p. 36, 12.1.2, para. 4; p. 36, 12.2.1, line 8; and p. 37, 12.3 (3.):
The appropriate limits are specified in Part 4.

10-1-147. p. 45, 14.1, line 5:
Compliance is to Part 4 (as well as 10 CFR 20).

10-1-148. p. 46, 14.2.1, line 5:
Allowable concentrations are listed in Part 4 (as well as 10 CFR 20).

10-1-149. p. 49, 14.4, line 12:
Reference should be to RH 4.11.

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