MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93 - 438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee		
1. Rocky Mountain Energy Company	3. License number	SUA-1338, Amendment No. 9
2. 4704 Harlan Street Denver, Colorado 80212	4. Expiration date	September 30, 1986
	5. Docket or Reference No.	40-8697

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
Natural Uranium	40-60% slurry or dewatered Ammonium Diuranate	3,000 kilograms as Uranium equivalent (6600 lbs.)

9. Authorized Place of Use: Reno Creek, Township 43 North, Range 73 West, Campbell County, Wyoming

10. Authorized Use: For uranium recovery from pregnant lixiviant in accordance with statements, representations, and conditions contained in (1) the licensee's application dated May 1, 1978 and supportive information attachments; (2) additional information transmittal dated July 21, 1978, which references specific sections of the licensee's Application for Permit to Mine to the State of Wyoming's Department of Environmental Quality Land Quality Division; (3) the licensee's amendment application dated April 1980 submitted with letter dated April 23, 1980; and (4) the amendment application supplements dated June 19 and July 25, 1980.

Notwithstanding the above, the following conditions shall override any conflicting statements contained in the licensee's applications and supplements.

11. The uranium in situ solution mining and the recovery of uranium from the pregnant lixiviant shall be performed on a maximum well field area of less than (1) acre within a project site area of approximately forty (40) acres.

12. The test program is limited to the use of sodium carbonate/sodium bicarbonate lixiviant with gaseous oxygen and/or liquid hydrogen peroxide added as an oxidant. Any variation from the carbonate leach procedure described int he April 1980 amendment application or the June 19, 1980 amendment applicatoin supplement shall require NRC approval through amendment of this license.

13. At least eight (8) wells including the two recovery wells, four perimeter monitoring wells located in the ore zone, one well in the aquifer above the ore zone and one well in the aquifer below the ore zone with the latter two wells situated inside the perimeter of the injection wells shall be used to establish the premining groundwater quality of the well field and to monitor for horizontal and vertical excursions. Pre-injection groundwater quality baseline for setting restoration goals and criteria shall be established for the production zone following the procedure described in the April 1980 amendment application submitted on April 23, 1980. Baseline values shall also be established for each of the six monitoring wells following the same procedure.

14. DELETED

15. During normal mining operations, monitor wells shall be sampled every two (2) weeks and analyzed for excursion parameters pH, chloride, bicarbonate, uranium, vanadium, and conductivity in Test Pattern II and for excursion parameters pH, conductivity, calcium, sulfat, and uranium in Test Pattern I, with static water levels measured before each sample is taken. During restoration, monitor wells shall be sampled every four (4) weeks for the excursion parameters respective of each pattern. Every four (4) weeks, these samples shall also be analyzed for radium-226, thorium-230, arsenic and selenium. On a quarterly basis, the full suite of thirty-two (32) water quality parameters tabulated on page 10 of the April 23, 1980 submittal, shall be determined on samples from each of the six monitor wells in each test pattern.

16. The upper control limits (UCL) for defining lixiviant excursions shall be determined for each of ther six monitoring wells by taking the average value for each excursion parameter ($\bar{X}$), adding two standard deviations (S) then adding 10% of this total. Lower control limits (LCL) shall be determined by subtracting two standard deviations from the average of each parameter then subtracting 10% of the remainder or

$$UCL = 1.1\ (\bar{X} + 2S)$$
$$LCL = 0.9\ (\bar{X} - 2S)$$

Excursion parameters are defined as pH, chloride, bicarbonate, uranium and conductivity.

17. When a monitor well analysis exceeds the control limit for any two or more of the excursion parameters, the licensee shall follow the procedures described on pages 10 and 11 of the April 1980 amendment request for verifying, reporting, and controlling the indicated excursion.

18. A log of events describing the corrective actions taken and a chart of all sample analyses shall be maintained during such period(s) to document the actions and the ensuing results.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: SUA-1338

Docket or Reference number: 40-8697

19. The volume of barren bleed solution discharged to the evaporation pond shall be measured. Monthly samples of bleed solution shall be analyzed for uranium, radium-226, selenium, arsenic, sulfate and TDS.

20. The evaporation pond shall be checked for leaks every two weeks. If fluid is found in the standpipe it shall be sampled and analyzed for U_3O_8, Ra-226, Ca, Fe, V SO_4, Cl, conductivity and pH and a written determination made, based on these results, as to the source of the fluid. If it is determined that the sample is contaminated as a result of pond seepage, immediate corrective action shall be taken and the NRC, Uranium Recovery Licensing Branch, Washington, D.C. 20555, shall be notified in writing within 7 days.

    The liquid level in the pond shall be maintained with a minimum of 18 inches of freeboard.

21. Disposition of solid process residues by the licensee shall require prior approval by NRC.

22. The project facilities shall be restricted by enclosing the processing areas and the pond(s) with fencing.

23. The licensee is exempted from the requirements of Section 20.203 of 10 CFR Part 20 provided all entrances to the site are conspicuously posted with the warning: "CAUTION. ANY AREA OR ROOM WITHIN THIS FACILITY MAY CONTAIN RADIOACTIVE MATERIAL."

24. The uranium recovery plant for carbonate lixiviant test shall be operated at a maximum nominal flow rate of up to fifty (50) gpm.

25. Flow rates on each injection and production well shall be measured at least once per shift and recorded on a daily operating log.

26. Air sampling for radon and/or radon daughters shall be conducted, initially, on a monthly basis inside the plant structure. Records of time-weighted exposures shall be maintained for employees whose work involves occupancy in areas where concentrations exceed twenty-five (25) percent of the concentration specified by 10 CFR Part 20, Appendix B, Table 1, Column 1, for radon-222. The radon sampling program shall be supplemented by sampling for uranium particulates on am onthly basis inside the plant structure. If sample results collected for six (6) months during recovery operations, show less then twenty-five (25) percent of the applicable maximum permissible concentrations (MPC's) specified by 10 CFR Part 20 for either of the sampling programs required above, sampling may be reduced to a quarterly frequency.

    TLD badges for each employee at the site and the inside control TLD badge located in the office shall be monitored quarterly for gamma and beta exposure.

A quarterly audit of all radiological data shall be performed by the corporate RSO.

27. Specified locations inside the restricted area shall be identified and posted for storage of recovered uranium slurry.

28. Exploration boreholes, post-test boreholes and all wells shall be plugged to comply with Wyoming Department of Environmental Quality (DEQ) requirements prior to decommissioning the site for unrestricted use.

29. A quarterly report shall be submitted that summarizes the status of the test program with supporting analytical data and evaluations regarding important environmental aspects of the operation, such as water quality baseline data, monitor well analyses, including all analyses data from sampling required by License Condition No. 15, lixiviant migration control, waste generation volumes, and volumes of injected lixiviant and pregnant solution produced. The initial report should be filed following the accumulation of initial baseline data.

30. The licensee shall sample air particulates at sites S-8 (upwind) and S-10 (downwind). Samples shall be taken monthly and composited quarterly for Natural Uranium, Thorium-230, Radium-226 and Total Suspended Particulates. TLD badges at sites S-8, S-10 and Test Pattern II shall be monitored quarterly for gamma and beta exposure.

Should active restoration or mining be resumed at the site, the NRC shall be notified 30 days prior to commencing such activities and Radon-222 shall be monitored at upwind and downwind monitoring locations, and sampled monthly for at least one continuous 48 hour period.

31. The licensee shall document and maintain results of sampling, analyses, surveys and instrument calibrations, reports on inspections and audits, employee training records, as well as any related reviews, investigations, and corrective actions for a period of at least three (3) years unless otherwise specified by Section 20.401 of 10 CFR Part 20.

32. Grab samples of yellowcake, yellowcake decant, reverse osmosis brine and reverse osmosis product listed in table headed "Requested Sampling Amendments SUA-1338" in the April 1980 amendment request shall be analyzed for radium-226 on at least a monthly basis.

33. The goal for restoring the groundwater quality in Pattern II shall be to return all parameters to preinjection background levels. When restoration appears complete, at least one round of samples shall be taken from production wells P-10 and P-11, injection wells I-12, I-13, I-14, and I-15, and excursion monitor wells USM-2, LSM-2, RCM-16, RCM-17, RCM-18, and RCM-19. The samples shall be analyzed for the full suite of parameters (32) listed on page 10 of the April 23, 1980 submittal to verify that aquifer restoration has been achieved.

Upon completion of restoration, all restoration verification monitor wells shall be sampled monthly for pH, TDS, bicarbonate, chloride, sulfate, calcium, sodium, uranium, and vanadium, and at the end of six (6) months for the full suite of parameters (32). Data from this sampling program, indicating the status of water quality stabilization within the pattern, shall be submitted to the NRC within thirty (30) days from the injection well shall be sampled every three (3) months for six (6) months for the full suite of parameters (32). This sampling data shall be submitted to the NRC within thirty (30) days from the date of last sampling.

Post restoration monitoring of Pattern 1 shall be performed as shown in Attachment 1 of the January 5, 1982 submittal to the NRC.

In addition, the licensee shall submit by July 15, 1982 all groundwater quality data collected during the year since restoration was discontinued as described in Attachment A of the January 5, 1982 submittal along with a full history of restoration activities at Pattern 1, including data regarding the pore volumes of fluids circulated through the pattern during restoration.

34. The decommissioning plan submitted by RMEC on April 1, 1985, is approved with the following modifications:

A. The Radiation Safety Technician (RST) and the Radiation Safety Officer (RSO) shall meet the appropriate qualifications as defined in Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Mills are As Low As Reasonably Achievable," and be approved by the Nuclear Regulatory Commission, Uranium Recovery Field Office.

B. The results of RMEC"s gamma survey, Ra-226 analysis and action level calculations as described on pages 8 and 9 of the decommissioning plan (dated April 1, 1985), shall be submitted for NRC review and approval. Soil cleanup activities shall not begin until the NRC has approved the proposed action level for the gamma survey.

C. Pond sludge and other onsite waste shall be disposed of at a licensed disposal facility.

35. With the exception of the removal of sludge from the evaporation pond, implementation of the decommissioning plan is prohibited until the Nuclear Regulatory Commission, Uranium Recovery Field Office, has approved restoration of Pattern 1 at the Reno Creek ISL Facility. The removal of the sludge from the

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evaporation pond and its transfer to a licensed disposal facility shall be as described in the licensee's letter of September 4, 1985, and in accordance with the approved decommissioning plan in License Condition No. 34.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Original Signed By
Richard F. Hawkins for

R. Dale Smith, Director
Uranium Recovery Field Office, Region IV

Dated: SEP 13 1985

OFC	URFO	URFO	URFO			
NAME	SWastler/lv	EHawkins	RDSmith			
DATE	85/09/13	9/6/85	9/13/85			