



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 29, 2000

Mr. Ernie Scott
Union Pacific Resources
Bear Creek Uranium Company
2515 Foothill Blvd., Suite 300
Rock Springs, WY 82901

SUBJECT: REVIEW OF REQUEST TO AMEND LICENSE CONDITIONS 2, 27, 33, 36, 37, 40, 44, 47 AND 49 OF BEAR CREEK SOURCE MATERIAL LICENSE SUA-1310, AMENDMENT 43

Dear Mr. Scott:

By letter dated March 16, 2000, Bear Creek Uranium Company (BCUC) requested amendments to License Conditions (LCs) 2, 27, 33, 36, 37, 40, 44, 47, and 49 of Source Material License SUA-1310 to reflect completion of reclamation at the Bear Creek site and to facilitate eventual termination of the license. BCUC also requested that the license reflect a redefined restricted area for the site. The BCUC amendment request was submitted in conjunction with the *Bear Creek Tailings Reclamation Construction Report* which was provided in a separate submittal dated March 16, 2000. The staff's evaluation of the BCUC amendment request was facilitated by a final inspection of the completed reclamation construction activities at the Bear Creek site on July 19, 2000. This letter and its enclosures document the results of the U.S. Nuclear Regulatory Commission staff's review of the BCUC amendment request. The staff's detailed evaluation of the requested amendments is provided in the enclosed Technical Evaluation Report (Enclosure 1).

Based on its review, the staff concludes that the BCUC request to amend LCs 2, 27, 36, 40, 47, and 49 is acceptable. The BCUC request to incorporate a redefined restricted area in the license is also acceptable and this was provided in LC 14. Additionally, the staff made an administrative change to LC 21 to reflect a reorganization of the NRC Uranium Recovery Program staff within the Office of Nuclear Material Safety and Safeguards. However, the staff is deferring action on LC 44 pending completion of the review of the *Bear Creek Tailings Reclamation Construction Report*. The staff's review of this report is ongoing but the staff can not make a determination regarding the acceptability of site reclamation, consistent with the plans and specifications of LC 44, until this review is complete. Lastly, BCUC had proposed deleting LCs 33 and 37 from the license. However, LCs 33 and 37 are requirements that derive from 10 CFR Part 20 and must be implemented until the Bear Creek License is terminated. The need for LCs 33 and 37 was discussed with BCUC staff who agreed that these conditions should remain in the license. Further, NRC and BCUC staffs agreed that LC 33 should be clarified and updated. Accordingly, LC 33 has been amended to clarify its intent and to reflect the current state of site reclamation. The aforementioned modifications to LCs 2, 14, 21, 27, 33, 36, 40, 47, and 49 are provided as Amendment No. 43 to Source material License SUA-1310 (Enclosure 2). All other conditions of the license shall remain the same.

September 29, 2000

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If you have any questions regarding this letter or the enclosures, please contact Rick Weller, the NRC Project Manager for the Bear Creek facility, at (301) 415-7287 or by e-mail to RMW2@NRC.gov.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,



Philip Ting, Chief
Fuel Cycle licensing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No.: 40-8452
License No.: SUA-1310

Enclosures:

1. Technical Evaluation Report
2. Amendment 43 to Source Material License
SUA-1310

cc: Mark Moxley, WDEQ
D. Bergman-Tabbert, DOE, Grand Junction

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Sincerely,

/s/

Philip Ting, Chief
 Fuel Cycle licensing Branch
 Division of Fuel Cycle Safety
 and Safeguards
 Office of Nuclear Material Safety
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Docket No.: 40-8452
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1. Technical Evaluation Report
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OFFICIAL RECORD COPY

TECHNICAL EVALUATION REPORT

DOCKET NO.: 40-8452

LICENSEE: Bear Creek Uranium Company

FACILITY: Bear Creek

PROJECT MANAGER: Rick Weller

TECHNICAL REVIEWERS: Rick Weller and Jane Gunn

SUMMARY AND CONCLUSIONS:

In a letter dated March 16, 2000, Bear Creek Uranium Company (BCUC) requested administrative and other amendments to Source Material License SUA-1310 to reflect completion of reclamation at the Bear Creek site and to facilitate eventual termination of the license. Amendments were requested to License Conditions (LCs) 2, 27, 33, 36, 37, 40, 44, 47, and 49. BCUC also requested that the license reflect a redefined restricted area. The amendment request was submitted in conjunction with the *Bear Creek Tailings Reclamation Construction Report* which was provided in a separate letter dated March 16, 2000. In order to facilitate the evaluation of the BCUC amendment request, the staff conducted a final inspection of the completed reclamation construction activities at the Bear Creek site on July 19, 2000.

Based on information provided by BCUC in its amendment request and the U.S. Nuclear Regulatory Commission (NRC) staff evaluation contained in this technical evaluation report (TER), the staff recommends that LCs 2, 27, 36, 40, 47, and 49 be amended as discussed herein. The staff also recommends amendment of LC 14 to reflect new boundaries for the restricted area. Additionally, the staff recommends an administrative change to LC 21 to reflect a reorganization of the NRC Uranium Recovery Program staff within the Office of Nuclear Material Safety and Safeguards. However, the staff recommends deferring action on LC 44 pending completion of the staff's ongoing review of the aforementioned *Bear Creek Tailings Reclamation Construction Report*. Lastly, BCUC had proposed deleting LCs 33 and 37 from the license. But, LCs 33 and 37 are requirements that derive from 10 CFR Part 20 and must be implemented until the Bear Creek license is terminated. These conditions were discussed with BCUC staff who agreed that LCs 33 and 37 should remain in the license. Further, NRC and BCUC staffs recommend amending LC 33 to clarify its intent and to reflect the current state of site reclamation.

DESCRIPTION OF BCUC AMENDMENT REQUEST:

1. LC 2 Amend to reflect the current mailing address for BCUC.
2. LC 27 Amend to reflect that Bear Creek's current approved surety is a Letter of Credit with the State of Wyoming, rather than a Corporate Guarantee.

3. LC 33 Delete in its entirety to reflect that all site reclamation activities are complete and written procedures for reclamation activities are no longer needed.
4. LC 36 Delete in its entirety to reflect that reclamation construction is complete and monthly inspections of the tailings impoundment are no longer required.
5. LC 37 Delete in its entirety to reflect that reclamation construction is complete and there is no need for a radiation safety officer/environmental coordinator (RSO/EC).
6. LC 40 Delete in its entirety to reflect that reclamation construction is complete and there is no need for an emergency action plan.
7. LC 44 Delete in its entirety to reflect that reclamation construction is complete and this condition is satisfied.
8. LC 47 Amend to eliminate some wells from the groundwater compliance monitoring program, add other new monitoring wells to the program, and reduce the frequency of well sampling. Also amend to reduce the frequency for the groundwater monitoring report.
9. LC 49 Amend to indicate that the target date for placement of erosion protection as part of reclamation has been satisfied.
10. BCUC also requested that the license reflect an enlarged restricted area with specified coordinates. (This request can be appropriately accommodated in LC 14.)

TECHNICAL EVALUATION AND RECOMMENDED LICENSE CHANGES:

License Condition 2

LC 2 specifies the mailing address for the licensee and BCUC requested that the license be amended to reflect the current mailing address. This request is purely administrative. Accordingly, LC 2 should be revised as follows:

2. Union Pacific Resources
2515 Foothill Blvd., Suite 300
Rock Springs, WY 82901

[Applicable Amendments: 25, 43]

License Condition 14

LC 14 requires the posting of radiation caution signs for the restricted area, however, the boundaries of the restricted area are not defined anywhere in the license. As noted above, BCUC requested that the license be amended to reflect a new enlarged restricted area with specified coordinates and LC 14 is an appropriate place to grant the request. This request is purely administrative. Accordingly, LC 14 should be revised as follows:

14. The licensee is hereby exempted from the requirements of Section 20.203(e)(2) of 10 CFR Part 20, provided that the restricted area is conspicuously posted. The restricted area is defined in the BCUC submittal dated March 16, 2000, as all of Section 16, T38N, R73W, 6th p.m., the S/2 Section 9, T38N, R73W, 6th p.m., the S/2 SW/4 NE/4 Section 9, T38N, R73W, 6th p.m., and S/2 SE/4 NE/4 Section 9, T38N, R73W, 6th p.m.

[Applicable Amendments: 21, 43]

License Condition 27

LC 27 specifies the NRC-approved financial surety arrangement that was established to comply with the requirements of 10 CFR Part 40, Appendix A, Criteria 9 and 10. BCUC requested that the license be amended to indicate that the currently approved surety is a Letter of Credit with the State of Wyoming, rather than a Corporate Guarantee with the State of Wyoming. This request is purely administrative. Accordingly, the third (last) paragraph of LC 27 should be revised as follows:

27. Bear Creek's currently approved surety, a Letter of Credit with the State of Wyoming, shall be continuously maintained in an amount no less than \$1,063,767 for the purpose of complying with 10 CFR Part 40, Appendix A, Criteria 9 and 10, until a replacement is authorized by both the State of Wyoming and the NRC.

[Applicable Amendments: 10, 19, 30, 31, 38, 40, 42, 43]

License Condition 33

LC 33 specifies the establishment of written operating procedures for site reclamation activities, personnel and environmental monitoring, and survey instrument calibrations. BCUC requested that this condition be deleted from the license as all reclamation construction activities have been completed at Bear Creek and written procedures for reclamation activities are no longer needed. LC 33 is a requirement that derives from 10 CFR Part 20 and applies to site reclamation activities as well as any environmental monitoring and survey instrument calibrations both during and after the period of active site reclamation. This includes the need for written operating procedures for the conduct of the groundwater compliance monitoring program required by LC 47. Thus, LC 33 must be retained and implemented until the Bear Creek license is terminated. The need for LC 33 was discussed with BCUC staff at the July 19, 2000, final inspection by the staff of the completed reclamation construction activities at the Bear Creek site and BCUC agreed that LC 33 should be retained in the license. Further, NRC and BCUC staffs believe that LC 33 should be amended to clarify its intent and to reflect the current state of site reclamation. Accordingly, LC 33 should be revised as follows:

33. Written procedures shall be established for site reclamation, personnel and environmental monitoring, and survey instrument calibrations. These procedures shall be reviewed and approved in writing by the RSO/EC before implementation and whenever a change in procedure is proposed to ensure that proper radiation protection principles are being applied. In addition, the RSO/EC shall perform a documented

review of all applicable site procedures at least annually. An up-to-date copy of each written procedure shall be kept by the RSO/EC.

[Applicable Amendments: 21, 43]

License Condition 36

LC 36 requires the performance of a monthly documented inspection of the down-slope area of the tailings impoundment until construction of the tailings disposal area is complete. BCUC has requested that LC 36 be deleted from the license as construction of the tailings disposal area is complete and LC 36 has been satisfied. The original purpose of this condition was to ensure the integrity of the tailings dam when there were potential sources for dam failure or seepage of contaminants from the existence of evaporation ponds and unconsolidated tailings in the impoundment. However, these sources no longer exist and the tailings have largely consolidated (dewatered). As such, this condition no longer serves its original purpose. Moreover, this condition has been satisfied with the completion of reclamation construction and, thus, LC 36 can be deleted from the license. Therefore, LC 36 should be revised as follows:

36. DELETED by Amendment No. 43.

License Condition 37

LC 37 specifies the education, training, and experience requirements for the RSO/EC. BCUC requested that this condition be deleted from the license as reclamation construction is complete and there is no further need for an RSO/EC. As with LC 33, LC 37 is a requirement that derives from 10 CFR Part 20, is linked to other conditions in the license (e.g., LC 33), and must be implemented until the Bear Creek license is terminated. The need for LC 37 was discussed with BCUC staff at the July 19, 2000, inspection by the staff of the Bear Creek site and BCUC agrees that LC 37 should be retained in the license. Accordingly, the staff recommends that LC 37 remain as currently formulated in the license.

License Condition 40

LC 40 requires the implementation of an emergency action plan for the Bear Creek site in the event of an emergency. The plan was developed to provide general guidelines for emergency situations (industrial accidents, fires, tailings dam failure) that may be encountered in daily operations. BCUC requested that LC 40 be deleted from the license as reclamation activities are complete and there are no employees remaining at the site. Inasmuch as daily operations have ceased and no employees remain at the Bear Creek site, the staff agrees that LC 40 is no longer needed. Accordingly, LC 40 should be revised as follows:

40. DELETED by Amendment No. 43.

License Condition 44

LC 44 references the plans and specifications that BCUC must follow to reclaim the tailings disposal area and BCUC requested that this condition be deleted as reclamation is now complete. The staff agrees that BCUC has completed site reclamation activities, including the additional work resulting from the staff's July 19, 2000, final inspection of the Bear Creek site to evaluate the geotechnical stability, surface water hydrology, erosion protection, and radiation protection features of the reclaimed site. Based on the results of this inspection, BCUC agreed to confirm the specified thickness of riprap in the chute section of the tailings impoundment diversion channel and on the downstream slope of the tailings embankment and this confirmation was provided in the BCUC letter dated September 22, 2000. While the staff's onsite inspection of the Bear Creek reclamation construction activities is complete, the staff has not yet completed its review of the *Bear Creek Tailings Reclamation Construction Report* which was submitted by BCUC in conjunction with the March 16, 2000, license amendment request. Until this review is complete, the staff can not make a determination that decommissioning and reclamation have been acceptably completed at the Bear Creek site, consistent with the plans and specifications referenced in LC 44. Accordingly, the staff recommends deferring action on LC 44 pending completion of the review of the aforementioned report.

License Condition 47

LC 47 requires the implementation of a groundwater compliance monitoring program for the Bear Creek site. BCUC requested that LC 47 be amended to eliminate some wells from the groundwater monitoring program, add other new monitoring wells to the program, and reduce the frequency of both well sampling and submittal of the groundwater monitoring report. As a part of the amendment submittal, BCUC requested that wells GW-8, GW-10, and GW-15 be removed from the groundwater compliance monitoring program. Wells GW-8, GW-10, and GW-15 are owned by local ranchers and have been used exclusively to supply water for livestock. Wells GW-8 and GW-10 are located cross gradient and west of the tailings impoundment and well GW-15 is located down gradient (north) but more than a mile from the impoundment. All three wells are developed in the Ore Sand formation. The Ore Sand is separated from the overlying alluvium and N-sand by 50 feet or more of low-permeability claystones and siltstones. Contaminant seepage from the tailings impoundment has only been detected in the shallower, hydraulically connected alluvium and N-sand and monitoring of the Ore Sand in the vicinity of the impoundment has confirmed the effectiveness of the claystones and siltstones as an aquitard. In this regard, continued monitoring of the alluvium and N-sand in the existing and proposed new monitoring wells will track the expected attenuation of seepage contaminants well within the boundaries of the enlarged restricted area to provide ample opportunity for additional safeguards if the long-term water quality predictions prove to be inaccurate. Thus, the staff agrees with BCUC that continued monitoring of the offsite wells GW-8, GW-10, and GW-15 is unnecessary.

In order to address State of Wyoming concerns about future groundwater quality at the Bear Creek site, BCUC proposed to add four new wells (MW-108, MW-109, MW-110, and MW-111) to the groundwater compliance monitoring program to monitor the groundwater along the existing Lang Draw and Northern contaminant seepage flow paths. As noted above, these wells will track the expected attenuation of the contaminants along these flow paths or

otherwise provide opportunity for corrective action if groundwater models are shown to be inaccurate. BCUC proposed to sample these wells on an annual frequency for nickel, combined radium-226 and -228, thorium-230, uranium, chloride, and sulfate. As these new wells provide added safeguards for protection of public health and safety and the environment, the BCUC proposal to add wells MW-108, MW-109, MW-110, and MW-111 to the groundwater compliance monitoring program is acceptable.

LC 47A requires semi-annual sampling of wells MW-9, MW-12, MW-14, MW-43, and MW-74 for nickel, combined radium-226 and -228, selenium, thorium-230, and uranium and BCUC requested that this frequency be increased to annual sampling of these wells for the identified constituents. Annual sampling of these wells would be the same as the proposed sampling frequency for the four new wells (MW-108, MW-109, MW-110, and MW-111). Consistent with annualized sampling of these wells, BCUC also requested that the frequency in LC 47 for required submittal of the groundwater monitoring report be reduced from a semi-annual to an annual requirement. The staff has reviewed the groundwater monitoring data from 1996 through the present for the point of compliance wells MW-12 and MW-74 and notes that all of the constituents of interest (beryllium, cadmium, chromium, molybdenum, selenium, thorium-230, nickel, combined radium-226 and -228, and uranium) have been compliant with the groundwater protection standards established in LC 47B and consistent with parameter values observed in the background well, MW-9. Given the stability of these monitored parameters, the relatively slow movement of groundwater in the alluvium and N-sand, the lack of any identified use for the alluvium and N-sand water, and the added protection provided by an enlarged restricted area, the staff concludes that protection of public health and safety and the environment would not be diminished by annual sampling of the wells specified in LC 47A. Accordingly, BCUC's request for annual sampling of these wells is acceptable. Correspondingly, BCUC's request for annual submittal of the groundwater monitoring report is also acceptable.

While considering BCUC's request to amend specific elements of LC 47, the staff evaluated the other elements of LC 47 to determine their present utility or merit, given the current status of the Bear Creek facility as a reclaimed site proceeding towards license termination. Based on this review, the staff has determined that additional modifications to LC 47 are warranted. Specifically, the staff believes that the monitoring requirements in LC 47A for the specified contaminant indicator parameters in wells MW-9, MW-12, MW-14, MW-43, and MW-74 are no longer necessary. The staff also believes that monitoring requirements for MW-2 for the specified contaminant indicator and radiological parameters are unnecessary. The primary purpose of the monitoring in these wells was to provide early indication of seepage or leakage of contaminants from the tailings impoundment when significant sources of leakage were available from the existence of tailings ponds and slimes. However, the ponds have been removed and the tailings have largely consolidated (dewatered). As such, the leakage sources no longer exist and the required monitoring no longer serves its original purpose. The staff concludes that this monitoring is no longer necessary, especially in light of the existing groundwater protection standards in LC 47B for the point of compliance (POC) wells MW-12 and MW-74 and the added safeguards provided by the new wells (MW-108, MW-109, MW-110, and MW-111) and the enlarged restricted area. Accordingly, the staff recommends that the monitoring requirements in LC 47A for the specified contaminant indicator parameters in wells MW-9, MW-12, MW-14, MW-43, MW-74, and MW-2 (all parameters) be deleted. This recommendation was discussed with, and was agreeable to, the licensee.

The staff also believes that, for the following reasons, the compliance requirements in LC 47B for concentrations of nickel, combined radium-226 and -228, and uranium at the specified point of exposure (POE) locations for the Lang Draw and Northern flow paths are essentially duplicative of the corresponding compliance requirements in LC 47B for concentrations of those same constituents at the POC locations (wells MW-12 and MW-74). There is no independent measurement of the constituents of interest at the POE locations and compliance (or noncompliance) at the POE locations is inferred from the measured concentrations of these constituents at the POC locations. Thus, if BCUC is in compliance with the groundwater protection standards at the POC locations, it is presumed that they are also in compliance with the groundwater protection standards at the POE locations, consistent with the flow and geochemical modeling performed by BCUC that was the basis for the groundwater protection standards established for the POE locations. If BCUC is not in compliance with the standards at the POC locations, LC 47C requires a corrective action program by BCUC to return the concentrations of the affected constituents to the established limits in LC 47B. Presumed noncompliance with the standards at the POE locations also requires corrective action by BCUC, but this action is essentially duplicative of the action already required by any noncompliance determined at the POC locations. As such, the groundwater protection standards established for the POE locations serve no useful purpose and the staff recommends their deletion from the license. This recommendation was discussed with, and was agreeable to, the licensee.

Based on the evaluation above, LC 47 should be revised as follows:

47. The licensee shall implement a groundwater compliance monitoring program containing the following:
 - A. Sample Well Nos. MW-9, MW-12, MW-14, MW-43, and MW-74 on an annual frequency for nickel, combined radium-226 and -228, selenium, thorium-230, and uranium. Sample Well Nos. MW-12 and MW-74 on an annual frequency for beryllium, cadmium, chromium, and molybdenum.
 - B. Comply with the following groundwater protection standards at point of compliance Well Nos. MW-12 and MW-74, with background water quality established in Well No. MW-9: beryllium = 0.01 mg/L, cadmium = 0.01 mg/L, chromium = 0.05 mg/L, molybdenum = 0.02 mg/L, selenium = 0.025 mg/L, thorium-230 = 2.6 pCi/L, nickel = 3.8 mg/L, combined radium-226 and -228 = 46 pCi/L, and uranium = 2038 pCi/L.
 - C. In the event the limits for the constituents in Subsection (B) are exceeded, the licensee will propose a new corrective action program with the objective of returning concentrations of those constituents to the concentration limits specified in Subsection (B).

The licensee shall, on an annual frequency, submit a groundwater monitoring report. Should a new corrective action program be required under Subsection (C), the licensee also shall submit a corrective action program review, by December 31 of each year, that describes the progress towards attaining groundwater protection standards.

[Applicable Amendments: 39, 43]

License Condition 49

LC 49 specifies the target dates for the timely completion of various site reclamation activities. In this regard, BCUC had previously satisfied all of the target dates in LC 49 for control of radon emissions and groundwater corrective action and only the target date (December 31, 1999) in LC 49B(1) for placement of erosion protection remained to be satisfied. As noted in your March 16, 2000, license amendment request, reclamation of the Bear Creek site, including the placement of erosion protection, was completed on November 17, 1999, satisfying LC 49B(1). As such, LC 49 should be revised as follows:

49. The licensee shall complete site reclamation in accordance with the approved reclamation plan and the groundwater corrective action plan as authorized by License Conditions 44 and 47, respectively, in accordance with the following schedules:

A. To ensure timely compliance with target completion dates established in the Memorandum of Understanding with the Environmental Protection Agency (56 FR 55432, October 25, 1991), the licensee shall complete reclamation to control radon emissions as expeditiously as practicable, considering technological feasibility, in accordance with the following schedule:

- (1) Windblown tailings retrieval and placement on the pile - Completed
- (2) Placement of the interim cover to decrease the potential for tailings dispersal and erosion - Completed
- (3) Placement of the final radon barrier designed and constructed to limit radon emissions to an average flux of no more than 20 pCi/m²/s above background:

For tailings pile surface areas not covered by evaporation ponds constructed as part of the groundwater corrective action program - Completed

For the total tailings pile surface after evaporation pond removal - Completed

[Applicable Amendment: 41]

B. Reclamation, to ensure required longevity of the covered tailings and groundwater protection, shall be completed as expeditiously as is reasonably achievable, in accordance with the following target dates for completion:

- (1) Placement of erosion protection as part of reclamation to comply with Criterion 6 of Appendix A of 10 CFR Part 40 - Completed
- (2) Projected completion of groundwater corrective actions to meet performance objectives specified in the groundwater corrective action plan - Completed

[Applicable Amendments: 41, 43]

C. DELETED by Amendment No. 43.

D. DELETED by Amendment No. 43.

Administrative Change to License Condition 21

Following the submittal of the BCUC March 16, 2000, license amendment request, the NRC Uranium Recovery Program staff were reorganized within the Office of Nuclear Material Safety and Safeguards. Accordingly, the staff recommends that LC 21 be updated to reflect this reorganization. This recommended change is purely administrative. LC 21 should be revised as follows:

21. The licensee shall conduct an annual survey of land use (private residences, grazing areas, private and public potable water and agricultural wells, and non-residential structures and uses) in the area within two kilometers of any portion of the restricted area boundary and submit a report of this survey to the Chief, Fuel Cycle Licensing Branch, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. This report shall indicate any differences in land use from that described in the last report.

[Applicable Amendments: 24, 31, 43]

Summary

The staff recommends that LCs 2, 14, 21, 27, 36, 40, and 47 be amended as discussed above. All other conditions of this license shall remain the same. The staff is deferring consideration of amendments to LCs 33, 37, and 44 pending performance of the final inspection by the staff of the completed reclamation construction activities at the Bear Creek site.

ENVIRONMENTAL IMPACT EVALUATION

An environmental assessment for this action is not required because this action is categorically excluded under 10 CFR Part 51.22(c)(10) and (11).

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, 36, 39, 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.

<p style="text-align: center;">Licensee</p> <p>1. Bear Creek Uranium Company</p> <p>2. Union Pacific Resources 2515 Foothill Blvd. Suite 300 Rock Springs, WY 82901 [Applicable Amendments: 25, 43]</p>	<p>3. License Number SUA-1310, Amendment No.43</p> <p>4. Expiration Date Until NRC determines site reclamation is adequate [Applicable Amendments: 16]</p> <p>5. Docket or Reference No. 40-8452</p>
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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
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Natural Uranium	Any	Residual contamination from previously licensed activities. [Applicable Amendments: 21]
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9. Authorized place of use: The licensee's facilities located in Converse County, Wyoming. [Applicable Amendments: 21]

10. The licensee is hereby authorized to possess byproduct material in the form of uranium waste tailings and other byproduct wastes generated from past operations at the site. [Applicable Amendments: 14]

11. For use in accordance with statements, representations, and conditions contained in the licensee's submittal dated August 15, 1988, except where superseded by license conditions below.

Whenever the word "will" is used in the above referenced document, it shall denote a requirement.

[Applicable Amendments: 12, 21]

12. DELETED by Amendment No. 14.

13. DELETED by Amendment No. 14.

14. The licensee is hereby exempted from the requirements of Section 20.203(e)(2) of 10 CFR 20, provided that the restricted area is conspicuously posted. The restricted area is defined in the BCUC submittal dated March 16, 2000, as all of Section 16, T38N, R73W, 6th p.m., the S/2 Section 9, T38N, R73W, 6th p.m., the S/2 SW/4 NE/4 Section 9, T38N, R73W, 6th p.m., and S/2 SE/4 NE/4 Section 9, T38N, R73W, 6th p.m.

[Applicable Amendments: 21, 43]

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number SUA-1310, Amendment 43

Docket or Reference Number 40-8452

15. The results of sampling, analyses, surveys and monitoring; the results of calibration of equipment; reports on audits and inspections; all meetings and training courses required by this license; and any subsequent reviews, investigations, and corrective actions, shall be documented. Unless otherwise specified in NRC regulations, all such documentation shall be maintained for a period of at least 5 years.
16. DELETED by Amendment No. 14.
17. DELETED by Amendment No. 21.
18. Release of equipment or packages from the restricted area shall be in accordance with the NRC report, "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct or Source Materials," dated September 1984.

[Applicable Amendments: 31]
19. DELETED by Amendment No. 24.
20. DELETED by Amendment No. 24.
21. The licensee shall conduct an annual survey of land use (private residences, grazing areas, private and public potable water and agricultural wells, and non-residential structures and uses) in the area within two kilometers of any portion of the restricted area boundary and submit a report of this survey to the Chief, Uranium Recovery Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. This report shall indicate any differences in land use from that described in the last report. [Applicable Amendments: 24, 31]
22. DELETED by Amendment No. 24.
23. DELETED by Amendment No. 14.
24. The licensee shall immediately notify the NRC, Operations Center (301-816-5100), by telephone, of any failure to the tailings dam or tailings discharge and solution return system which results in a release of radioactive material and/or of any unusual conditions which if not corrected could lead to such a failure. This requirement is in addition to the requirements of 10 CFR 20. [Applicable Amendments: 31]
25. Before engaging in any activity not previously assessed by the NRC, the licensee shall prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity may result in a significant adverse environmental impact that was not assessed or that is greater than that assessed, the licensee shall provide a written evaluation of such activities and obtain prior approval of the NRC in the form of a license amendment.
26. DELETED by Amendment No. 14.
27. The licensee shall maintain an NRC-approved financial surety arrangement, consistent with 10 CFR 40, Appendix A, Criteria 9 and 10, adequate to cover the estimated costs, if accomplished

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by a third party, for decommissioning and decontamination of the mill site, for reclamation of any tailings or waste disposal areas, ground-water restoration as warranted and the long-term surveillance fee. Within 3 months of NRC approval of a revised reclamation/decommissioning plan, the licensee shall submit, for NRC review and approval, a proposed revision to the financial surety arrangement if estimated costs in the newly approved plan exceed the amount covered in the existing financial surety. The revised surety shall then be in effect within 3 months of written NRC approval.

Annual updates to the surety amount, required by 10 CFR 40, Appendix A, Criteria 9 and 10, shall be submitted to the NRC at least 3 months prior to the anniversary date which is designated as January 30. If the NRC has not approved a proposed revision to the surety coverage 30 days prior to the expiration date of the existing surety arrangement, the licensee shall extend the existing surety arrangement for 1 year. Along with each proposed revision or annual update, the licensee shall submit supporting documentation showing a breakdown of the costs and the basis for the cost estimates with adjustments for inflation, maintenance of a minimum 15 percent contingency fee, changes in engineering plans, activities performed and any other conditions affecting estimated costs for site closure. The licensee shall also provide the NRC with all surety related correspondence submitted to the State, a copy of the State's surety review and the final approved surety arrangement. The licensee shall also ensure that the surety, where authorized to be held by the State, expressly identifies the NRC portion of the surety and covers the decommissioning and decontamination of the mill site, reclamation of the tailings and waste disposal areas, soil and water sample analyses to confirm decontamination, groundwater restoration as warranted and the transfer of the long-term surveillance fee to the U.S. General Treasury. The basis for the cost estimate is the NRC approved reclamation/decommissioning plan or NRC approved revisions to the plan. The NRC report, "Recommended Outline for Site Specific Reclamation and Stabilization Cost Estimates," outlines the minimum considerations used by the NRC in the review of site closure estimates. Reclamation/decommissioning plans and annual updates should follow this outline.

Bear Creek's currently approved surety, a Letter of Credit with the State of Wyoming, shall be continuously maintained in an amount no less than \$1,063,767 for the purpose of complying with 10 CFR 40, Appendix A, Criterion 9 and 10, until a replacement is authorized by both the State of Wyoming and the NRC.

[Applicable Amendments: 10, 19, 30, 31, 38, 40, 42, 43]

- 28. Prior to termination of this license, the licensee shall provide for transfer of title to byproduct material and land, including any interests therein (other than land owned by the United States or the State of Wyoming), which is used for the disposal of such byproduct material or is essential to ensure the long term stability of such disposal site to the United States or the State of Wyoming, at the state's option.
- 29. DELETED by Amendment No. 21.
- 30. DELETED by Amendment No. 21.
- 31. DELETED by Amendment No. 25.
- 32. DELETED by Amendment No. 34.

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33. Written procedures shall be established for site reclamation, personnel and environmental monitoring, and survey instrument calibrations. These procedures shall be reviewed and approved in writing by the RSO/EC before implementation and whenever a change in procedure is proposed to ensure that proper radiation protection principles are being applied. In addition, the RSO/EC shall perform a documented review of all existing site procedures at least annually. An up-to-date copy of each written procedure shall be kept by the RSO/EC.

[Applicable Amendments: 21, 43]

34. DELETED by Amendment No. 21.

35. DELETED by Amendment No. 12.

[Applicable Amendments: 4, 23, 24]

36. DELETED by Amendment No. 43.

37. The RSO/EC shall have the following education, training, and experience:

- A. Education: A bachelor's degree in the physical sciences or engineering from an accredited college or university.
- B. General Experience: One (1) year of supervisory experience and one (1) year of experience in a uranium mill or related industry.
- C. Health Physics Experience: One (1) year of work experience in applied health physics, radiation protection, industrial hygiene, or similar work. This experience shall involve actually working with radiation detection measurement equipment rather than only administrative or "desk" work.
- D. DELETED by Amendment No. 21.
- E. Specialized knowledge: A thorough knowledge of the proper application and use of all health physics equipment used in the uranium milling industry, the chemical and analytical procedures used for radiological sampling and monitoring, and the methods used to calculate personnel exposure to uranium and its daughters.

If the individual selected for the RSO position does not meet the educational requirements specified above, but possesses prior work experience in radiation safety, the licensee may consider two (2) years of radiation safety work experience as a substitute for each year of the college level educational requirements. If the RSO possesses a graduate level degree, with major emphasis in the area of radiation safety, the above specialized training requirement may be waived.

[Applicable Amendments: 21]

38. DELETED by Amendment No. 14.

39. DELETED by Amendment No. 12.

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- 40. DELETED by Amendment No. 43.
 - 41. DELETED by Amendment No. 21.
 - 42. DELETED by Amendment No. 21.
 - 43. The licensee shall follow the lower limits of detection (LLD) contained in the NRC report, "Lower Limits of Detection (LLD) for Sample Analysis," for the analysis of samples collected pursuant to the Environmental Monitoring Program of this license. [Applicable Amendments: 31]
 - 44. The licensee shall reclaim the tailings disposal area as stated in its November 26, 1991, submittal of specification and drawings, as modified by its March 20, 1992; April 8, 1997; and October 22, 1997, submittals.
 - A. DELETED by Amendment 34. Settlement is complete.
 - B. DELETED by Amendment 26.
 - C. DELETED by Amendment 36.
 - D. DELETED by Amendment 36.
- [Applicable Amendments: 2, 3, 25, 26, 34, 36, 37]
- 45. DELETED by Amendment No. 21.
 - 46. DELETED by Amendment No. 21.
 - 47. The licensee shall implement a groundwater compliance monitoring program containing the following:
 - A. Sample Well Nos. MW-9, MW-12, MW-14, MW-43, and MW-74 on an annual frequency for nickel, combined radium-226 and -228, selenium, thorium-230, and uranium. Sample Well Nos. MW-12 and MW-74 on an annual frequency for beryllium, cadmium, chromium, and molybdenum.
 - B. Comply with the following groundwater protection standards at point of compliance Well Nos. MW-12 and MW-74, with background water quality established in Well No. MW-9: beryllium = 0.01 mg/L, cadmium = 0.01 mg/l, chromium = 0.05 mg/l, molybdenum = 0.02 mg/l, selenium = 0.025 mg/l, thorium-230 = 2.6 pCi/L, nickel = 3.8 mg/l, combined radium-226 and -228 = 46 pCi/L, and uranium = 2038 pCi/L.
 - C. In the event the limits for the constituents in Subsection (B) are exceeded, the licensee will propose a new corrective action program with the objective of returning concentrations of those constituents to the concentration limits specified in Subsection (B).

The licensee shall, on an annual frequency, submit a groundwater monitoring report. Should a new corrective action program be required under Subsection (C), the licensee also shall submit a

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corrective action program review, by **December 31** of each year, that describes the progress towards attaining groundwater protection standards.

[Applicable Amendments: 39, 43]

48. DELETED by Amendments 13 and 39.

49. The licensee shall complete site reclamation in accordance with the approved reclamation plan and the groundwater corrective action plan as authorized by License Conditions 44 and 47, respectively, in accordance with the following schedules:

A. To ensure timely compliance with target completion dates established in the Memorandum of Understanding with the Environmental Protection Agency (56FR 55432, October 25, 1991), the licensee shall complete reclamation to control radon emissions as expeditiously as practicable, considering technological feasibility, in accordance with the following schedule:

- (1) Windblown tailings retrieval and placement on the pile - Completed.
- (2) Placement of the interim cover to decrease the potential for tailings dispersal and erosion - Completed.
- (3) Placement of the final radon barrier designed and constructed to limit radon emissions to an average flux of no more than 20 pCi/m²/s above background:

For tailings pile surface areas not covered by evaporation ponds constructed as part of the groundwater corrective action program - Completed.

For the total tailings pile surface after evaporation pond removal - Completed.

[Applicable Amendment: 41]

B. Reclamation, to ensure required longevity of the covered tailings and groundwater protection, shall be completed as expeditiously as is reasonably achievable, in accordance with the following target dates for completion.

- (1) Placement of erosion protection as part of reclamation to comply with Criterion 6 of appendix A of 10 CFR Part 40 - Completed.
- (2) Projected completion of groundwater corrective actions to meet performance objectives specified in the groundwater corrective action plan - Completed.

[Applicable Amendment: 41, 43]

C. DELETED by Amendment No. 43.

D. DELETED by Amendment No. 43.

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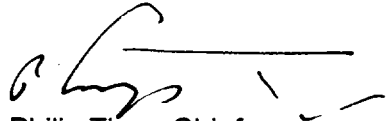
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FOR THE NUCLEAR REGULATORY COMMISSION

Dated: Sept 29, 2000



Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material
Safety and Safeguards