February 15, 2008

Mr. John McCarthy
Power Resources, Inc.
Smith Ranch-Highland Uranium Project
P.O. Box 1210
Glenrock, WY 82637

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - SURETY ESTIMATE FOR REYNOLDS RANCH SOURCE MATERIALS LICENSE SUA-1548 (TAC J00514)

Dear Mr. McCarthy:

On January 23, 2008, Power Resources Inc. (PRI) submitted a surety estimate for Reynolds Ranch, which is part of the Smith Ranch – Highland Uranium Project in Converse County, Wyoming. The surety estimate was submitted to the U.S. Nuclear Regulatory Commission (NRC) per License Condition 9.5 of Source Materials License SUA-1548 which states:

> At least 90 days prior to beginning construction associated with any planned expansion or operational change which was not included in the annual surety update, the licensee shall provide, for NRC approval, an updated surety to cover the expansion or change.

Upon reviewing this submittal, NRC staff has identified several items that require further clarification. NRC staff comments are contained in the enclosed material. Please provide the requested information by March 31, 2008. Please note that the Reynolds Ranch surety has to be approved before initiation of construction activities. If you have any questions regarding this matter, please contact me at (301) 415-0724, or by e-mail, at DTM1@nrc.gov.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

Sincerely,

/RA/

Douglas T. Mandeville, Geotechnical Engineer
Uranium Recovery Licensing Branch
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 40-8964
License No.: SUA-1548

Enclosure: Request for Additional Information

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Smith Ranch-Highland Uranium Project
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Request for Additional Information
Power Resources, Inc
Reynolds Ranch Surety Estimate
Smith Ranch Highland Uranium Project
Converse County, Wyoming

During the staff's review of the Reynolds Ranch January 23, 2008 surety estimate (Power Resources Inc (PRI), 2008), it was identified that the format and technical content was similar to the rebaselined surety estimate for the Smith Ranch – Highland Uranium Project (SR-HUP) submitted by PRI on June 29, 2007 (PRI, 2007d). In a response letter dated January 23, 2008 (NRC, 2008), Nuclear Regulatory Commission (NRC) staff identified six comments to be addressed by PRI related to the rebaselined surety for SR-HUP. As the Reynolds Ranch surety estimate contains similar assumptions, the same six NRC comments apply to this surety estimate. For your convenience, the previous six comments are provided below. Additions or modifications to the six comments are presented in *italics*. Please note that one new item has been added to comment 6. The staff's review resulted in one new comment, which is presented as comment 7. While identified during the Reynolds Ranch review, comment 7 applies to both the SR-HUP rebaselined surety and the Reynolds Ranch estimated surety.

Comment 1: For Power Resources Inc. (PRI) (2007a, WorleyParsons Komax response to Item 1), NRC staff agrees that the methodology used by PRI in its revised surety estimates is consistent with the previously approved Crow Butte Resources method for determination of impacted soils. However, approximately 20 of the 79 SR-HUP liquid releases reported to NRC since June 1997 have been associated with headerhouses. Impacted soils associated with liquid releases at headerhouses are not accounted for in PRI's revised surety estimates. Consequently, please revise the SR-HUP soil cleanup surety estimates to account for impacted soils in the vicinity of headerhouses. *Comment 1 also applies to the Reynolds Ranch surety at this time as soils at the headerhouses will likely be impacted once operations commence. Liquid releases at the headerhouses are an expected condition of normal operations and should be included in the surety estimate. Note that future surety estimates for Reynolds Ranch may need to be revised to reflect the actual frequency of liquid releases observed at the headerhouses.*

Comment 2: For PRI (2007a, WorleyParsons Komax response to Item 2), NRC staff agrees that the recently completed well in Mine Unit H indicates that the upper 130 feet of material consists of claystone, mudstone, shale and/or siltstone. However, this boring, which is located on the Highland portion of SR-HUP, does not support the assertion that similar conditions exist "across the site" (i.e., throughout SR-HUP). In particular, liquid releases greater than 10,000 gallons have been reported for Smith Ranch Wellfields 1 (January 1998 and December 1999), 3 (July 1999, October 2001, and December 2006), and 4 (April 2002 and September 2003). Consequently, please provide additional stratigraphic, water level and/or potentiometric information, including geologic cross-sections, which support the conclusion that a significant thickness of low permeable material exists above the shallow water table throughout SR-HUP. *Comment 2 is also applicable to the Reynolds Ranch surety at this time as the potential for liquid releases to impact the shallow water table will exist once operations commence. Additional stratigraphic, water level and/or potentiometric information, including geologic cross sections, that support the conclusion that a significant thickness of low permeable material exists above the shallow water table should be provided for Reynolds Ranch.*

Comment 3: For PRI (2007a, WorleyParsons Komax response to Item 3), PRI's estimate that

only 0.09% of existing SR-HUP well parts would need to be replaced appears inconsistent with its statement that, as of July 30, 2007, PRI had replaced 1,700 well unions due to PRI's ban on reusing pipe unions during maintenance activities (PRI 2007b, Item 2) and that it currently retrofits all wellheads in wellfields targeted for restoration (PRI 2007b, Item 8). In addition, although PRI (2007c and d, Recurring Costs_Basis worksheets) has line items for restoration spare parts, these line items do not appear to be utilized in any of the calculated costs. Please provide additional information that indicates how the 0.09% assumption is consistent with reported wellfield retrofitting/repair at SR-HUP and how PRI-reported wellfield retrofitting prior to restoration is accounted for in SR-HUP surety estimates. *Comment 3 is also applicable to the Reynolds Ranch surety at this time as it is anticipated that replacement of well parts will be required once operations commence. As installation of replacement well parts is an expected condition of normal operations, this should be addressed in the surety estimate. Note that future surety estimates for Reynolds Ranch may need to be revised depending on the frequency of repairs and retrofits required at Reynolds Ranch.*

Comment 4: As part of its June 29, 2007 surety estimate revisions (PRI 2007c and 2007d), PRI reduced its estimated restoration pore volumes from six to four. To support the reduction, PRI enclosed the Lewis Water Consultants October 29, 1999 report Draft Evaluation and Simulation of Wellfield Restoration at the RAMC Smith Ranch Facility (Lewis Water Consultants 1999). Lewis Water Consultants (1999) contains analytical, numerical, and geochemical modeling analysis of the Smith Ranch Q-sand pilot restoration study and derives between 3.2 and 4.4 restoration pore volumes for the Q-sand restoration. NRC staff has reviewed historical records contained under docket file 40-8768 (Sequoyah Q-Sand In-Situ Leach R&D project). For the Q-sand pilot restoration study (November 1984 through May 1986), NRC staff calculates that between 9 to 18 pore volumes were removed. Furthermore, just over 15 pore volumes were removed as part of the Wellfield A restoration effort at the Highland site (PRI 2004). Consequently, NRC staff believes there is insufficient basis for PRI to reduce its estimation of restoration pore volumes in its surety estimates. As a result, please provide additional information to support PRI's current estimate of four pore volumes necessary to complete ground water restoration at SR-HUP wellfields or revise the pore volume estimate based on completed restorations. *This comment also applies to the Reynolds Ranch surety estimate. PRI should follow a similar approach to evaluate the number of pore volumes required to complete restoration at Reynolds Ranch.*

Comment 5: PRI's estimated restoration periods (PRI 2007c, Monitoring and Sampling Costs, Ground Water Restoration worksheet) appear to be inconsistent with the reported wastewater disposal capacity at Smith Ranch. PRI uses a default value of two years for all Mine Unit restorations. However, for large Mine Units (e.g., Mine Units 2, 15, and 15A), the apparent reduced waste disposal capacity of Waste Disposal Wells Nos. 1 and 2 (combined 150 gallons per minute (gpm), PRI (2007a, Figure 1, Current Mass Flow Chart)) would result in restoration periods of greater than two years. Moreover, any increase in restoration pore volumes (see Comment 4) will further increase the estimated restoration period. As a result, please reconcile the Estimated Restoration Periods on the Ground Water Restoration worksheet with reported wastewater disposal capacities at SR-HUP. *This comment also applies to the Reynolds Ranch surety estimate. PRI should use a similar approach to reconcile the estimated restoration period for the Reynolds Ranch surety estimate.*

Comment 6: For PRI (2007c and 2007d), please provide the following information:

1) Conversion factor for kilowatt to horsepower and horsepower to gpm on the Recurring Costs_Basis worksheet.

2) Cost basis for the Central Plant, Satellites, and Main Office unit electrical costs on the Recurring Costs_Basis worksheet.

3) Cost basis for the Environmental Manager, Environmental Technician, and Maintenance Technician labor rates on the Recurring Costs_Basis worksheet.

4) Cost basis for the Elution Unit Chemical Cost on the Recurring Costs_Basis worksheet.

5) The Restoration Spare Parts line item on Recurring Costs_Basis worksheet does not appear to be included in the total cost.

Comment 7: *PRI's surety estimate does not appear to include costs for radiation surveys to document reclamation of disturbed lands or removal of residual contamination from structures and equipment. As discussed in Section 6.2 of NUREG 1569 (NRC, 2003), the licensee should provide the NRC with documentation of the post operational conditions at the site. This includes soils within the wellfield, buildings, and equipment. Following reclamation, the licensee should conduct a post reclamation and decommissioning radiological survey to verify that any remaining contamination has been cleaned up. This is discussed in Section 6.4 of NUREG 1569. As these items should be performed by the licensee prior to license termination, costs for these activities should be included in the surety estimate. Please include these costs in the revised surety estimates for both SR-HUP and Reynolds Ranch.*

References

Lewis Water Consultants (1999) Draft Evaluation and Simulation of Wellfield Restoration at the RAMC Smith Ranch Facility. October 29. (ADAMS Accession No. ML071920087)

Nuclear Regulatory Commission (2003), NUREG-1569, Standard Review Plan for In Situ Leach Uranium Extraction Facilities

Nuclear Regulatory Commission (2008) Letter from P. Michalak to J. McCarthy, PRI – Containing Request for Additional Information for Smith Ranch Rebaselined Surety Estimates. January 23 (ADAMS Accession No. ML080100363)

Power Resources Inc. (2004) Smith Ranch - Highland Uranium Project – A Wellfield Ground Water Restoration information. January 15. (ADAMS Accession No. ML040300369)

Power Resources Inc. (2007a) Letter from J. McCarthy to P. Michalak, NRC – Response to SR-HUP surety bond issues identified in NRC letter dated May 22, 2007 with WorleyParsons Komax enclosure. July 30 (ADAMS Accession No. ML072200503)

Power Resources Inc. (2007b) Letter from J. McCarthy to P. Michalak, NRC – In Situ Wellfield Release Follow-up Report. July 30 (ADAMS Accession No. ML072210887)

Power Resources Inc. (2007c) Letter from J. McCarthy to G. Janosko, NRC – Containing Smith Ranch 2007-2008 Surety Estimate Revision. June 29 (ADAMS Accession No. ML072210876)

Power Resources Inc. (2007d) Letter from J. McCarthy to G. Janosko, NRC – Containing Highland 2007-2008 Surety Estimate Revision. June 29 (ADAMS Accession No. ML072210866)

Power Resources Inc. (2008) Letter from J. McCarthy to P. Michalak, NRC – Containing Reynolds Ranch Surety Estimate, January 23 (ADAMS Accession No. ML080320329)