August 12, 2009

NOTE TO: Docket File 04008964

FROM: Douglas T. Mandeville, Project Manager **/RA/**
Uranium Recovery Licensing Branch
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

THROUGH: Bill vonTill, Chief
Uranium Recovery and Licensing Branch
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

SUBJECT: ENVIRONMENTAL ASSESSMENT, TOLL MILLING OF THIRD PARTY ION EXCHANGE RESINS, POWER RESOURCES, INC., GLENROCK, WYOMING SUA-1548 (TAC J00565)

By letter dated June 19, 2008, Power Resources, Inc. (PRI), doing business as Cameco Resources submitted to U.S. Nuclear Regulatory Commission (NRC) staff a request to accept and process third party ion exchange resin at its Smith Ranch – Highland Uranium Project (SR-HUP). Specifically, PRI sought permission to accept and process 365 shipments of ion exchange resin per year from NRC licensed facilities in the State of Wyoming. This action would be performed within the currently approved processing limits of 20,000 gpm flowrate in the central processing plant and annual yellowcake production of 5.5 million pounds per year.

To support this licensing action, NRC staff issued a draft environmental assessment (EA) to the Wyoming Department of Environmental Quality (WDEQ) and U.S. Bureau of Land Management (BLM) on April 15, 2009. NRC did receive two comments from WDEQ; these comments were addressed in the final EA. BLM did not have any comments on the draft EA. We are issuing the enclosed final EA for the proposed action, which contains a Finding of No Significant Impact (FONSI). NRC staff will publish, in the Federal Register, its FONSI, after which the staff will issue the license amendment and technical evaluation report for the proposed action.

The EA prepared by the staff is provided as an enclosure to this memorandum to be placed in the licensee's docket file.

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

Enclosure: As stated

FINAL ENVIRONMENTAL ASSESSMENT FOR THE THIRD PARTY PROCESSING OF ION EXCHANGE RESIN TO POWER RESOURCES, INC'S SMITH RANCH / HIGHLANDS URANIUM PROJECT CONVERSE COUNTY, WYOMING

SOURCE MATERIAL LICENSE NO. SUA-1548
DOCKET NO. 40-8964

July 28, 2009

U.S. Nuclear Regulatory Commission
Office of Federal and State Materials and Environmental Management Programs
Division of Waste Management and Environmental Protection
Uranium Recovery Licensing Branch

FINAL ENVIRONMENTAL ASSESSMENT FOR THE THIRD PARTY PROCESSING OF ION EXCHANGE RESIN TO POWER RESOURCES, INC'S SMITH RANCH / HIGHLANDS URANIUM PROJECT IN SITU RECOVERY FACILITY CONVERSE COUNTY, WYOMING

INTRODUCTION

The U.S. Nuclear Regulatory Commission (NRC) staff is considering a request by Power Resources, Inc. (PRI) to accept and process ion exchange (IX) resin at its Smith Ranch – Highland Uranium Project (SR-HUP) in Converse County, Wyoming. IX resin is used during the in situ recovery (ISR) process to remove uranium from solution. By letter dated June 19, 2008, PRI submitted the aforementioned request to the NRC staff (PRI, 2008a). In this scenario, wellfield operations and initial processing steps through loading of uranium onto the IX resin would occur at NRC licensed facilities in Wyoming. The IX resin would be shipped to SR-HUP for the final stages of processing and yellowcake production.

During its acceptance review, the NRC staff found the original application to be incomplete as the request did not include an environmental analysis of the potential impacts of transportation of IX resin to SR-HUP (NRC, 2008a). PRI submitted additional information related to the environmental analysis on October 1, 2008 (PRI, 2008b). Based on its review of the information provided in the amendment request and the additional submittal related to potential impacts to transportation, NRC staff determined that the license amendment request is acceptable and intends to approve it. This environmental assessment (EA) documents the NRC staff's environmental review of this proposed action.

Background

PRI currently conducts commercial ISR operations for uranium at its SR-HUP site under NRC License SUA-1548, which currently runs through September 30, 2010. The facility includes two central processing plants (CPP), wellfields, roads, satellite buildings, maintenance buildings, and an administrative building. The facility is located in Converse County, Wyoming. The Smith Ranch CPP and administration building is located about 22 road miles (35.4 kilometers) northeast of Glenrock, Wyoming, and 25 road miles (40.2 kilometers) northwest of Douglas, Wyoming. The Highland CPP is located approximately 8 miles (12.9 kilometers) east of the Smith Ranch CPP. The Smith Ranch CPP is currently in operation and producing yellowcake; the Highland CPP is currently in standby mode. In addition to the main SR-HUP facility, license SUA-1548 also includes the remote satellite facilities at Reynolds Ranch, Ruth, North Butte, and Gas Hills. ISR activities have not been initiated yet at the remote satellite facilities.

The steps involved in a yellowcake production at SR-HUP include: (1) initial extraction of uranium from the ground using a lixiviant; (2) loading of uranium onto IX resin; (3) transportation of IX resin to the CPP; (4) stripping of uranium from the IX resin; (5) precipitation of uranium from solution; (6) production of yellowcake slurry; and (7) drying and packaging. Steps 1 and 2 are typically performed at satellite facilities and IX resin is shipped from the satellite to the CPP. PRI currently receives shipments of IX resin several times a week at the existing Smith Ranch CPP from its operating satellite facilities (Satellite 2, Satellite 3, SR-1, and SR-2). The operating satellite facilities are all located within the existing SR-HUP permit boundary. License Condition

9.1 gives PRI the authority to ship IX resin or yellowcake slurry between the remote satellites and the Smith Ranch CPP. Note that IX resin from a third party facility would be handled in the same manner as IX resin from the operating SR-HUP satellites.

Commercial plant operations at the SR-HUP and satellite facilities are limited to an average monthly flow rate of 20,000 gallons per minute (75,700 liters per minute), exclusive of restoration, and annual yellowcake production shall not exceed 5.5 million pounds (2.49 million kilograms) of yellowcake per year. PRI's current annual production is less than half of this limit.

Need for the Proposed Action

PRI currently conducts commercial scale ISR activities within the SR-HUP permit area. PRI has requested the ability to receive and process IX resin generated at other uranium recovery facilities in Wyoming. This would provide operational flexibility to PRI and other ISR facilities in Wyoming to meet market demand for yellowcake, a product that will eventually be used in fuel for commercially operated nuclear power reactors.

Proposed Action

PRI plans to receive and process third party IX resin generated at NRC licensed uranium recovery facilities located in Wyoming (2008a, 2008b). Processing of third party resins is also referred to as toll milling. Processing of third party IX resin would remain below the currently approved average monthly flow limit of 20,000 gallons per minute (75,700 liters per minute), exclusive of restoration, and annual yellowcake production shall not exceed 5.5 million pounds (2.49 million kilograms) of yellowcake per year.

Shipments of resin from third party facilities would average approximately 365 per year (this would be in addition to the current and anticipated shipments from currently licensed satellite facilities to SR-HUP). Each shipment would consist of between 2,000 and 3,000 pounds (907 and 1361 kilograms) of uranium absorbed onto resin beads (PRI, 2008b). PRI will not make any changes to equipment or techniques for processing the third party IX resin.

Review Scope/Regulatory Environment

The NRC staff is reviewing PRI's request in accordance with the NRC's environmental protection regulations in 10 CFR Part 51. These regulations implement section 102(2) of the National Environmental Policy Act of 1969, as amended. This document provides the results of the NRC staff's environmental review.

The NRC staff has prepared this EA in accordance with NRC requirements in 10 CFR 51.21 and 51.30, and with the associated guidance in NRC report NUREG-1748, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs" (NRC, 2003). In 40 CFR 1508.9, the Council on Environmental Quality defines an EA as a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact (FONSI). This document describes the proposed action, impacts of the proposed action, and impacts of the alternatives to the proposed action, including the no-action alternative. This review will address the environmental impacts of the currently-approved mining operations at the SR-HUP only

insofar as such operations would be modified by the proposed processing of third party IX resin. Any third party facility shipping IX resin to SR-HUP will be subject to a separate NEPA review.

Environmental Impacts of the Proposed Action

The proposed action involves the processing of third party IX resin at the PRI facility until license termination. This action would occur within existing footprint of operations at PRI. No building construction is required and PRI will not open any new wellfields beyond what is already approved in its current license. PRI will remain within its currently approved production limits of a flowrate of 20,000 gallons per minute (75,700 liters per minute), exclusive of restoration, and annual yellowcake production shall not exceed 5.5 million pounds (2.49 million kilograms) of yellowcake per year. PRI will not make any changes to equipment or techniques for processing the third party IX resin. The cumulative radiological impacts (i.e., gaseous radon-222) from the entire SR-HUP operation were evaluated by PRI most recently as part of the application process for satellite SR-2. Specifically, the resulting total effective dose equivalent for members of the public from PRI's operations is less than 100 mrem/yr (NRC, 2007a). As the proposed action does not seek to increase the wellfield areas, land application area, or production limits, the NRC staff does not expect the proposed action to impact public and occupational exposures. Additionally, the NRC staff does not expect the proposed action to impact groundwater, endangered or threatened species, historic and cultural resources, socioeconomic conditions, and noise. The staff also does not expect significant environmental impacts to transportation, waste management, soils, and air quality, as discussed below.

Transportation

During the review of PRI's license amendment request for the Gas Hills satellite facility, the NRC staff evaluated the impacts of shipping IX resin from PRI's Gas Hills satellite to and from the SR-HUP facility (NRC, 2004). The EA identified that as the amount of traffic generated from shipping the IX resin to SR-HUP would be minor compared to the overall traffic volume along the transportation route, it would not be expected to significantly contribute to congestion or accident rates along those roadways.

PRI's current license amendment request is similar as approval would result in transportation of uranium-charged IX resin to and from SR-HUP. The locations of the third party facilities have not been identified, however, uranium production has historically occurred in three parts of Wyoming. These include: the Powder River Basin, the Gas Hills district, and the Great Divide Basin. It is likely that future uranium recovery sites will be located in similar areas of Wyoming. Figure 1 shows these areas, as well as the location of the SR-HUP facility. Shipments of IX resin would involve approximately one round-trip shipment a day between a third party facility and SR-HUP.

Transportation access from the uranium recovery areas of Wyoming to the SR-HUP site is provided through a combination of local roads, state highways, U.S. highways, and Interstates. While the exact transportation routes between the third party facility and SR-HUP are unknown, Figure 1 shows the locations of the uranium recovery areas in Wyoming and their relation to SR-HUP. Table 1 provides the available traffic count data in 2005 and 2006 for roads that could be used for shipping IX resin to and from SR-HUP. The traffic counts are variable and range from a total vehicle count of 130 to 17,000.

Table 1 Average Annual Traffic Counts						
Road Segment	Route	Distance	Trucks		All Vehicles	
			2005	2006	2005	2006
State Route 136 to Riverton	GH to SR-HUP	44	10-20	20-30	130-260	200-270
State Route 135 from State Route 136 to State Route 789	GH to SR-HUP	1.04	170	210	840	1090
State Route 789 from State Route 135 to U.S. Highway 26	GH to SR-HUP	1	570-650	570-650	11,500-17,000	11,650-17,100
U.S. highway 20/26 from Riverton to Shoshoni	GH to SR-HUP	22	520-650	520-650	3,340-19,580	5,100-19,620
U.S. highway 20/26 from Shoshoni to Waltman	GH to SR-HUP	51	270-580	470-550	2,350-3,090	2,190-3,060
U.S. highway 20/26 from Waltman to Casper	GH to SR-HUP	49	470-670	480-650	2,480-13,740	2,450-13,580
Interstate 25 from Casper to State Route 95	GH to SR-HUP	21	570-1,030	610-1,030	2,610-10,220	2,710-10,220
State Route 95 at Rolling Hills	GH to SR-HUP, PRB		50	50	1,800	1,810
U.S. Highway 287 at Jeffrey City	GD to SR-HUP		140	140	850	890
U.S. Highway 297 at Muddy Gap	GD to SR-HUP		140	140	910	910
State Route 220 at Muddy Gap North	GD to SR-HUP		620	620	1,910	1,910
State Route 73 from Baroil to Lamont	GD to SR-HUP		30	30	230	230
U.S. Highway 287 from Lamont to Muddy Gap	GD to SR-HUP		700	690	2,400	2,400
State Route 59 at Reno Junction (north of intersection with State Route 387	PRB		690	750	3,630	3,930
State Route 387 at Pine Tree Junction (between State Routes 50 and 59)	PRB	20	210-410	220-410	970-3,130	970-3,130
State Route 387 at Edgerton North	PRB		380	440	2,110	2,140
State Route 93 at Orpha	PRB		50	50	340	340
State Route 59 Douglas to Bill	PRB	35	380-450	410-440	1,940-3,690	1,940-3,690

(References: NRC, 2008, WDOT 2006)

The additional traffic volume of approximately 1 truck per day is relatively small compared to the existing traffic volumes on the roadways listed in Table 1. Therefore, the additional traffic resulting from shipment of IX resin to and from SR-HUP is not expected to significantly contribute to the congestion or accident rates on these roadways.

Shipments of the IX resins will be required to meet the U.S. Department of Transportation (DOT) regulations contained in 49 CFR 171-180. The trailers used for transportation will be exclusive use and will meet DOT release criteria prior to shipment. The trailers will also be placarded in accordance with the DOT regulations cited above and with the NRC regulations in 10 CFR Part 71. The staff's review of the DOT regulations indicates that would be considered Class 7, with a low specific activity (LSA). Shipments of this type do not appear to require prior notification along the transit route or special handling during significant weather events. The shipper should review the DOT regulations prior to shipment to confirm their interpretation of the regulations.

Waste Management

Liquid wastes generated at SR-HUP include: production bleed stream, plant wash-down water, ground water restoration equipment effluent, restoration bleed, and facility sanitary waste. Liquid effluents generated at SR-HUP are disposed of in deep injection wells permitted under the underground injection control program through the Wyoming DEQ-Water Quality Division. Solid wastes generated during facility operations include: piping, equipment, spent IX resin, and sediments removed from process pumps and vessels. PRI has a disposal agreement with Pathfinder Mines Corporation to dispose of radiologically contaminated wastes at the Shirley Basin ISL disposal facility. Since PRI has committed in the license amendment request to remain below the currently approved flow rate and yellowcake production limits, the amount of liquid and solid effluents generated at the facility will remain at or below current maximum estimated levels. Therefore, the proposed action is not expected to significantly impact waste management practices at SR-HUP.

Soils

In the case of an accident involving a shipment of uranium-loaded resin, the environmental impacts would be expected to be small. Overturning of a tanker truck carrying the loaded resin could result in the release of some resin and residual water. The resin beads, which would be deposited on the ground a short distance from the truck, would retain the uranium, absent a strong brine to strip the resin. PRI has indicated that the third party would be responsible for transportation to and from SR-HUP, the third party would be responsible for collecting the resin and any contaminated soils and dispose of them appropriately (*e.g.*, in a licensed facility). PRI has indicated that shipping procedures will be established by the third party facility and will comply with NRC, Occupational Safety and Health Administration, and U.S. Department of Transportation regulations (PRI, Oct 2008b). Note that in the event of a release, all disturbed areas would then be reclaimed in accordance with applicable NRC and State regulations.

Air Quality

Possible air quality impacts from the license amendment request include exposure to radionuclides during shipping and vehicle emissions during shipping. Airborne release of uranium would not occur during shipping as the IX resin would be shipped in a closed container and the uranium would remain fixed to the resin beads. As discussed above, the additional

traffic volume of approximately 1 truck per day is minor compared to the existing traffic volumes on the roadways in the area that may be used for shipping. Vehicle emissions from the additional traffic are not expected to significantly contribute to the vehicle emissions on these roadways.

ALTERNATIVES TO THE PROPOSED ACTION

The No-Action Alternative

Under the provisions of the National Environmental Policy Act, one alternative that must be considered in each environmental review is the no-action alternative. In this case, the no-action alternative would mean that the NRC would not approve the processing of third party IX resin at SR-HUP. In-situ recovery operations would continue to occur within the currently approved SR-HUP permit area and PRI would be limited to operations as outlined in the existing license.

ENVIRONMENTAL IMPACTS OF ALTERNATIVES TO THE PROPOSED ACTION

The only alternative to the proposed action is the no-action alternative in which the NRC staff denies the amendment request for processing and PRI is limited to processing of its own uranium. No additional environmental impacts beyond those identified in previous environmental assessments for SR-HUP (NRC, 1991; NRC, 2001; NRC, 2006; NRC, 2007b) would occur from the no-action alternative.

AGENCIES AND PERSONS CONSULTED

Because the proposed action occurs within the existing footprint at PRI and on existing roadways, NRC staff determined that the proposed action will not impact endangered and threatened species or cultural and historic resources. Therefore, no further consultation is required under Section 7 of the Endangered Species Act. Likewise, NRC staff has determined that the proposed action is not the type of activity that has potential to cause effects on historic properties. Therefore, no consultation is required under Section 106 of the National Historic Preservation Act.

By letters dated April 15, 2009, the NRC staff sent draft EAs to WDEQ and U.S. Bureau of Land Management (BLM) for review and comment. BLM had no comments on the draft EA. In a phone call on May 22, 2009, WDEQ provided verbal comments related to transportation of the IX resins. The last paragraph of the transportation section of the EA was revised to address DEQ's comments.

CONCLUSION

The NRC staff concludes that PRI's proposed action to process third party IX resin at SR-HUP would not result in a significant impact to the environment.

Impacts to transportation would be minimal, because the additional traffic resulting from one round trip shipment each day to and from SR-HUP anticipated shipment of resin between a third party facility and SR-HUP is relatively small as compared to the overall traffic volume.

The NRC has reviewed the environmental impacts of the proposed action in accordance with the

requirements of 10 CFR Part 51. The NRC staff has determined that the transportation and processing of third party IX resin at SR-HUP would not significantly affect the quality of the human environment. Therefore, an environmental impact statement is not warranted for the proposed action, and pursuant to 10 CFR 51.31, a FONSI is appropriate.

The documents related to this proposed action are available for public inspection and copying at NRC's Public Document Room, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. Additionally, most of these documents are available for public review through the NRC's electronic reading room, at: http://www.nrc.gov/reading-rm/adams.html.

LIST OF PREPARERS

Douglas T. Mandeville, Project Manager and Geotechnical Engineer, Division of Waste Management and Environmental Protection, Office of Federal and State Materials and Environmental Management Programs

LIST OF REFERENCES

Power Resources, Inc. (2008a) License Amendment Request for Processing of Third Party Resin, dated June 19, 2008 [ADAMS Accession No. ML081760278]

Power Resources, Inc. (2008b) Response to Request for Additional Information Concerning Third Party Resin Bead Processing dated October 1, 2008 [ADAMS Accession No. ML082820419]

Nuclear Regulatory Commission (1991) Environmental Assessment for Rio Algom Mining Corporation, Smith Ranch In Situ Leach Mining Project, Converse County, Wyoming October 28. [ADAMS Legacy Accession No. 9112020183]

Nuclear Regulatory Commission (2001). Renewal of Source Material License SUA-1548, Rio Algom Mining Corporation (RAMC), Rio Algom Smith Ranch In Situ Leach (ISL) Project, Converse County, Wyoming, May 8. [ADAMS Accession No. ML011290179]

Nuclear Regulatory Commission (2003) NUREG 1748 - Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, dated August 2003, [http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1748/sr1748.pdf]

Nuclear Regulatory Commission (2004) Environmental Assessment for the Operation of the Gas Hills Project Satellite In Situ Leach Uranium Recovery Facility, dated January 2004, [ADAMS Accession No. ML040070538]

Nuclear Regulatory Commission (2006) Environmental Assessment for the Reynolds Ranch Amendment to Source Materials License SUA-1548 November [ADAMS Accession No. ML062690386]

Nuclear Regulatory Commission (2007a) Safety Evaluation Report ISL Satellite Facility SR-2, Amendment 12 to License SUA-1548, December 2007. [ADAMS Accession No. ML073511450]

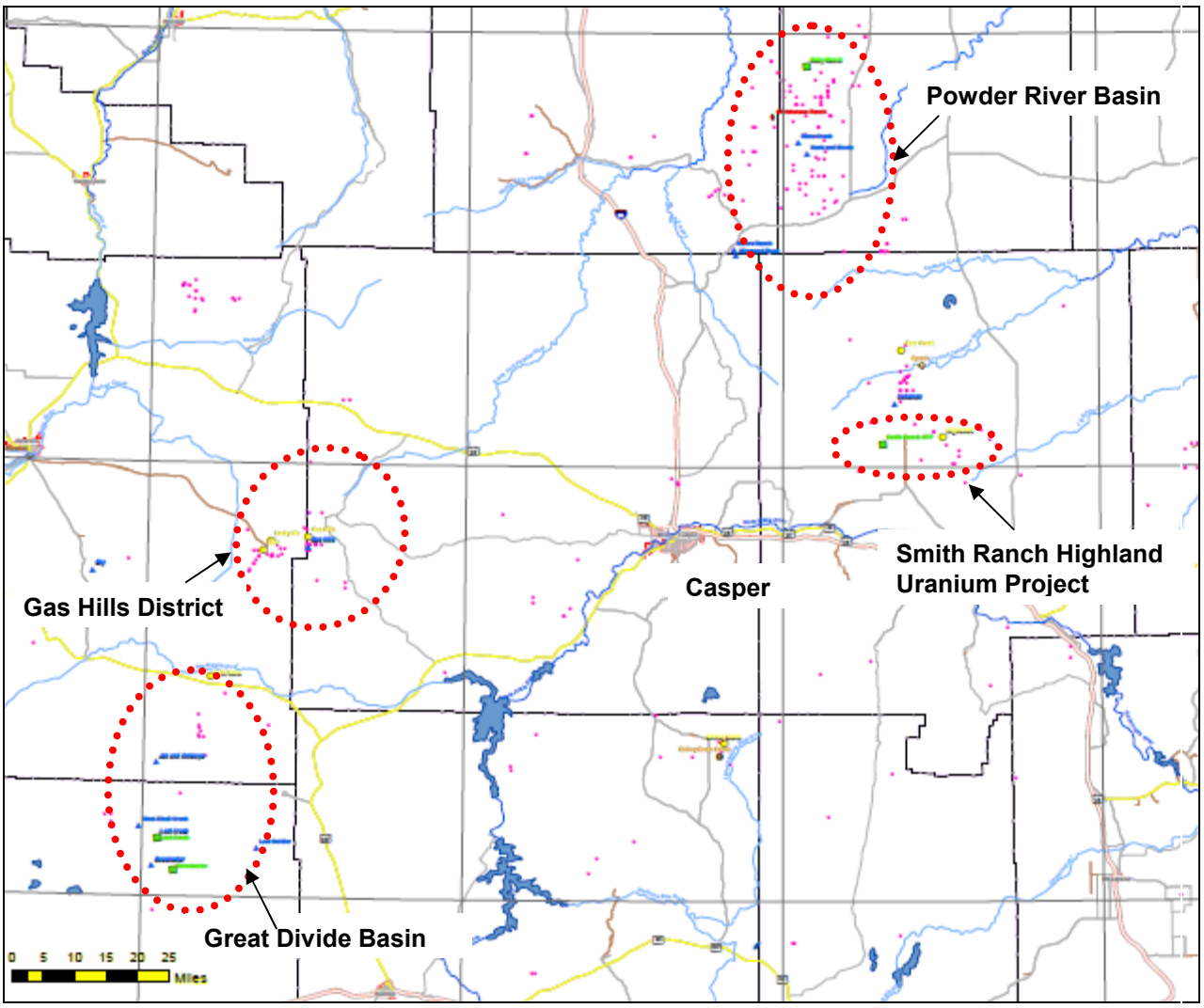
Nuclear Regulatory Commission (2007b) Environmental Assessment Construction and Operation of In Situ Leach Satellite SR-2 Amendment No. 12 to Source Materials License No. SUA-1548, December [ADAMS Accession No.ML073460801]

Nuclear Regulatory Commission (2008a) Letter from NRC to PRI RE: Acceptance Review of Request for Approval of Processing of Third-Party Resin at the Smith Ranch-Highland Uranium Project, dated July 23, 2008 [ADAMS Accession No. ML082820419]

Nuclear Regulatory Commission (2008b) NUREG 1910, Vols. 1-2, Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities - Draft Report for Comment, dated July 2008 [http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1910/]

Wyoming Department of Transportation (2006) Wyoming Department of Transportation. "WYDOT Traffic Analysis." Cheyenne, Wyoming: Wyoming Department of Transportation. 2006. <http://www.dot.state.wy.us/Default.jsp?sCode=hwyta>

Figure 1


Powder River Basin
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Gas Hills District
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